

ICT SHARED SERVICES IN THE HIGHER EDUCATION SECTOR: FOUNDATIONS, BENEFITS, SUCCESS FACTORS AND ISSUES

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In loving memory of my mother, Fatimah Neemat.

And

To my father (Miskon Salimin) who's care and understanding has made me who I am today.

And

To my parents in-law (Sharifah Aminah Syed Hamzah and Syed Abdullah Syed Abd. Rahman), for their continuous prayers for my success.

And

To the utmost precious persons in my life, my lovely husband (Syed Norris Hikmi Syed Abdullah) and my adorable kids (Syed Haziq Hilmi, Sharifah Nurul Fatini and Syed Hazwan Hilmi), for their continuous prayers for my success, support, understanding, love and care.

Extended Abstract

Universities are more and more challenged by the emerging global higher education market, facilitated by advances in Information and Communication Technologies (ICT). This requires them to reconsider their mission and direction in order to function effectively and efficiently, and to be responsive to changes in their environment. In the face of increasing demands and competitive pressures, Universities like other companies, seek to continuously innovate and improve their performance. Universities are considering co-operating or sharing, both internally and externally, in a wide range of areas to achieve cost effectiveness and improvements in performance. Shared services are an effective model for re-organizing to reduce costs, increase quality and create new capabilities. Shared services are not limited to the Higher Education (HE) sector. Organizations across different sectors are adopting shared services, in particular for support functions such as Finance, Accounting, Human Resources and Information Technology.

While shared services has been around for more than three decades, commencing in the 1970's in the banking sector and then been adopted by other sectors, it is an under researched domain, with little consensus on the most fundamental issues even as basic as defining what shared services is. Moreover, the interest in shared services within Higher Education is a global phenomenon. This study on shared services is situated within the Higher Education Sector of Malaysia, and originated as an outcome resulting from a national project (2005 – 2007) conducted by the Ministry of Higher Education (MOHE) entitled “Knowledge, Information Communication Technology Strategic Plan (KICTSP) for Malaysian Public Higher Education”- where progress towards more collaborations via shared services was a key recommendation. **The study’s primary objective was to understand the nature and potential for ICT shared services, in particular in the Malaysian HE sector; by laying a foundation in terms of definition, typologies and research agenda and deriving theoretically based conceptualisations of the potential benefits of shared services, success factors and issues of pursuing shared services.**

The study embarked on this objective with a literature review and pilot case study as a means to further define the context of the study, given the current under-researched status of ICT shared services and of shared services in Higher Education. This *context definition phase* illustrated a range of unaddressed issues; including a lack of common understanding of what shared services are, how they are formed, what objectives they full fill, who is involved etc. The study thus embarked on a further investigation of a more foundational nature with an *exploratory phase* that aimed to address these gaps, where a detailed archival

analysis of shared services literature within the IS context was conducted to better understand shared services from an IS perspective. The IS literature on shared services was analysed in depth to report on the current status of shared services research in the IS domain; in particular definitions, objectives, stakeholders, the notion of sharing, theories used, and research methods applied were analysed, which provided a firmer base to this study's design. The study also conducted a detailed content analysis of 36 cases (globally) of shared services implementations in the HE sector to better understand how shared services are structured within the HE sector and what is been shared. The results of the *context definition phase* and *exploratory phase* formed a firm basis in the *multiple case studies phase* which was designed to address the primary goals of this study (as presented above). Three case sites within the Malaysian HE sector was included in this analysis, resulting in empirically supported theoretical conceptualizations of shared services success factors, issues and benefits.

A range of contributions are made through this study. *First, the detailed archival analysis of shared services in Information Systems (IS)* demonstrated the dearth of research on shared services within Information Systems. While the existing literature was synthesised to contribute towards an improved understanding of shared services in the IS domain, the areas that are yet under-developed and requires further exploration is identified and presented as a proposed research agenda for the field. This study also provides theoretical considerations and methodological guidelines to support the research agenda; to conduct better empirical research in this domain. A number of literatures based a priori frameworks (i.e. on the forms of sharing and shared services stakeholders etc) are derived in this phase, contributing to practice and research with early conceptualisations of critical aspects of shared services. Furthermore, the comprehensive archival analysis design presented and executed here is an exemplary approach of a systematic, pre-defined and tool-supported method to extract, analyse and report literature, and is documented as guidelines that can be applied for other similar literature analysis, with particular attention to supporting novice researchers. *Second, the content analysis of 36 shared services initiatives in the Higher Education sector* presented eight different types of structural arrangements for shared services, as observed in practice, and the salient dimensions along which those types can be usefully differentiated. Each of the eight structural arrangement types are defined and demonstrated through case examples, with further descriptive details and insights to what is shared and how the sharing occurs. This typology, grounded on secondary empirical evidence, can serve as a useful analytical tool for researchers investigating the shared services phenomenon further, and for practitioners considering the introduction or further development of shared services. *Finally, the multiple case studies conducted in the*

Malaysian Higher Education sector, provided further empirical basis to instantiate the conceptual frameworks and typology derived from the prior phases and develops an empirically supported: (i) framework of issues and challenges, (ii) a preliminary theory of shared services success, and (iii) a benefits framework, for shared services in the Higher Education sector.

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List of Abbreviations

BCAE	Brisbane College of Advanced Education
BPR	Business Process Reengineering
CAUDIT	Council of Australasian University Directors of Information Technology
CEO	Chief Executive Officer
CIO	Chief Information Officer
CMS	Content Management System
CRM	Customer Relationship Management
DCT	Dynamic Capabilities Theory
DW	Data Warehouse
EDI	Electronic Data Interchange
eHiED	eHigher Education
EI	Enterprise Integration
EIS	Executive Information Systems
ERP	Enterprise Resource Planning
FE	Further Education
FI	Finance
HE	Higher Education
HES	Higher Education Services
HR	Human Resources
HRIS	Human Resource Information Systems
IaaS	Infrastructure as a Service
ICT	Information and Communication Technologies
ITG	IT Governance Theory
IOIS	Inter-organizational Information Systems
IS	Information Systems
IT	Information Technology
ITS	Information Technology Services
JISC	Joint Information Systems Committee
JKPICT IPTA	Steering Committee of ICT Management
KICT	Knowledge, Information and Communication Technology
MOHE	Ministry of Higher Education
MQA	Malaysian Qualifications Agency
PaaS	Platform as a Service
PTPTN	National Higher Education Fund Board
QUT	Queensland University of Technology
RBV	Resource-based View
RDT	Resource Dependency Theory
ROT	Real Options Theory
SaaS	Software as a Service
SSC	Shared Services Centre
SSN	Shared Services Network
TCE	Transaction Cost Economics
TILS	Division of Technology, Information and Learning and Support
UK	United Kingdom
UMP	Universiti Malaysia Pahang
USA	United States of America
UTeM	Universiti Teknikal Melaka
UTM	Universiti Teknologi Malaysia

Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature:

A handwritten signature in black ink, consisting of a large, stylized initial 'S' followed by several vertical strokes and a long horizontal flourish extending to the right.

Date:

4th January 2013

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Chapter 1: Introduction to the Research

1.1 CHAPTER INTRODUCTION

This is a study that investigates into the foundations, benefits, issues and success factors of ICT shared services within the Higher Education sector. This introductory chapter provides a synopsis to the thesis and starts with providing an overview of the study domain together with the primary motivations of this study. The research goals (and related research questions) are then presented, followed by an introductory description of the overall research design and approach. The chapter concludes with an overview of the contributions of the study and presents a detailed synopsis of how the rest of the thesis unfolds.

1.2 BACKGROUND OF THE STUDY DOMAIN

Organizations face continuous competitive challenges requiring them to innovate customer offerings, improve business processes, and operate at lower costs. Managers are looking to ‘shared services’ as one means of improving organizational performance (Wagenaar, 2006). Shared services have been defined as: *“The concentration of company resources performing like activities, typically spread across the organization, in order to service multiple internal partners at lower cost and with higher service levels, with the common goal of delighting external customers and enhancing corporate value”* (Schulman, Harmer, Dunleavy, & Lusk, 1999, p. 9). Essentially, shared services entails the consolidation of replicate business functions; predominantly support functions like Finance, Human Resources or Information Technology (IT), in a separate unit, providing customer oriented services to the originating business units (e.g. Bergeron, 2003; Schulman, et al., 1999). The concept of shared services has evolved over more than three decades (Alt & Smits, 2007), and has become increasingly prevalent during the past decade in both private and public sectors (e.g. Borman, 2008a, 2008b; Schulz & Brenner, 2010).

This study focuses on the Higher Education (HE) sector. Anecdotal evidence suggests that universities are: good candidates for shared services in general (Dove, 2004; Yee, 2009; Yee, Tan, & Chan, 2009), are embracing shared services, and have much potential to further exploit the arrangement. Continuing growth in student numbers, changes in the nature of academic work, increasing competition between institutions, government pressure to improve operational efficiency, and the diverse and shifting expectations of stakeholders (for example; university’s top management, divisional and faculty executives, academic and

professional staff, students, national government/ministries/accreditation bodies, other universities (public or private), research and development partner companies etc.) are some of the environmental drivers contributing to the increased interest in shared services within the HE sector (Deloitte Touche Tohmatsu, Flinders University of South Australia, & University of South Australia, 2001; KPMG, 2006). These continuing shifts in the sector demand more efficient and improved processes. Universities thus seek to identify services that can be managed more effectively and at a lower cost. In order to achieve cost savings and performance improvements, many HE institutions are considering cooperating or sharing in a wide range of areas.

This study also has a specific interest on the role of **Information Systems (IS)**, and views IS as a two-way enabler for shared services. First, the IS function is amenable to the shared services organizational arrangement, and second IS is an important enabler of shared services in other functional areas (e.g. Finance, HR) through IS infrastructure and applications.

This study investigates; ICT related shared services in the Higher Education Sector: foundations, benefits, issues and success factors and specifically investigates the potential for ICT related shares services in the Higher Education (HE) sector, using the Malaysian HE sector as the context of study.

13 MOTIVATIONS FOR THIS RESEARCH

This section describes the motivations that initiated and drives this study. The motivations for this study are predominantly based on two inter-related facets: (1) trends in practice and research, and also (2) the candidate's background and interests.

1.3.1 Motivations Based on Trends in Practice and Research

In the face of increasing customer demands and competitive pressures, companies seek to continuously innovate and improve their performance. Shared services are an effective model for re-organizing to reduce costs, increase quality and create new capabilities. Many organizations are adopting shared services, in particular for support functions such as Finance, Accounting, Human Resources and Information Technology. Further details about the notion of shared services and its growth is presented under Chapter 2 - Literature review, in Sections 2.2 and 2.3. While shared services has been extensively discussed in the commercial press for their potential benefits, little empirical work exists that

can guide the implementations and benefits realization of shared services. And though IS plays a significant role in shared services, prior research on shared services in IS is very scarce (see Chapter 5 for further details). This is a gap that this research is motivated to contribute towards addressing.

There have also been reports and projects specifically targeting shared services in the HE sector. One example is; a study of shared services in UK, where shared services initiatives conducted by the Joint Information Systems Committee (JISC) in UK (JISC, 2008a) is presented. Deloitte reports on a joint initiative between The University of South Australia and The Flinders University of South Australia where a feasibility study is conducted on the potential for shared services in the HE sector (Deloitte Touche Tohmatsu, et al., 2001), further details about the status of shared services in the HE sector across the globe are presented under the literature review chapter in Section 2.6. While this demonstrates that the HE sector is a context that can exploit the benefits of shared services, a preliminary literature review also showed the scarcity of literature of shared services in the HE sector, thus, pointing the need to address this.

This study perceives the HE Sector as a unique context; the HE sector “combine hierarchical administration with a peer philosophy that views professors as self-governing colleagues (or a community of scholars), a tenure system for job security, an ethic of academic freedom within a highly regulated and bureaucratized system, decentralized departments that often operate independently rather than as part of an organization, and myriad constituencies served by the university” (Barsky, 2002, p. 161). Thus, while prior studies on shared services from other industry contexts can provide useful insights, it is believed that studies specific to the HE context is required for the progression of shared services in this sector; to provide insights that are genuinely relevant to shared services within the HE sector.

1.3.2 Motivations Based on the Candidate’s Background

The candidate; Ms Suraya Miskon is a scholar from the Department of Information Systems, Faculty of Computer Science and Information Systems, Universiti Teknologi Malaysia (UTM) and is sponsored by the Ministry of Higher Education (MOHE) under a specialized government scholarship program. Thus, it is naturally expected that the outcomes of this study will have potential value for the Malaysian Government as a point of reference or for normative purposes. While the candidate is free to study any topic related to Information Systems, it is expected that the selected topic will align with the strategic intentions of the Malaysian Government (within an IS context). An exploratory investigation

took place very early in the candidature to identify the potential strategic directions of the Malaysian Government that the candidate can pursue. The candidate also played a leading role in a consultancy project¹ for the Ministry of Higher Education (MOHE) (Ministry of Higher Education) entitled “Knowledge, Information Communication Technology Strategic Plan (KICTSP)² for Malaysian Public Higher Education” from the year 2005 – 2007. This opened opportunity for her and influenced her to look at issues pertaining to the Malaysian HE sector. This early explorations confirmed the keen interest of the Malaysian Government and Higher Education Institutions (HEIs) to pursue shared services, and also pointed to the severe gap of knowledge in understanding what shared services was and how to proceed. Addressing this knowledge gap is now an inherent goal of this study. Further details about the Malaysian HE sector and its interest for shared services are presented in Appendix A.

1.3.3 Summary of Motivations

Regardless of this proliferation of shared services in practice, empirically based research on shared services has been very little, this is especially true in relation to shared services research within the IS domain (and shared services research within the HE context). Addressing the lack of research on shared services in general, and more specifically within the IS domain and HE Sector, is the driving motivation for this study. Moves towards more empirical work in this topic would be a pre-requisite for an evolving research field with a cumulative tradition that builds on the existing body of knowledge, has an awareness for the remaining open challenges, and is guided by a methodological procedure in its future research efforts (Keen, 1980; Weber, 1997). This research aims to support this move.

14 RESEARCH GOALS AND QUESTIONS

As discussed in the prior section, an initial investigation to the domain established that shared services is a growing area of interest, especially in the HE Sector and an area that IS can play a significant role in, yet to date has been under-researched; hence, pointing to a research opportunity. Concurrently, the candidates’ sponsor institution’s strategic goals and interests [as evident in Knowledge, Information Communication Technology Strategic Plan

¹ The purpose of this project is to verify the data and information published in the MOHE report regarding the limitations of ICT implementations in the public HE Institutions. The report produced by this group project, was presented to the MOHE and all public HE sector ICT Directors.

² This is an unpublished Malaysian Government report. This has been cited by other studies as well (e.g. Ismail, 2008; Ismail et al., 2008).

(KICTSP) for Malaysian Public Higher Education] also pointed to the strong interests in shared services and the knowledge gap to pursue things further. Based on this backdrop, the candidate commenced her studies with the *primary goal* of answering the following research questions:

P³-RQ1: What are the benefits of ICT shared services in the Higher Education context?

P-RQ2: What are the success factors for ICT shared services, in particular in the Higher Education context?

P-RQ3: What are issues that can hinder ICT shared services, in particular in the Higher Education context?

The primary goal of RQ1 (*What are the benefits of ICT shared services in the Higher Education Context?*) was to derive the first phases of a benefits management framework—where the benefits of ICT related shared services in the HE sector, and their interrelationships would be identified with empirical evidence. The primary goal of RQ2 (*What are the success factors for ICT shared services, in particular in the Higher Education context?*) was to identify the success factors of ICT related shared services and understand their interrelationships – to form a preliminary theory of shared services success. P-RQ3 (*What are issues that can hinder ICT shared services, in particular in the Higher Education context?*), provides a grounding for understanding further challenges in the study context.

As any other study, the candidate commenced the study program with a preliminary literature review (see Chapter 2) to further define and contextualize these questions and prepare for the study design (which was primarily planned to be a multiple case study of Malaysian universities to collect data to support these questions). An early pilot case study (see Chapter 4) also took place to support the initial contextual definition phase. The preliminary literature review and pilot case study pointed to a number of gaps in the field; both in prior research and practice, that needed to be addressed prior to progressing with the study primary goals. For instance, shared services was described and defined in different ways, what constituted shared services and what did not was not clear and how shared services was perceived was very diverse and confusing. These perceived gaps pointed to the need to embark on an exploratory phase to clarify and address these issues. Having clarity with a clear definition and scope of the phenomena of interest is a critical element that needed to be resolved prior to pursuing the primary goals of the study. An exploratory phase

³ ‘P’, implies that this is a primary focus/ goal of the study.

commenced at this point in time, where the goal was to unveil the notion of shared services better and understand its positioning – more specifically within the IS and HE contexts (which constituted the focus and scope of this study). As a result, a new set of *secondary goals* and related research questions emerged:

S⁴- RQ1: What is shared services, in the context of Information Systems?

S - RQ2: What is the status of shared services research in the context of Information Systems?

S – RQ3: What are the different types of shared services, in particular in the Higher Education context?

The next section describes the overall research design that was applied in this study.

15 OVERALL RESEARCH DESIGN

As discussed earlier in Sections 1.2 - 1.4, this study aimed to explore and understand the potential of ICT related shared services in the Malaysian HE sector. It is one of the first studies that attempted to investigate the role of shared services in the HE sector.

The study followed an **interpretive paradigm** and applied **archival analysis** and **case studies** as the primary research approaches. While the study initially started with the primary goal of investigating the Malaysian HE sector via multiple cases, as the study commenced, a number of gaps and confusions were observed in the field, which needed to be ironed out in order to proceed with the primary phase of the study. Thus, more exploratory work was conducted at the front end of the study, essentially ‘evolving’ the research design as the study progressed.

The overall study consisted four main phases: (1) Context definition phase, (2) Exploratory study phase, (3) Multiple case study phase, and (4) Interpretation and outlook phase. The purpose of the **context definition phase** was to generate a firm understanding of the study domain. The **exploratory study phase** had two main tasks: (1) conduct archival analysis of shared services literature in the IS domain and (2) conduct content and archival analysis of shared services in the HE sector. As indicated earlier, this phase was added to the study design after some initial work from the prior phase. The **multiple case studies phase** had been the primary phase of the research from the outset to investigate shared services in

⁴ ‘S’, implies that this is a secondary focus/ goal of the study, which was introduced to support the primary goals of the study.

the context of the HE sector. Finally, the **interpretation and outlook phase** predominantly focused on the overall documentation of the thesis. Chapter 3 provides a detailed description explaining each of these phases and the overall methodological design choices.

1.6 RESEARCH CONTRIBUTIONS

The anticipated benefits of this study can be classified as ‘practical’ (those contributions derived from the study that can be directly applied by organizations), and ‘academic’ (those contributions derived from the study that can be used by future researchers to derive new knowledge and enhance existing knowledge). Figure 3.1 of Chapter 3 presents all the outcomes from each phase, Table 11.1 presents how each of these outcomes were captured in the thesis and related to the Research Questions. A detailed account of the study contributions are presented in Chapter 11, Section 11.3. In summary they include eight practical contributions (see Section 11.3.1 for further details) and nine of academic contributions (see Section 11.3.2 for further details) that resulted from this study. A high level overview of them is presented below.

1.6.1 Practical Contributions

- A comprehensive literature review on shared services within the IS context which will serve as a valuable resource for shared services practitioners.
- A comprehensive overview on how shared services are defined in order to remove the confusions caused by multiple (at times conflicting) definitions and descriptions found in the field. This provides a firm basis to have a clear understanding of shared services.
- An overview of stakeholders involved in shared services initiatives; to support the identification of appropriate perspective(s) of the relevant stakeholders.
- Conceptual frameworks of what can be shared and how the sharing can occur, based on IS literature will help practitioners to better exploit shared services.
- Identification of shared services objectives/ anticipated benefits in order to provide an understanding of why an organization should consider shared services.
- A typology of shared services structural arrangements which will enable practitioners to recognize types of sharing arrangements that can occur in the

organization and can aid considerations for the introduction or further development of shared services arrangements.

- Identification of success factors and their relationships, that must be managed effectively in order to implement successful shared services initiative(s) which will provide guidance on what to consider when conducting shared services in practice.
- An understanding of issues pertaining to sharing initiatives which will provide direction for future practice (i.e. planning, education/training etc).

1.6.2 Academic Contributions

- A comprehensive shared services annotated bibliography and synthesized critique on shared services research in general and specifically within the IS domain.
- A comprehensive research agenda (with an overview of potential theories and suitable methodologies), that can be applied in future research of shared services.
- The study resulted in inductively derived and empirically supported conceptual frameworks on shared services stakeholders, and sharing elements, and deductively derived and empirically validated conceptual frameworks on shared services objectives/ benefits. These conceptual frameworks can form an essential beginning for theory building and further investigations.
- A typology of shared services structural arrangements was derived, which offers clarity around shared services structural arrangements.
- The shared services benefits model is the first reported empirically validated set of ICT related shared services benefits. It provides a firm basis towards a comprehensive benefits realization framework of shared services.
- The success factors model is the first empirically based model of antecedents of shared services success, especially within the context of ICT related shared services in the HE sector. It presents a preliminary theory of shared services success.

- The shared services issues create an empirically based awareness on the common issues of ICT shared services in HE, and provide direction for future research.
- Detailed methodological guidelines are provided for the conduct of a comprehensive archival analysis.
- The study is also an exemplar on how qualitative tools such as NVIVO can be applied in the literature review and case study phases.

17 OUTLINE OF DISSERTATION CHAPTERS

This section provides an overview on how the remainder of this thesis is structured. An overview of each of the remaining chapters is presented below.

Chapter 2 - Literature Review. This chapter reviews and presents prior literature on shared services, and is intended to position and contextualize the study further. This preliminary literature review showed a number of gaps and confusions in the shared services area that may have been influenced by the evolution process of shared services and other related concepts such as de/centralization and other forms of sourcing. The chapter also provides an introductory overview about the HE sector and discusses the role and status of shared services in the HE sector.

Chapter 3 - Research Design. This chapter describes the overall research design and methodology used in the study. Firstly, the chapter discusses various research paradigms and approaches used in IS research. The interpretive paradigm is particularly embraced in this study. The qualitative case study with two main approaches **archival analysis** and **case studies** research was adopted in conducting the study. This chapter also provides a discussion on how the study applied software tools (such as NVivo) to better manage the data collection, coding, analysis, synthesis and reporting.

Chapter 4 - Pilot Case Study. A pilot case study was conducted early on in the study with the main aims of preparing for the multiple case study phase and gaining a better understanding to the context investigated (ICT shared services in the HE sector). The pilot case study was conducted at Queensland University of Technology (QUT) and reports on: (1) the perceived understanding of shared services in the HE sector, (2) anticipated benefits of shared services, (3) what is been shared in HE institutions and (4) how the sharing may take place, as observed from the pilot case data. Gaps and confusions within the context of ICT related shared services in the HE Sector were identified. This together with the

observations of similar issues identified in the literature review (Chapter 2) triggered the extended exploratory phase (see following chapters).

Chapter 5 - Shared Services in the IS Domain. This chapter presents a detailed review of shared services literature in the IS domain. It provides an overview of the current status of shared services in IS academia, and reports on some preliminary findings based on archival analysis results, which is aimed at gaining a better understanding of shared services – specially from an IS lens. This chapter also provides more detailed discussions on the overall research perspective in terms of the research methods, and the application of theories. It identifies a range of gaps that are not yet addressed and presents a detailed research agenda for the field.

Chapter 6 - Shared Services in the HE Sector. This chapter presents an overview of the current status of shared services implementations in the HE sector. It reports on the types of shared services observed in the HE sector as evidenced through an archival based content analysis of 36 published cases. Through the analysis of these case studies, this part of the study derives a typology of shared services arrangements. An inductive approach was used to identify the core differentiating dimensions, namely: (1) sharing boundary, (2) separate organizational entity and (3) third party involvement. The findings present a typology of eight types of sharing arrangements that occur in the HE sector, with descriptions and examples from the case studies observed.

Chapter 7 - Exploratory Case Studies in the Malaysian HE Sector: Case Design. This section presents the overall case study design the high level details of the data collected for the multiple case study phase, including a presentation of the characteristics and classification of the interviewees, issues in interview conduct and how these were addressed. A detailed interview protocol was designed and applied here. This chapter also provides some discussion on how the NVivo software was used as a research management tool, how the case study data was collected, codified, and used to derive and document the research findings which are presented in the subsequent chapters. This chapter also provides further details about the case sites, the participants and the shared services arrangements with illustrating some examples, with the intension to present a contextual foundation to the next chapters that presents the multiple case study results.

Chapter 8 - Benefits for ICT related Shared Services: Insights from the HE Sector. Prior phases of the study justified the need to understand the underlying benefits behind shared services. An understanding of shared services benefits and managing these, contributes significantly to the better exploitation of these initiatives. Through the detailed analysis of the Malaysian Case study data, this chapter presents five core shared services

benefits categories: (1) Economic, (2) Technical, (3) Process improvement, (4) Strategic and organizational, and (5) Political and also presents their interrelationships through a Benefits-Chain. This forms an important and useful foundation for practice and academia, which enables a clearer understanding of benefits and supports the better realization of benefits from shared services.

Chapter 9 - Shared Services Success Model. The success (or failure) of shared services is a critical concern as it can entail large scale investment and involve fundamental organizational change. Through the multiple case study of shared services experiences in the Malaysian HE institutions, this chapter identifies ten important antecedents of shared services success: (1) Understanding of shared services: (2) Organizational environment, (3) Top management support, (4) IT environment, (5) Governance, (6) Process centric view, (7) Implementation strategy, (8) Project management, (9) Change management and (10) Communication. The study goes further, through combined (1) inductive matrix intersection searching and (2) deductive reference to relevant literature, inter-relating the 10 antecedents in a preliminary theory of shared services success, all of which suggests important guidance for practice and valuable future research.

Chapter 10 - Issues with Shared Services in the HE Sector. This chapter provides an evidence based overview of the issues pertaining to ICT shared services in the HE sector, as observed from the Malaysian HE sector. Eight (8) important issues categories, namely: (1) Technological issues, (2) People issues, (3) Strategic issues, (4) Communication issues, (5) Costing and pricing concerns, (6) Poor project management, (7) Partnership issues, and (8) Low adoption of sharing arrangement were identified together with their interrelationships. They form an empirically based awareness on the common issues of ICT related shared services in the HE sector.

Chapter 11 - Overall Study Discussions with Contributions, Limitations and Outlook. This chapter provides an overall concluding discussion, and summarizes how each of the research questions was addressed within the thesis. It provides a summary of the study contributions and limitations and also presents further research that will emerge from this study.

Appendixes:

Appendix A: This appendix provides a summary report on the status of the Malaysian Higher Education sector. This context has influenced the study motivation and the study design (i.e. the multiple case study phase – see Figure 3.1).

Appendix B: This appendix provides research outputs from this study.

Appendix C: This appendix consolidates some of the documentation that relates to the pilot case study.

Appendix D: This appendix consolidates some of the documentation that relates to the multiple case studies.

18 CONCLUSION

This introductory chapter commenced with a brief background to the research domain. The motivation for the study was next presented with an overview on the overall research design and research questions. The study then proceeded to provide an overview of the applied research design and study contributions. Finally each of the remaining chapters of this thesis was introduced. The next chapter will review the relevant research literature to provide further grounding to the study's context.

Chapter 2: Literature Review

2.1 CHAPTER INTRODUCTION

The primary purpose of any literature review is to “re-view’ or ‘look again’ at what others have done in areas that are similar, though not necessarily identical, to one’s own area of investigation” (Leedy & Ormrod, 2001, p. 108) with the aim of better positioning one’s own work with prior research and identifying gaps that needs to be addressed. It is an essential task as it:

- 1) increases the candidate’s confidence in the topic if found that others have an interest in this topic and have invested time, effort and resources in studying it,
- 2) can provide new ideas and approaches that may have not occurred to the candidate otherwise,
- 3) can inform the candidate, about others conducting work in this area - individuals whom one may wish to contact for advice or feedback,
- 4) can reveal sources of data that one may not have known existed,
- 5) can help interpret and make sense of study findings and, ultimately, help tie one’s own results to preceded work (Cooper, 1998; Leedy & Ormrod, 2001).

The candidate conducted the literature review presented in this chapter with all of the above mentioned goals. The primary scope of the literature review here was to provide (the candidate and the reader) with a preliminary foundation to the topic; in this case ICT related shared services in the Higher Education sector. The candidate acknowledges that reviewing the literature is essentially an ongoing phase of a research study design. Hence, more specific content pertaining to the other phases and tasks of the study design (see Figure 3.1 of Chapter 3) are presented in the respective chapters; the focus of this chapter been solely to provide a contextual background to the study topic.

This chapter unfolds first with an overview of the notion of shared services and how it has evolved. Then this chapter moves to a more focused discussion on what shared services are (and are not), which positions shared services alongside other concepts like centralization/ de-centralization and other forms of sourcing (i.e. outsourcing), followed by further discussions on how collaboration models and ICT has enabled the role of shared services. This chapter then focuses on the chosen context of this study, the HE sector, and first presents an overview of the HE sector in general, followed by a discussion of the role of

shared services within the HE sector. This chapter ends with a discussion and conclusion that summarises the content covered and the observed gaps from the current literature, pointing to how the candidate re-specified the research design (by including a detailed exploratory phase as a result of this) to better address these gaps.

2.2 UNDERSTANDING THE NOTION OF SHARED SERVICES

According to Bergeron (2003, p. 3), “*Shared services is a collaborative strategy in which a subset of existing business functions are concentrated into a new semi-autonomous business unit that has a management structure designed to promote efficiency, value generation, costs savings and improved service for the internal customers of the parent corporation*“. This definition refers to a specific organizational model, where the services are provided by a (semi-)autonomous organizational entity to other multiple entities. This is sometimes more explicit, with specific reference made to a shared service centre (SSC), “*An SSC consolidates processes within a concern in order to reduce redundancies; it delivers support processes; it is a separate organizational unit within the group; it is aligned with external customers; cost-cutting is a major driver for implementation; it is focused on internal customers; and it is operated like a business.*” (Schulz, Herz, Rothenberger, & Brenner, 2010, p. 9)

There are also definitions referring to support or back-office functions (e.g., Finance, HR, IT and procurement), “the consolidation of support functions (such as human resources, finance, information technology, and procurement) from several departments into a standalone organizational entity whose only mission is to provide services as efficiently and effectively as possible.” (Lacity & Fox, 2008, p. 17) and the services they deliver via processes and IT, “...the aggregated provision of back-office services typically underpinned by ITs” (Borman, 2010b, p. 1)

From the different definitions provided above, shared services can be inferred to simply be the consolidation and sharing of services either by different units or locations within an organization or multiple organizations. According to Schulman et al. (1999, p. 9), “*Shared services can be defined broadly but needs to be tailored to each organization. However, before looking at the way shared services can be tailored, it is important to have common working definition*”. This is due to the fact that every business operation is unique (Bergeron, 2003).

The various definitions presented earlier shows that there is no clear common understanding of shared services, suggesting value from further investigation of the

phenomena. Thus, the candidate felt that it is important to clearly define and understand the shared services phenomena, in particular how it differs to other sourcing arrangements. Further details on how to define shared services (in particular from an IS lens) is presented in Section 5.5.1 in Chapter 5.

Potential benefits of shared services have been extensively discussed in the commercial press e.g. *“promote efficiency, value generation, costs savings and improved service for the internal customers of the parent corporation”* (Bergeron, 2003, p. 3). A report by Accenture (2011) demonstrates how reductions in cost can be achieved by eliminating work redundancies and automation through different sharing arrangements. Despite the fact that cost reduction was the main reason to adopt shared services approach, a report by Deloitte (2009, p. 4) revealed *“that many organisations are consciously using shared services as a tool to facilitate enterprise growth, improve business focus, and enhance talent management, among other strategic pursuits. The growing view of shared services as a strategic enabler, as well as an administrative supporter, is one that we believe holds great promise for shared services leaders looking for ways to take their SSOs to a new level of value.”* Thus, some reasons of implementing shared services are to; reduce cost, improve the business process, manage the resources effectively and implement standardized IT in the organizations. Potential benefits of shared services have been extensively discussed in the commercial press e.g. *“promote efficiency, value generation, costs savings and improved service for the internal customers of the parent corporation”* (Bergeron, 2003, p. 3). Leading research firms such as Gartner provide a range of reports that describe the application of shared services in different industries, stating that *“Many enterprises are looking to shared services to support efficiency goals and to enhance business integration and agility”* (Gartner, 2008, p. 2).

The concept of shared services has been widely accepted in both public and private sectors since the early 1990s (Bergeron, 2003; Deloitte, 2011b; Whitfield, 2007). In mid 1970s, shared services was reported as a growing trend in the health care industry among hospitals and other multi-hospital arrangements (Mason, 1979) and the banking sector (Alt & Smits, 2007). Beginning with the implementation of the shared services in the health sector and the benefits gained in the sector, shared services had begun to appear and adopt in the other sectors. The major benefit gained by organizations adopting shared services was cost savings derived through shared or consolidated services. Shared services were introduced primarily to look at means of decreasing organisations administrative costs.

The private sector (e.g. large companies such as General Electric, Procter & Gamble, Johnson & Johnson) has been moving towards shared services since the beginning of the 1980s. The public sector (e.g. government, transportation, education) has seen the benefits

derived in the private sector and continues to strive for best practice. The United States and Australia among others, have had shared services in government since the late 1990s. Among other sectors, the higher education sector is believed to be a sector that has much potential to further exploit shared services arrangement (Dove, 2004; Yee, 2009). Section 2.5 will introduce the HE sectors in more detailed. Further details about the HE sector, its interest and potential for shared services are presented under Section 2.6.

A wide range of shared services arrangements have been implemented in various sectors. The candidate sees two main perspectives of sharing that have been considered or that could be further developed in the context of shared services arrangements, namely: (1) business perspective, and (2) technology perspective. Both of these are discussed below.

The business perspective comprises of areas related with business functions [e.g. Human Resources (HR), Finance, Procurement, and Information Technology (IT)], Process (e.g. payroll, budgeting), and knowledge and expertise. According to a shared services survey by Deloitte (2011a), that involved participations from various industry sectors, Finance continues to be the business functional area most often moved into shared services and most commonly paired with Human Resources (see Figure 2.1). Shared services are considered most appropriate for support functions, and are widely adopted in Human Resource Management, Finance and Accounting (Cooke, 2006; King, 1998; McIvor, McHugh, & Cadden, 2002; Peters & Silver, 2005; Webster, 2007).



Figure 2.1: Business function areas in shared services (extracted from Deloitte, 2011, p. 24)

Since the organizations' landscape have dramatically changed with the evolutions of IT in 1990s, the discussion on shared services arrangements have developed more on the technology perspectives, such as IT Infrastructure (e.g. hardware, network) and IT

applications (e.g. ERP systems, Enterprise systems). More recently, shared services is being employed for the Information Systems (IS) function, and although not adopted as widely as by other functions such as Finance and HR, recent reports (e.g. Lacity & Fox, 2008; Peters & Silver, 2005) indicate that IS shared services is growing at a fast rate. Though, the potential scope for shared services is broad and ever expanding, prior studies that describe what is shared and how things are shared, in particular in relation to IS, is limited. Chapter 5 will discuss in detail the findings evolved from an archival analysis study of shared services from the IS domain.

The term shared services very much implies collaboration and can also apply to partnerships formed between separate businesses. Furthermore there are several authors (Schulz, Hochstein, Uebernickel, & Brenner, 2009b; Ulbrich, 2003; Yee, 2009; Yee, et al., 2009) who describe that shared services also involves the sharing of services within an organization (intra-organizational) and across more than one organization (inter-organizational) (Borman, 2010b; Wang & Wang, 2007; Yee, 2009; Yee, et al., 2009). Despite its apparent benefits, anecdotal evidence (Craike & Singh, 2006; Janssen & Joha, 2006b; Lawson, 2007) suggests that many organizations have difficulty understanding the context and details of shared services. As a results, there are various definition reported in the literature.

23 THE EVOLUTION OF SHARED SERVICES

The concept of shared services has been around in the literature for decades. “In the shared services literature, for example, it has been frequently mentioned that the idea already had been used for the first time as early as the 1980s” (Ulbrich, 2008, p. 29). Many articles (e.g. commercial press, academic article) have discussed and mentioned shared services in various contexts since late 1970s indicating growing interest in and prevalence of shared services. Shared services have been used by organizations since the late 1900’s, and has been accelerating ever since, as a means to reduce costs and improve internal service delivery (Frech, 2008; Sadick, Hack, & Clarke, 2010). To date shared services, are still been used by organizations for such purposes.

The economic downturns affecting much of the world in the late 1980s and early 1990s and the recent global financial crisis added urgency to the need to do more with less (Deloitte, 2009; Sadick, et al., 2010). Hence, encouraging more and more organizations to adopt shared services or expand its use in order to maintain productivity with fewer resources. Many organizations consolidated or centralized their back-office tasks into a

separate unit, namely a shared service centre (SSC), in response to these economic demands (Markus, 2011; Sadick, et al., 2010).

A SSC can be viewed as a particular kind of sourcing arrangement. It differs from centralized and outsourcing models (Janssen & Joha, 2006b; Yee & Chan, 2009). Section 2.4.1.1 will describe the centralization, decentralization, and section 2.4.1.2 will describe the outsourcing concepts, and how they relate (with similarities and differences) to shared services. Later, section 2.4.1.3 will describe the SSC concept – the typical type of shared services approach, in more detail.

The shared services concept entered the organizations, and became more prevalent following the advent of IT which enabled increased focus on cost savings in organizations through the use of IT; *“After all, it is no coincidence that shared services came to the fore in the late 1990’s as technological innovations such as global telecommunications, the internet, and standardized ERP applications matured and became mainstream: fuelled by technological developments the promise of shared services was realized.”* (A.T. Kearny, 2007, p. 20). Often, the implementation of shared services has been connected to technology such as Enterprise Resource Planning (ERP), Enterprise Systems and shared infrastructure. Obviously, technology can be an enabler for a shared services approach and as a focal point of the transition to shared services. Since the mid 1990s the internet has had a radical impact on business and culture (Varian, Litan, Elder, & Shutter, 2002). Such technology started to change the business landscape dramatically. IT creates new opportunities for innovation in products and services. Services which used to be delivered in person could now be delivered over networks. IT provides more effective ways of accessing information from multiple sources, including the use of external information on databases and the internet.

From an Information Systems perspective, technology (e.g. ERP and Enterprise Systems) can be used to facilitate shared services initiatives (Lim, Pan, & Tan, 2005; Shang & Seddon, 2002). Shared services are implemented to introduce the efficiencies of a standardized IT environment (Manwani & O’Keefe, 2003; Ross, 2003), or support the effective use of existing resources (Gewald & Dibbern, 2009; Goh, Prakash, & Yeo, 2007; Janssen & Joha, 2006a; Weill, 2004). Organizations implement; standardized packaged software (e.g. ERP applications, Enterprise Systems), customized software/home grown software (e.g. human resource system, financial information system, e-learning), and shared IT environments to implement shared services and gain its benefits. Section 2.4.2.2 will explain more details on how IT enables sharing and how IT plays an important role in shared services.

Shared services also have been implemented as a means for organizations to organize their IT functions by implementing standardized IT environments either across units within the organization or across organizations. In addition, organizations also adopt shared services as a governance model to manage their resources (in terms of hardware, software and also people) effectively. Section 2.4.1 will explain further how organization manages the IT function and other resources and adopt the shared services model as a strategy to manage such resources.

In summary in this section, shared services is not a new concept, it has been in practice and academia for a few decades and the notion has evolved with the influence of environmental, economical and technological changes.

24 A CLOSER LOOK AT SHARED SERVICES

As a “*discipline that is driven by rigour and relevance*” (Benbasat & Zmud, 1999; Davenport & Markus, 1999; Lee, 1999), one would expect that Information Systems (IS) academia would perceive the gap of shared services research, and identify it as a domain that warrants research in relation to the IS function, IS applications and IS infrastructure in organizations. In particular, IS as a discipline should be interested in shared services because they can drive radical change to the IS infrastructure and architecture. Understanding shared services is critical for the progression of the field, for example; to understand what drives the interest for shared services, to form the foundation for deriving performance measures related to shared services, to support the design and deployment of shared service structure and governance; hence providing a strong foundation for further research in shared services. However, until now there has been very little systematic study of shared services in the IS academic literature (Miskon, Bandara, Gable, & Fielt, 2009). Addressing this gap became an essential prerequisite to this study and the candidate’s attempts to do so are presented in detail in Chapter 5.

Since the shared services concept is an evolving area, there are some misconceptions. Shared services are often confused with traditional methods of providing support to business units such as centralization, decentralization and outsourcing (Miskon, et al., 2009; Sadick, et al., 2010; Yee & Chan, 2009). To address this problem, it is important to understand the similarities and differences between these concepts to ensure that the shared services concept are understood well before organizations decide to embark on it; “...it is important to take a step back to ensure all employees truly understand what shared services is, what it really means, and why this is a significantly different service delivery model than their current organizational structure” (IBM, 2007, p. 7). In order to address these concerns, the

candidate discuss key notions that are critical to the structuring of shared services which will be further discuss in sections 2.4.1 and 2.4.2. The following section focuses more on understanding shared services and differentiating it amongst other key concepts that are close to, and has perhaps influenced shared services.

2.4.1 Organisational and Structural Aspects

As mentioned earlier, this section is dedicated to describe several key concepts that, on the one hand have supported the derivation of the shared services notion, but on the other hand, have created confusion about the shared services notion. Section 2.4.1.1 will describe the centralization and decentralization concepts and how it relates (with similarities and differences) to shared services and how to position shared services within these approaches. Section 2.4.1.2 will discuss the concept of outsourcing and how it relates (with similarities, differences in its sourcing models) to shared services.

2.4.1.1 Organizational structure: centralization and decentralization

Often organizations are in dilemma to choose between centralized or decentralized designs, when trying to cut costs and improve the delivery of administrative functions such as human resources, accounting, or information technology (Casiraya, 2001; Janssen, 2005; King, 1983). Some organizations have even found themselves alternating between centralization and decentralization (Nickerson & Zenger, 2002), *“Some unfortunate government agencies have even found themselves alternating between centralization and decentralization every few years searching in vain for the correct organizational structure”* (Kreklow & Anne Spray, 2007, p. 1). The goal is to find the correct balance between the organization’s need for efficient administrative functions and responsiveness to each of the business units in the organization and at the same time operate at lower costs. The challenge here is how to combine the benefits of centralization (e.g. economies of scale and elimination of redundancies imperatives) with decentralization (e.g. customization and focus). Increasingly, organizations are finding an answer to this challenge through a shared services approach (e.g. Bray, 1996; Forst, 2002a; Schmidt, 1997).

The economic slowdown in 1980’s had increased big companies’ interest in shared services. Companies such as Ford, General Electric (GE) and others in the US began to consolidate their back-office functions in one or two centres (centralized), rather than leaving them attached to the hundreds of operating units around the country (decentralized) (ViewsWire, 2001). According to Walsh (2008, p. 6), *“Centralisation is often seen as being*

remote and unresponsive to clients while decentralization can be seen as leading to higher costs, duplicated effort and variable standards. The shared services model, on the other hand, allows for business units to maintain control of decisions while delivering economies of scale through common business systems and consistent standards". The need for consolidation is a reaction to the negative effects of the decentralization (or duplication) of business functions in multi-business-unit organizations. Shared services differs from centralization, as argued by researchers (e.g. Janssen & Joha, 2006b; Ulbrich, 2003). For example, in the shared services environment, the business units within the organization are able to obtain more customized services and products as the services are separated by customer sets (i.e. not all business units require all of the same services). In centralization, however, the customer orientation is relatively low - here the organization (refer to the centralized unit) controls everything.

2.4.1.1.1 Positioning of shared services within the centralization /decentralization Approaches

Any core concept has or should have particular characteristics that allow one to identify them and hence distinguish them from other similar contexts. Several authors had made distinguishing characteristics between shared services, centralization, and decentralization. The following table shows the characteristics that have been identified and summarised based on Bergeron (2003) and Ulbrich (2003).

Table 2.1: Distinguishing characteristics of centralization, decentralization and shared services

Source	Characteristics	Centralization	Decentralization	Shared Services
(Bergeron, 2003, p. 16)	Revenue returned to	Corporation	Corporation	Business Unit
	Reporting to	Corporation	Department	Business Unit
	Reward Returned to	Corporation	Department	Customer satisfaction
	Management	Corporation	Department	Business Unit
(Ulbrich, 2003, p. 8)	Legal Structure	No legal entity	No legal entity	Predominantly legal entity
	Owner Structure	Corporate	Corporate	Corporate
	Economic Structure	Cost-centre	Cost-centre	Cost-centre
	Location	Headquarters	Department	Separate
	Internal Structure	Functional Orientation	Functional Orientation	Process Orientation
	Pricing	Cost apportionment	Local cost apportionment	Transfer prices
	Standardization	Middle	Low	High
	Economies of Scale	High	Low	High
	Flexibility	Low	High	Low
	Professional Competence	High	Low-middle	High
Customer Orientation	Low	Middle-high	Middle-high	

Figure 2.2 depicts how shared services capture the best elements of both centralization and decentralization. Hence, illustrating how the shared service is a concept that is neither centralized nor decentralized.

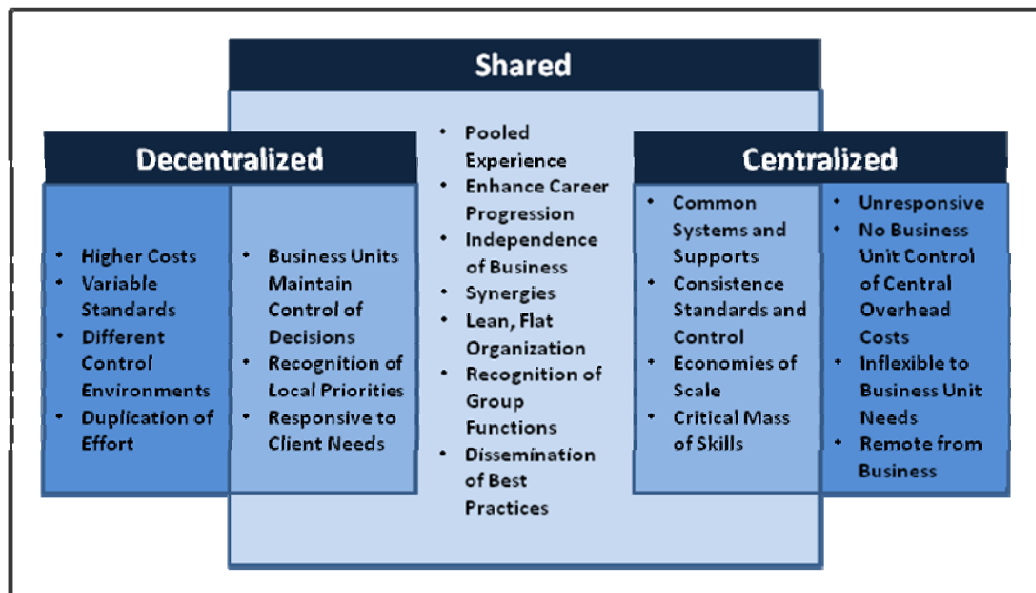


Figure 2.2: Shared services captured the best elements of centralization and decentralization
(extracted from Schulman, et al., 1999, p. 12)

A decentralized approach in the organization offers more flexibility and adaptability for individual business units. Hence, decentralization may result in duplication of services across the organization. This often results in an increase in the overall costs across the organization (Janssen & Joha, 2006b)

Centralization, on the other hand may not be an acceptable alternative either. In a centralized organization, the headquarters control all staff and resources and dictates standard policies, programs and procedures to the business units (Schulman, et al., 1999). Often, this approach, limits the organizations’ and each of the business units’ flexibility, hence, failing to meet the users’ needs.

The birth of shared services came about when large decentralized organizations who looked to combine transactional processes such as payroll and purchasing felt that it was becoming increasingly uneconomical to maintain duplicate sets of functions within their operations (e.g. Goh, et al., 2007; Lacity & Fox, 2008). “*Smaller companies as well as the multinationals are adopting the shared service structure, whereby support functions that are common to multiple units within an organisation are consolidated in a single provider*” (Lester, 2006, p. 1). Hence, the shared services model has the potential for resolving the issue of decentralization versus centralization as the shared services captures the best elements of both centralization and decentralization as explained earlier. The shared services

model assures organization-wide consistency in administrative policy and standards while at the same time offering an arrangement that will give user departments/business units the services they need, when they need them. Furthermore, in a shared services environment, business units are customers. Hence, as they would be with external providers; both parties must agree on cost, quality and service levels.

2.4.1.2 Organizational structure: outsourcing

Shared services can be perceived as a form of sourcing. As per past literature, it is evident that some concepts of outsourcing share certain similarities with shared services. For instance, the relationship between client and vendor; “*outsourcing arrangements address the relationship between clients with one or more external vendors, whereas shared services arrangements address the relationship between many clients and one vendor, which belong both to the same organizational entity*” (Janssen & Joha, 2006b). According to Janssen and Joha (2008) shared services can be seen as a form of a sourcing arrangement, somewhat close to outsourcing; “*sharing services can be seen as a specific kind of outsourcing arrangement*”.

McIvor et al. (2011) explain how a shared services centre can be owned and operated by the organization, or outsourced to independent vendors, and how organizations are increasingly turning to vendors to implement and manage shared services, as they lack the necessary internal skills and experience. Arya (2011, p. 291) also notes that shared services might be developed as internal services or be contracted out to an external provider and argues that “*it is important to differentiate between ‘internal’ shared services and ‘outsourced’ shared services, as considerations for these two types of shared services arrangements are quite different.*”

Shared services can be perceived as a sourcing arrangement, and thus a clear description of what shared services is, and in particular how it differs to other sourcing arrangements, in particular outsourcing, is required. In reference to the confusion regarding alternative sourcing arrangements, it is important to clearly understand what sourcing arrangement is used and when it is best to change from one arrangement to another (Whitaker, Krishnan, & Fornell, 2006).

2.4.1.2.1 The sourcing model

Sourcing is to obtain services or products from a provider. *Outsourcing* is to obtain the services or products from an *outside provider*, while with *in-sourcing*, it is from an *inside provider*. Sourcing can be implemented in many different ways. It is important to understand these sourcing models clearly; as an organization’s decision on which way to source will

depend on the circumstances and objectives behind the decisions. Furthermore, understanding the various ways of sourcing can help the candidate to differentiate what is shared services and what is not, in particular to differentiate (or may be to also observe similarities) with the outsourcing approach. The following table presents the various types of sourcing models in outsourcing, particularly IT sourcing.

Table 2.2: Types of sourcing relationships (extracted from Hefley & Loesche, 2006, p. 7)

Sourcing Model	Description
Traditional	Single service provider delivers service to a single client
Co-sourcing	Two service providers work together to deliver service to a single client
Multi-sourcing	Multiple service providers provide services to a single client. The client takes responsibility for managing and integrating the services of the various service providers.
Alliance	Multiple service providers collaborate to serve one or more clients. Often, one service provider has a primary role in interfacing with the client on behalf of the alliance.
Joint venture	Multiple service providers form a collaborative business venture to serve one or more clients. Often, the first client may be a part of the joint venture.
In-sourcing	A group within the client organization is selected as a service provider, but it largely managed as an external entity. Often this group must compete with external suppliers or service providers for work.

As presented in Table 2.2, it can be observed that the relationship between provider and client in the sourcing arrangement is different with the shared services arrangement. This is also noted in Janssen and Joha (2006b, p. 103) “*Outsourcing arrangements address the relationship between one client having one or more external vendors, whereas SSC arrangements address the relationship between many clients and one internal vendor, both belonging to one and the same organization.*”. Thus this has motivated the candidate to further investigate the relationship between the provider and the client which may have one or more clients in the shared services arrangement. The candidate refers to this relationship (between provider and client) more on the basis of the ‘sharing boundary’- that can exist within an organization or across organizations that are involved in the sharing arrangements. Further details on the sharing boundary in the shared services arrangement is presented under Chapter 6.

2.4.1.2.2 The Differences between Shared Services and Outsourcing

Some authors make an attempt to compare and contrast shared services to other sourcing arrangements. Ulbrich (2006) states that shared services is somewhat similar to outsourcing, and that “*the main difference is where the service provider is located organizationally and that internal resources are used rather than those of a contractual partner*” (Ulbrich, 2006, pp. 197). Therefore, Yee and Chan (2009) made an attempt to differentiate between outsourcing from shared services in order to gauge potential of shared services in and across the organization. Table 2.3 presents a summary of the differences

between Inter-Organizational Shared Services (IOSS) and outsourcing in general. Further details on the relationship between shared services and the outsourcing (in particular in HE sector) is presented under Chapter 6.

Table 2.3: Differences between IOSS and outsourcing (extracted from Yee & Chan, 2009, p. 4)

Factor	Inter-Organisational Shared Services	Outsourcing
Motivation	Reduction in Cost and headcount while improving quality and efficiency. (Forst 2002), (McReynolds and O'Brien 2002), (Sharma 1999), (David 2005) , (Fahy and Donovan 1999; Bergeron 2003)	To gain access to external competencies (Belcourt 2006; Yang 2000; Alexander and Young 1996a; McFarlan and Nolan 1995; Barthelemy and Geyer 2001; Kakabadse and Kakabadse 2005; Sobol and Apte 2001)
Arrangement	Viewed as an arrangement between many clients and 1 vendor.	Viewed as an arrangement between 1 client and many vendors.
Orientation	IOSS is process and customer oriented. It constantly involves the evolution of processes to continuously improve to meet internal customer demands. (Bergeron, 2003; Schulman 1999)	Outsourcing is goal oriented and usually involves "one off" jobs and the only time when they "improve" process is when customers discover a new problem and engage their services again.
Cost Savings	Meant to yield cost savings with continuous improvements throughout its lifespan. (Quinn, Cooke and Kris 2000)	Short term contracts usually yield cost savings more than long term contracts. (Lacity and Willcocks 1998)
Dependence	Dependence is on the SSC (internal)to get things done (Self governed)	Dependence is external (on Supplier) (Alexander and Young 1996; Aubert, Patry and Rivard 1998; Earl 1996; Hoecht and Trott 2006)
Likelihood of benefits being met.	Intended benefits are often met. (because of strong relationship with parent company and knowledge of its culture)	Intended benefits are often not met and many projects fail. (relationship with client is merely business)
Nature of Cost Savings	Meant to yield cost savings throughout its lifespan. (its main objective is cost savings and if it cannot fulfil its main objective it might as well be outsourced) (Quinn, Cooke, & Kris, 2000)	Short term contracts usually yield cost savings more than long term contracts. (Lacity & Willcocks, 1998). No flexibility for maintenance (i.e. Have to purchase package upgrades)
Risk of threat to security and confidentiality	Minimal or no threat to security and confidentiality (since it is internal)	Possible threat to security and confidentiality (Rochester and Rochester 1995; Hoecht and Trott 2006)
Nature of improvements	Continuous improvement. There will always be continuous improvements being made within SSCs as they evolve to suit the ever-changing requirements of their customers. (Schulman 1999)	Outsourcing usually involves "one off" jobs and the only time when they "improve" process is when customers discover a new problem. (Lacity & Willcocks, 1998)

The differences between shared services and outsourcing can be seen through different factors as presented in Table 2.3. The motivation of shared services is more focused on cost reduction and at the same time, to improve the quality and efficiency of services, through the

cost savings yielded from continuous improvement efforts. While the outsourcing approach is opted to gain internal competencies and cost savings yield in short term contracts.

As mentioned earlier in Section 2.4.1.2.1, the relationship between provider and client in the sourcing arrangement is different with the shared services arrangement. This also noted in the Table 2.3, where in the shared services context, this is an arrangement between many clients and one vendor, whereas in the outsourcing context this is an arrangement between one client and many vendors.

The orientation of shared services is more focused on processes and customers and always on continuous improvements throughout its lifespan. This differs from the outsourcing approach which usually involves 'one off' jobs (short-term contracts) and the improvement will be made when the customers discover a new problem and need to engage with the service again (see Table 2.3).

The degree of dependency of shared services is on the shared services centre owned by the organization (internal) and self-governed which will lead to minimum security and confidentiality issues (or no threat) due to the organization keeping their sharing processes in-house. On the other hand, in the outsourcing approach, the organization depends on the external unit/ third party (e.g. vendor, supplier) by handing over certain processes to them and this can lead to possible threats to security and confidentiality (see Table 2.3).

2.4.1.3 Shared service centre (SSC)

Shared Service Centres (SSCs) have gained the interest of private sectors and public administrations to improve efficiency (Borman, 2008a; Janssen & Joha, 2006b). Typically, a SSC refers to a single organisational unit that acts as a service provider to multiple business units within the organization (Lacity & Fox, 2008; Ulbrich, 2009). Schulz and Brenner (2010, p. 215) define the shared services centre as *“an organizational concept with the following characteristics: consolidates processes within the group in order to reduce redundancies; delivers support processes as its core competency; has cost cutting as a major driver for implementation; has a clear focus on internal customers; is aligned with external competitors; is a separate organizational unit within the group; and is operated like a business.”*

As reported in the literature, SSCs can be classified as intra-organizational (Miskon, Bandara, Fielt, & Gable, 2011a; Yee, 2009) and inter-organizational (Borman, 2010b; Janssen & Joha, 2006b; Miskon, et al., 2011a; Wang & Wang, 2007). In Figure 2.3, intra-organizational and inter-organizational SSCs are depicted in a schematic manner.

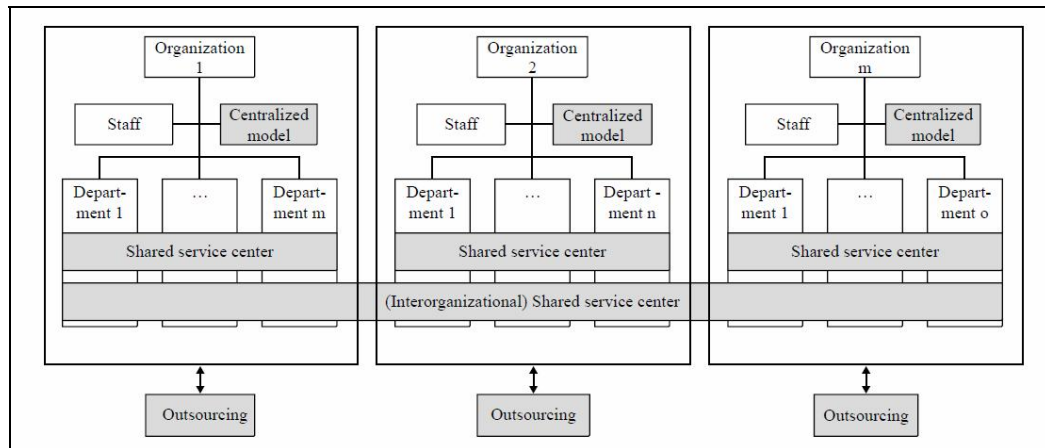


Figure 2.3: Intra-organizational and inter-organizational SSC (extracted from Janssen & Joha, 2006b, p. 103)

Despite having a unit that is responsible for providing the services, there are some literature that discusses shared services without specifically mentioning the existence of the unit (Bækgaard, 2009; Borman, 2010b; Gibson & Arnott, 2005). Implementing shared services requires organizational redesign in order to maximize the effectiveness of the chosen organization design (Lacity & Fox, 2008; Wang & Wang, 2007). An understanding of common types of sharing arrangements is important for the progression and success of shared services in practice and academe. Such results will, for example, help yield improved understanding of: how to position sharing arrangements in organizations (Queensland-Government, 2002), the relevant stakeholders involved in sharing arrangements, how to support the design, deployment, structure and governance of shared services (Firecone, 2007), and help unfold the commonly acknowledged complexity found within shared services organisations (A.T.Kearny, 2004). Thus, this phenomenon has motivated the candidate to further investigate the scenario related to the stereotype of shared services and the alternative forms of shared services which will be explained in detail in Chapter 6.

2.4.2 Various Means of Sharing in Shared Services Settings

The scope of sharing areas in shared services arrangements can be very vast (as mentioned in Section 2.2). Examples range from sharing processes and functions in personnel administration (Hirschfield, 1996), business functions such as human resources, IT, Finance, Procurement (A.T. Kearny, 2004; Hirschfield, 1996), multi-functions as a combination of two or more major functions such as order management, customer service, finance, and human resources (Accenture, 2007) and purchasing or procurement (Forst, 2002b). These sharing forms can be realized using two ways: (1) implemented through mere

collaboration and (2) can be performed through the use of ICT, which will be explained respectively in the following sections.

2.4.2.1 Collaboration

As mentioned earlier (see Section 2.2) the term shared services very much implies collaboration and can also apply to partnerships formed between separate businesses. Hence, each of the sharing forms mentioned earlier can be implemented through mere collaboration. An example of mere collaboration in the shared services arrangement is through the use of a consortium. According to Murray et al. (2008), several small councils are benefiting from the collaboration of six English procurement shared services covering 15 councils (inter-organizational procurement). In this collaboration, “*a number of councils jointly employ their own dedicated procurement specialist, sharing the costs, agreeing the priorities*” (Murray, et al., 2008, p. 543)

Another example of collaboration implemented in shared services is the shared services arrangements for recreational and cultural services among municipalities within the Edmonton metropolitan region (LeSage, McMillan, & Hepburn, 2008). The scope of agreed sharing in such a shared services arrangement are described as; “*shared cost agreements and three covered planning and coordination. All were formal written agreements*” (LeSage, et al., 2008, p. 457). They covered services such as ice arenas, pools, playing fields and halls.

Any form of sharing such as the sharing of business functions, data, and knowledge can be performed through collaboration with several units. For instance, Ulbrich (2006) describe a case where a single business unit might not be able to purchase an expensive leading-edge technology. This barrier can be managed by sharing the purchasing cost through the pool of resources from several business units. Hence, collaboration can be observed as a way to facilitate the shared services initiatives among the participating organizations/business units/departments either within the organization or across multiple organizations. The next section will present how sharing services can be performed through the use of ICT.

2.4.2.2 ICT enabled sharing

On the other hand, the sharing arrangements in shared services can also be performed through the use of an application (Burn & Ash, 2002) or technology (Weill, 2004). For instance, Lim et al. (2005) provide an example of how MNC used SAP (an ERP package-hence an application) to facilitate information sharing across multi-functions (e.g. financial,

human resource etc.). This can be observed as ICT playing an important role to perform shared services, *“Information technology, he stressed, plays a vital role because most shared services would require a very strong IT infrastructure”* (Casiraya, 2001, p. 1).

As mentioned earlier in Section 2.4.2.2, ICT is identified as an enabler for shared services. According to Bergeron (2003), there are three categories of ICT applicable to shared services in order to support shared services implementation and operation: (1) infrastructure (e.g. wired or wireless network), (2) general-purpose (e.g. database management systems), and (3) process-specific (e.g. payroll application). As mentioned earlier, the main objective of implementing a shared services model is to save cost and increase quality in services. However, realizing this objective always requires the infusion of ICT. Every CIO or CEO should understand the capability and limitation of ICT available to the shared services model. Thus this will enable the organizations to gain full benefits of shared services. *“In addition, given the pressure for constant improvement, the CEO should be aware of IT on the near and far horizons that hold potential for enabling the shared business unit to operate at greater efficiency or at lower cost”* (Bergeron, 2003, p. 148).

There are several concepts that need to be explained further in order to give more understanding on the shared services concept. The following section will explain how the: (1) inter-organizational information systems, (2) enterprise resource planning (ERP), and (3) cloud computing transpired in the shared services approach and explains their differences so one is not to be confused with them and shared services.

2.4.2.2.1 Inter-organizational information systems (IOIS)

Since 1960s, the networking among businesses is largely enabled by Inter-organizational Information Systems (IOIS) (Alt & Fleisch, 2000). Examples of technologies related with the adoption of IOIS in the organizations is electronic data interchange (EDI) and expanded to related areas such as supply chain management [e.g. customer relationship management (CRM)] and electronic commerce initiatives (Alt & Fleisch, 2000; Robey, Im, & Wareham, 2008).

One example of IOIS implementation in a company for data sharing is Commtech⁵ the worldwide communication company in North American (Alt & Fleisch, 2000). Commtech was in the process of reshaping its internal business network as its new spin-off⁶. Hence, the shared service centre was opted in for common functions in order to leverage economies of scale. *“The goal of Commtech was to define and standardize its internal process and IS*

⁵ The company name has been changed by the authors.

⁶ Spin-off refers to an organization that “split off” sections of itself as a separate business unit (independent business), for example of separate business unit in the Commtech case study is the central shared service centre.

network in order to implement shared services and thus reduce overhead costs” (Alt & Fleisch, 2000, p. 14). Hence the data sharing established in the pilot projects with some subsidiaries has been rolled out to all companies and is now the basis for projects for supply chain management and electronic commerce.

Several authors define and describe inter-organizational information systems (IOIS), as automated IS shared by multiple organizations (Hong, 2002; Robey, et al., 2008). IOIS support many inter-organizational operations that support the value chain between suppliers, distributors and customers. Humphreys et al. (2001) also noted that an organization’s supply chain⁷ describes the flow of materials, information, money, and services from raw material suppliers through factories and warehouses to the end customers, “*IOIS being an information system that is shared by two or more collaborative companies, assisting the information flow and storage for, typically, engineering design and sales/purchase orders*” (p. 246).

It can be observed that IOIS is a potential information system that is applicable to the shared services model to be implemented across organizations (inter-organizational). The IOIS is the system that communicates across organizational boundaries (inter-organizational) who is goal is to streamline information flow from one organization to another.

2.4.2.2.2 Enterprise resource planning (ERP)

While a departmental information system is usually related to a functional area, other information systems serve several departments or the entire enterprise (process-specific). These information systems together with the departmental applications comprise the enterprise information system (EIS). One of the most popular enterprise applications is enterprise resources planning (ERP), which enables companies to plan and manage the resources of an entire enterprise (Klaus, Rosemann, & Gable, 2000).

The term enterprise resource planning (ERP) was coined by Gartner Group in the 1990s (Jacobs & Weston Jr., 2007). ERP software places its focus on integrating an organization’s departments (e.g. finance, HR, etc.) and functions onto a single integrated computer system that aims to serve all those different departmental needs (Klaus, et al., 2000).

⁷ Note that the supply chain includes both physical flows and information flows. Information flows and digital products (e.g. software, music) go through the Internet, whereas physical products are shipped. For example, when an order made from amazon.com to purchase a book, the information goes to Amazon via the internet. When the transaction is complete (e.g. the credit card is approved and the order is processed), Amazon ships the book to the intended customer. Inter-organizational information systems play a major role in e-commerce and other web-based e-government information systems applications.

Several authors (Bergeron, 2003; Elbanna, 2008; Lim, et al., 2005; Schulman, et al., 1999; Sedera & Dey, 2007) argue that ERP is an example of enabler technologies with the greatest potential in moving to a shared services environment. This is due to how the software is designed to improve the internal processes of an organization, are able to achieve economies of scale, and improve the customer service through shared services models (Chee Wee & Shan Ling, 2002; Shang & Seddon, 2000; Shang & Seddon, 2002; Staehr, Shanks, & Seddon, 2002; Yee & Chan, 2009). Furthermore, ERP systems are also able to facilitate the shared services initiatives by leveraging the ERP features such as common databases, process standardization, common information systems platform, workflow and process automation (Sedera & Dey, 2007).

Despite ERP systems been an enabler of shared services, there are some cases (Kemp & Low, 2008; Ulbrich, 2006) where the organization adopts shared services approaches to manage the ERP implementation. For example in Kemp and Low (2008), the organizations adopt the shared services approach to address the problems related with duplication of effort (e.g. duplicate data stored and staffs role) derived from the implementation of ERP for each department. A large number of existing HR and payroll staff were moved to new shared services department and business services are provided by shared services to all departments at agreed service levels and at agreed costs.

It can be observed that the ERP is an example of potential information systems that are applicable for a shared services model within an organization (intra-organizational). The ERP System is an internally focused systems designed to support the internal operations of the organization (intra-organizational). Usually ERP systems are a packaged applications supported by the vendor utilizing a common user interface.

2.4.2.2.3 Cloud computing

Cloud computing is “*an evolution of both computer technology and the dominant business model for delivering IT-based solutions*” (Iyer & Henderson, 2010, p. 117). Cloud computing is a technology playing a role in supporting and accelerating a shared services initiative and potentially cloud services are cheaper and more flexible (Malliga, 2012). According to Jeffrey (2011, p. 1) cloud computing is a way to deliver the services and will become essential (within the University of Oxford’s) shared services approaches, “*Cloud computing is a model of delivering infrastructure, platforms, and applications in which the customer pays to use, rather than own, computational resources. It is particular suited to shared service delivery as fixed (start-up) costs are low, variable costs are typically direct so can be attributed to specific customers, and the provision can be scaled trivially to meet rise and fall in demand.*”

One of the core elements from a new programme managed by Joint Information Systems Committee (JISC) is the investments of up to £2.5 million to establish cloud computing and shared services in central administration to support learning, teaching and research (Eduserv, 2011). This programme will benefit the universities and colleges in England in delivering efficiencies through shared services using cloud computing infrastructure and applications. One of the key components of the JISC shared services programme was to create a cloud-based service to support research management and administration, namely UMF Shared Services and Cloud Programmes⁸.

Another example is the Government of Canada, who creates a single shared services organization using cloud computing (McEvoy, Pyke, Bondi, Gilenson, & Masic, 2011). The ‘community cloud’⁹ used here is a key design architecture to achieve cost savings through standardizing on single functions like email, and by reducing the number of data centres. Cloud computing is not shared services and Clark et al. (2011, p. 22) also argue that “*The distinction between a shared service and a cloud service has more to do with governance and financing than technologies.*”

Overall, the cloud computing concept can be seen as an *enabler* for the evolution of shared services initiatives (McEvoy, et al., 2011). Malliga (2012, p. 67) describes this as “*a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources or shared services (e.g., networks, servers, storage, applications, and IT services)*” Cloud computing is able to drive and facilitate shared services by delivering services to multiple organizations in a common domain (Chadha & Bajpai, 2012; Smith, 2011) with the aid of ICT. These organizations that are willing to work in collaboration may deploy shared services on a cloud environment. Examples of cloud computing in shared services domain could be any type of shared resources and application (or software) that are needed by multiple organizations or it also could be shared services either for healthcare (Mearian, 2010), some other public (McEvoy, et al., 2011; Smith, 2011) or private sector organizations (Wajima, 2010).

The cloud is becoming more common for shared services as new technologies are evolving, promising easier access to applications, infrastructure, and platforms. Basically it “*provides a platform for shared services to scale to business needs quickly in a cost-effective, virtual manner*” (Oracle, 2012, p. 17). Cloud computing enables software and hardware to be delivered as services by implementing alternative cloud-based delivery

⁸ see <http://www.jisc.ac.uk/whatwedo/programmes/umf.aspx> for further details on this project

⁹ “rather than having many agencies each run a separate and different instance of their own application for the same purpose, they can all instead reuse the same code base. This reduces software costs even further”

models. Three well known models include; Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) (Kundra, 2011; Malliga, 2012; Mutavdzic, 2010). **Table 2.4** summarized these three delivery models briefly.

Table 2.4: Cloud computing delivery models.

Cloud-based Delivery Models		Description
1	SaaS	SaaS is a model in which software applications are hosted by one or more service providers or vendors and made available to customers via an online service and is paid on a subscription basis (Smith, 2011). As reported in several studies (e.g. Anderson, 2010; Kaplan, 2009; McEvoy, et al., 2011), cost reduction is one of the main benefits implementing SaaS for addressing an organization's IT need, "... the ideal way to adopt advanced technology is to introduce SaaS models. It not only can help enterprises reduce cost, which is investment in pure hardware and software, but also can prevent the needs for purchasing, building and maintenance of infrastructure and applications." (Chen, Li, & Chen, 2011, p. 3). Examples of SaaS clouds are Google Docs, Salesforce.com, and email cloud (Sarojadevi & Jeevitha, 2011).
2	PaaS	Dillon, Chen, & Chang (2010, p. 28) describe PaaS as "a development platform supporting the full 'Software Lifecycle' which allows cloud consumers to develop cloud services and applications (e.g. SaaS) directly on the PaaS cloud. Hence the difference between SaaS and PaaS is that SaaS only hosts completed cloud applications whereas PaaS offers a development platform that hosts both completed and in-progress cloud applications." PaaS offer complete hardware and software configurations (Brock & Goscinski, 2010) and this delivery model assures organizations the benefits of reduced maintenance and administration costs (Kächele, Domaschka, & Hauck, 2011). Examples of PaaS clouds are Google App Engine, and Force.com (Sarojadevi & Jeevitha, 2011).
3	IaaS	Infrastructure as a service (IaaS) is the delivery of computing on demand as a shared service in operating and maintaining the hardware such as storage, networks, and data centre space (Kundra, 2011; Sarojadevi & Jeevitha, 2011). Ideally the IaaS service layer serves as a platform virtualisation environment such as Amazon S3, and SQL Azure (Sarojadevi & Jeevitha, 2011).

2.4.3 Summary

Shared services model is fundamentally about managing resources to improve internal services and enhance the competitiveness of the parent organization. The evolution of decentralized services to centralized services had influenced the birth of shared services. The shared services model differs from the centralized model and outsourcing. However, the shared services model can be seen as an approach that share characteristics with more traditional models such as centralization (e.g. economies of scale, downsizing, common systems and support), decentralization (e.g. customer focus, better meet the customers' needs), and outsourcing (e.g. farm out the non-strategic activities). Hence, it is important to position shared services within these aspects to better understand what shared services are.

Information Technology (IT) is a major enabler and contributor to shared services success. A suitable IT infrastructure or application plays a vital role in responding to new emerging, ever changing shared services requirements within the organization and across organizations. For instance, ERP systems are very important components for shared services success (Bergeron, 2003; Borman, 2008a; Schulman, et al., 1999; Sedera & Dey, 2007). Both IOIS and ERP are examples of potential information systems or applications pertinent to (inter/intra)-organizational shared services. While cloud computing is not a shared service, it is a means of delivering services. The cloud computing concept focuses more on IT infrastructure. Organizations use cloud computing to establish shared services centres in order to achieve large amounts of cost savings and flexibility. Thus, it is very important to understand how ICT forms the basis for shared services operations such as ERP and cloud computing. This preliminary literature review assisted in establishing this difference, also helping one to not be confused with these notions and shared services.

2.5 AN OVERVIEW OF THE HIGHER EDUCATION (HE) SECTORS

As mentioned earlier (see Section 2.2), the Higher Education (HE) sector has much potential to further exploit shared services arrangements. The emerging global Higher Education (HE) market challenges all universities to reconsider their mission, in order to function effectively and efficiently, and to be responsive to changing marketplace demands. The comparatively homogenous business requirements of universities (compared to many other sectors), combined with strong impetus to respond to a raft of common influences across the Higher Education (HE) sector worldwide, suggest potential for the sharing of related activities and resources via shared services (Deloitte Touche Tohmatsu, et al., 2001; KPMG, 2006; Miskon, et al., 2011a).

Environmental drivers that influence the interest for shared services from HEIs include: continuing growth in student numbers, changes in the nature of academic work, increasing competition between institutions, government pressure to improve operational efficiency, and generally diverse and shifting expectations of stakeholders (Deloitte Touche Tohmatsu, et al., 2001; KPMG, 2006). These substantial and continuing shifts in the sector demand more efficient and improved processes. Universities thus seek to identify services that can be managed more effectively and at a lower cost and to determine the most effective means of delivering those services. In order to achieve sought after cost savings and improvements in performance, they are considering co-operating or sharing in a wide range of areas. Furthermore, there is also a growing desire and willingness within universities to

share information, solutions and skills amongst each other (Boyle & Brown, 2010; Hoffman, 2009; KPMG, 2006; Millet, Te'o, Rhodes, Clarke, & Carswell, 2005).

Information technology is an important driver and enabler of shared services. Moreover, one of the areas where shared services model is gaining prominence is the IT function itself. Hence the following section will explain further the role of ICT in the HE sectors.

Universities are examples of organization that use an enormous amount of IT systems within a single organization or across universities. Thus, there is an opportunity for universities to share duplicate IT systems with one another, saving cost through economies of scale (Yee, et al., 2009). The role of ICT in the HE sectors basically is responsible for the development, implementation and support of technology-based services that support the core functions of the university, particularly in teaching, learning and research.

IT is reported as an identified area providing the greatest potential benefits and the greatest challenges in moving to a shared services arrangements (Deloitte Touche Tohmatsu, et al., 2001). A shared services model is attractive to organizations in managing IT resources, as it promises benefits due to centralization and/or consolidation of similar activities across the organization. Therefore, this federated model fits well with the culture of a university which is a combination of centralization and decentralization (Bunt, 2012). Shared services can be referred to as an organizational model (Su, Akkiraju, Nayak, & Goodwin, 2009) which can be seen as a model to manage the organizations' resources - particularly the IS function. Goh et al. (2007) see shared services as a specific form of a 'federal' mode of IT organization in large division-based organizations, combining centralization and decentralization. As Hodgkinson (1996) suggests, this way of organizing the IS function attempts to capture the benefits of both centralized and decentralized IT.

2.6 SHARED SERVICES IN THE HIGHER EDUCATION (HE) SECTOR

As explained in section 1.3.1 and 2.4, the lack of research on shared services in general, and more specifically within IS domain, in particular within the HE sector were major motivational factors for this study. Hence, the status of the shared services in HE sector as a global view was a key literature area to review and understand. In identifying all the relevant resources on shared services in HE sector in a global view, all published

materials from the general web and the organizations' official websites (for instance the Joint Information Systems Committee (JISC) website¹⁰) were sought in this study.

There were several studies that had been published about shared services in the HE, from across the globe, and included examples like the following:

- 1) Australasian shared services study (2001) – by Deloitte
- 2) Report from KPMG (2006) and Joint Information Systems Committee (JISC, 2008) – UK
- 3) University of Georgia (2008) - USA

Two universities in Australia; University of South Australia and Flinders University carried out a joint initiative to consider the feasibility of adopting shared services between them as a model for administrative service delivery (Deloitte Touche Tohmatsu, et al., 2001).

In UK, two types of reports were prepared by KPMG (2006) and JISC (JISC, 2008a, 2008b, 2008c, 2008d). KPMG's report details the range of existing shared services in HE and JISC reported the awareness, likely responses of key stakeholders, prevalence, extent of and attitudes towards shared services in the UK Further Education¹¹ (FE) and Higher Education (HE) sectors.

Understanding shared services is very important in positioning ICT strategies related with shared services in the IS domain. Amongst the reports, shared services were referred to as a form of a “*cooperating*” and “*sharing*” in a HE environment. They define shared services as:

“... where higher education institutions (HEIs) co-operate in the delivery of services and in sharing information and skills.”
(KPMG, 2006, p. 3)

“By shared services we mean institutions cooperating in the development and delivery of services, so sharing skills and knowledge, perhaps with commercial participation.”
(JISC, 2008a, pp. 9)

“A shared services strategy allows institutions to create synergies to provide world-class administrative services to all institutions of the University System of Georgia.”
(Anonymous, 2008)

¹⁰ http://www.jisc.ac.uk/whatwedo/programmes/programme_jos/ssprev.aspx.

¹¹ Refer to http://en.wikipedia.org/wiki/Further_education for further details, last accessed 20 Jun 2011.

Reports from JISC argued that there is difficulty in gauging the potential benefit; “Institutions have difficulty in gauging the benefits of shared services. Generally they do not possess good enough information on service costs to be of value in planning service sharing. Furthermore, generally institutions have not reviewed their business processes in detail” (JISC, 2008d, p. 2). Thus, the JISC report recommends service improvement as a driver to implement shared services.

A report from KPMG and the Australian shared services study made an attempt to list the benefits gained from the shared services implementation as:

“Depending on the service, savings may result from:

- *Lower capital costs.*
- *Lower development costs.*
- *Reduced software maintenance costs and system support costs.*
- *Rationalisation of accommodation, leading to sale of surplus assets.*
- *Improved commercial bargaining power for procurement.*
- *The avoidance of duplication.*
- *Increased efficiency from standardised processes and technologies (including common ICT and shared platforms).*
- *Lower personnel costs.*

In addition to pure cost savings, other benefits include:

- *Improved service, leading to improved customer experience, as a result of greater focus and skills in the shared service centre, and the opportunity to reorganise services around the customer.*
- *Improved morale amongst staff providing the shared services.*
- *Senior management focusing their attention on adding value, rather than transaction processing activities.*
- *Greater resilience from a wider base and more staff with key skills for the specific services.*
- *Shared training and development opportunities for staff.*
- *A foundation for trading or expansion to other bodies.”*

(KPMG, 2006, p. 23)

- *The cost savings come from a combination of factors including: economies of scale, streamlining of processes to remove duplication of services or unnecessary processing, restructuring approaches to the management of some aspects of the processes (e.g. moving from a devolved/decentralised approach to a centralised approach) and leveraging equipment, resources and buying power.*
- *Further analysis will be needed to confirm these potential benefits, refine the approach to be taken, and ascertain the proportions that ‘relate to each university. An assumption adopted by the consultants was that devolved/decentralised operations drive a higher quantum of costs than a more centralised model. Accordingly, in view of the devolved/decentralised nature of finance, human resources and information technology in the universities, cost savings are expected to be derived from a more centralised approach in respect of some aspects of these processes.*
- *Other opportunities for deriving benefits from the project can be identified in the areas of process improvement and avoiding / reducing systems purchases or upgrades for administrative systems.*

- *The shared services initiative can also provide a framework for the development of strategic links between the two universities, and possibly other higher education sector participants.*
- *The universities could expect to be able to make more rapid progress in adopting approaches based on the use of new technologies, through the sharing of costs, and with additional capabilities that would not be achievable within their individual budgets.*
- *A shared services centre could potentially provide new avenues for exploring options to achieve new sources of income and revenue growth through opening the services to external customers. This would help to offset budget costs.*
- *The sharing of benefits would be an important component of any further implementation planning. The respective universities would need to consider the longer-term advantages of a close working relationship with the other university and match that with a view of capturing benefits from the perspective of each university.*

(Deloitte Touche Tohmatsu, et al., 2001)

In synthesising this literature, the candidate noticed that a wide range of services could potentially be shared between institutions, where standard systems and processes could contribute to achieve higher efficiency. In general, services are shared that are not strategically critical to the business or do not need local knowledge. The services most often moved into shared service centres are Finance, payroll, HR and IT, but there are many other areas that could be considered for some form of shared services or collaboration between institutions (KPMG, 2006). Meanwhile both Australian universities and JISC seemed to prefer to share the administrative systems in shared services initiatives. For example, the University of Georgia using shared services strategy to consolidate the payroll process. The JISC reports made an attempt to describe the most common characteristics of service sharing situations, which is depicted in Table 2.5.

Table 2.5: Characteristic of service sharing situations (Extracted from JISC, 2008c, pp. 16)

Characteristics	Option
Number of services	<ul style="list-style-type: none"> • Single service • A collection of services
Where services are hosted	<ul style="list-style-type: none"> • Locally • In another institution • At a specialist or third-party supplier
Partners	<ul style="list-style-type: none"> • Selected from regional institutions or other organizations • Selected by other characteristics, commonly birds of a feather (e.g. on criteria of size, commonality of mission or complexity) • National scope
Business processes	<ul style="list-style-type: none"> • Customized to suit the institution • All members performing the same activities adopt the same processes for them

KPMG (2006) reported that there are a range of structures used for shared services, all of which might be applicable to the HE sector. These are captured below:

- *Unitary – a single organization consolidating and centralizing a business service.*
- *Lead department – an organization consolidating and centralizing a business service that will be shared by other organizations.*
- *Joint initiatives (internal) – an agreement between two or more organizations to set up and operate shared services.*
- *Strategic partnership (external) – contractual arrangement with a third party provider for a range of services which may include shared services.*
- *Joint venture – joint venture legal entity between “Authority” and third party provider.*
- *Outsourcing – third party provider takes full responsibility for managing and operating the service.*

(KPMG, 2006)

The choice of which structure to use will depend on the service being shared and the degree of control institutions wish to retain. *“All of these might be used in HE, although given the wish amongst institutions to retain their independence and to keep relatively tight control of services, the joint initiative and joint venture models may be most likely to be implemented”* (KPMG, 2006, p. 23).

27 DISCUSSION AND CONCLUSION

This chapter presented a preliminary literature review of shared services. It was conducted as a means to provide a firmer basis to the research context- which, as discussed in Chapter 1, was focused on **ICT related shared services in the Higher Education sector**. The chapter commenced with an overview of how shared services have evolved and then proceeded to discuss the notion of shared services in more depth. The literature review illustrated how the shared service is not a totally new concept illustrating multiple evidence of its existence since the late 1900’s. The review also showed how the shared services concept is growing, and how organisations within different contexts, in different sectors, across the globe are embracing shared services, especially as a means to address economic challenges. Though there is a growing interest and adaptation of shared services - specially in relation to IT- empirically based research in shared service, specially with the focus on ICT matters are scarce and in need. And while the Higher Education sector is recognised as a sector that has much potential to further exploit shared services (Dove, 2004; Yee, et al., 2009), there is very little research in this domain. Thus, justifying the need to investigate and understand shared services and re-confirming the directions and objectives of this study.

The literature shows that shared services has evolved over the years, influenced with different industry demands and trends, hence gaining multiple forms and identities. This has created potential confusion about shared services; evident through the different kinds of

definitions found in literature. This pointing to a need to develop a deeper and clearer understanding of what shared services actually is. This preliminary literature review discussed how shared services can be similar, yet different to other concepts and positions shared services alongside concepts such as; centralization/ de-centralization and other forms of sourcing – illustrating the difference and similarities between shared services and these concepts and identifying where potential confusion (where these concepts are mixed-up with shared services) may arise. Various means of sharing including collaboration and ICT's enabling role for sharing (i.e. through IOISs, ERPs and cloud computing) was also discussed to better position the candidate's view of shared services. Given the study motivation, specific attention was paid in this preliminary literature review to shared services in the higher education sector. While prior studies suggest that a wide range of services could potentially be shared across Higher Education Institutions (HEIs), offering many potential benefits, and a few individual documented examples of how shared services have been applied in the Higher Education sector, there have been little synthesis, conceptualization or discussion (in general or in the HE sector) around the different types of possible shared services options and how they are structured.

This observations from the current literature pointed to the need to have a deeper analysis of what shared services (in particular with the IS/ ICT domain) are. The literature review showed very little evidence of prior studies that could provide a clear definition and positioning of shared services. Different objectives of shared services were discussed across many papers from different contexts in a scattered manner, and lacked a consolidated overview of why organisations would choose shared services. Similarly, there was very little consolidated information and discussions about who are involved in these arrangements, what options are available (in terms of different formations/ configurations) and how they can be formed, or on the issues of setting up shared services, or on the essential success factors to abide by. While the literature showed the potential to share a wide range of different services, where standard systems and processes could contribute to achieve higher efficiency, there was no clarity on *what* can actually be shared within such sharing arrangements.

The gaps identified from the previous activities pointed the need to pause and better explore the domain prior to further continuing the study. Thus, the candidate planned to next conduct a pilot case study of ICT related shared services within the Higher Education sector, to try to get further understanding of the notion of shared services in this context and these gaps identified, from first hand data and evidence from practice. The next chapter presented the design, conduct and outcomes of this, which then (together with the findings in this

chapter) lead the candidate to expand the overall study design (as explained in Chapter 1) with an exploratory phase (using secondary data) to analyse in more detail; shared services in the IS context (see Chapter 5) and shared services in the Higher Education sector (see Chapter 6). Further details about the overall research design are provided in the next chapter.

Chapter 3: Research Design

3.1 CHAPTER INTRODUCTION

This chapter describes in detail the overall study design. The ‘research design’ can be thought of as the structure of the study that describes and interrelates all of its elements (Gable, 1991). This chapter details the research design and describes the specific approaches and methods that were used in this study. As stated in Chapter 1, while the study commenced with the primary goal and plan, to investigate the Malaysian HE sector (via multiple cases on the status, benefits, success factors and issues of shared services), the study design evolved. Unresolved gaps (such as lack of a common definition and limited understanding of how shared services can be formed in the HE sector) were encountered in the study domain which required the candidate to embark on exploratory branches of inquiries, to resolve these gaps, before progressing with the primary goal. The research design presented in this chapter (in particular as illustrated in Section 3.2), illustrates the logical, sequential flow of core activities, their execution in reality being more iterative and parallel.

The chapter first provides an overview of the overall research design and then describes the research paradigm and research approaches applied on this study; namely Archival Analysis and Case Studies. This study used software tools – in particular NVivo to assist in the overall management of the study phases and related tasks. How this was done is also briefly introduced here (with further details presented in other chapters as each phase’s design and results are related in the thesis). The next section provides a detailed overview of the overarching study design, which consisted of 4 main phases. Each phase is further described in detail.

3.2 OVERALL RESEARCH DESIGN

Figure 3.1 illustrates the research design of this study. It presents the key tasks (1.0 – 7.0) of the study, indicating inputs and outputs of each main task, and their interconnections.

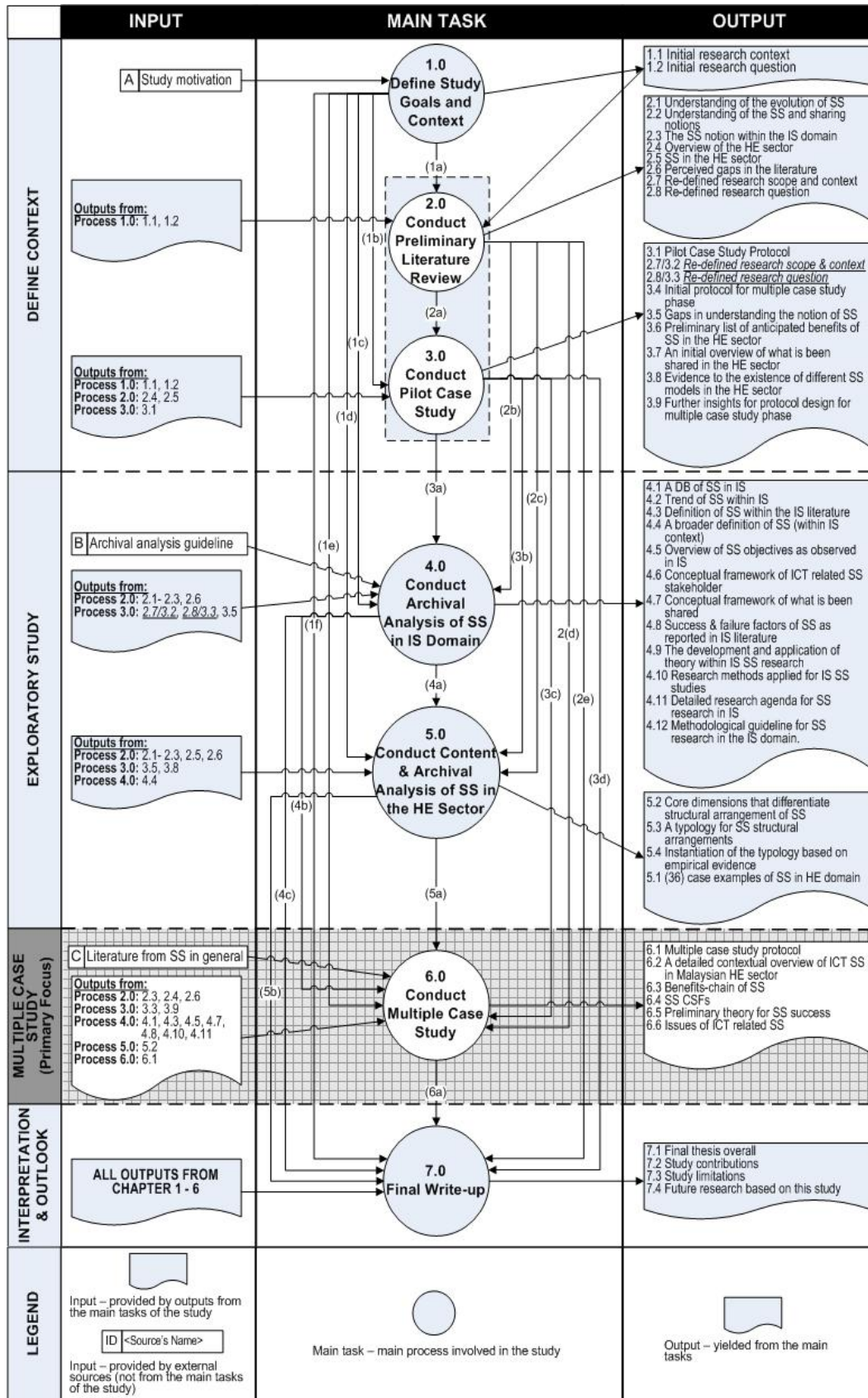


Figure 3.1: Overall research design

The research design graphically depicts how the outcomes of the initial context definitions lead to the exploratory case studies and then how the exploratory case study phase leads into the multiple case study phases. The different processes of the research are represented by ovals, information flows and their directions are depicted by arrows¹², where the folder icons depict the outputs derived from the different stages.

This study is represented as 4 main phases; (1) Define context, (2) Exploratory study phase, (3) Multiple case study phase (which was the primary focus of the study at inception), and (4) Interpretation and outlook. Each phase is designed specifically to answer the research questions presented in Chapter 1 (see section 1.4). A mapping of the research questions to the phases is presented in **Table 3.1**. Each phase is discussed in detail below, with further illustration of the activities and flow within each task. A detailed mapping of the outcomes to the chapter flow and content is illustrated in Table 11.1 and described further in Chapter 11.

Table 3.1: Mapping the research questions to research phases

Research Phases	Mapping to Research Question
Phase 1: Context Definition Phase	
Process 1.0 and 2.0	This provides important contextual details that contribute towards understanding the research gaps and the questions that needs to be addressed.
Process 3.0	This further validates the research questions to be posed and provides early observations (indirect contributions) towards the following Research Qs: P-RQ1: <i>What are the benefits of ICT shared services in the Higher Education context?</i> P-RQ3: <i>What are issues that can hinder ICT shared services, in particular in the Higher Education context?</i> S-RQ3: <i>What are the different types of shared services, in particular in the Higher Education context?</i> In particular, the pilot supports in understanding the best way to move forward with the study design.
Phase 2: Exploratory Study Phase	
Process 4.0	This provides direct contributions towards the following Research Qs: S-RQ1: <i>What is shared services, in the context of Information Systems?</i> S-RQ2: <i>What is the status of shared services research in the context of Information Systems?</i> This also provides indirect contributions towards the following Research Qs: P-RQ1: <i>What are the benefits of ICT shared services in the Higher Education context?</i> P-RQ2: <i>What are the success factors for ICT shared services, in particular in the Higher Education context?</i>
Process 5.0	This provides direct contributions towards the following Research Qs: S-RQ3: <i>What are the different types of shared services, in particular in the Higher Education context?</i>
Phase 3: Multiple Case Study Phase	

¹² The arrows are labeled with numbers to indicate that the information derived from the processes will be used as input for the next processes. For example information flow 1(a) indicates that output derived from process 1.0 will be used as input for process 2.0.

Process 6.0	This provides direct contributions towards the following Research Qs: P-RQ1: <i>What are the benefits of ICT shared services in the Higher Education context?</i> P-RQ2: <i>What are the success factors for ICT shared services, in particular in the Higher Education context?</i> P-RQ3: <i>What are issues that can hinder ICT shared services, in particular in the Higher Education context?</i> S-RQ3: <i>What are the different types of shared services, in particular in the Higher Education context?</i>
Phase 4: Interpretation and Outlook Phase	
Process 7.0	This consolidates and synthesises the study contributions (and limitations) and positions the current work with an overview of potential further research.

Though not originally anticipated, the exploratory study phase is prominent in the illustrated design and precedes the multiple case studies phase. It was included after the study had commenced on encountering various gaps and confusion, as an extension to the original plans in order to better contextualize the phenomena of interest. The rest of the thesis chapters provide further details for each of these phases, describing the intended goals, design, tasks completed and outcomes achieved, and how the different outcomes from preceding phases fed into the design and tasks of the succeeding phases.

A combination of research approaches; archival analysis, content analysis and multiple case studies were conducted across the study phases. Each of these are described and justified in detail, as the related chapters are related.

3.2.1 Phase 1: Context Definition Phase

The purpose of the context definition phase is to generate a firm understanding of the study domain. Figure 3.2 presents a detailed overview of the core tasks, related activities, input and output.

This phase commenced by defining the research context based on the initial study motivations (explained earlier in Section 1.3 – Chapter 1). It also included the conduct of a preliminary literature review (see Chapter 2) to better position the work at hand, and a pilot case study of ICT related shared services in the HE sector (see Chapter 4), to enable the candidate to better understand the phenomena of interest (within its original context in practice).

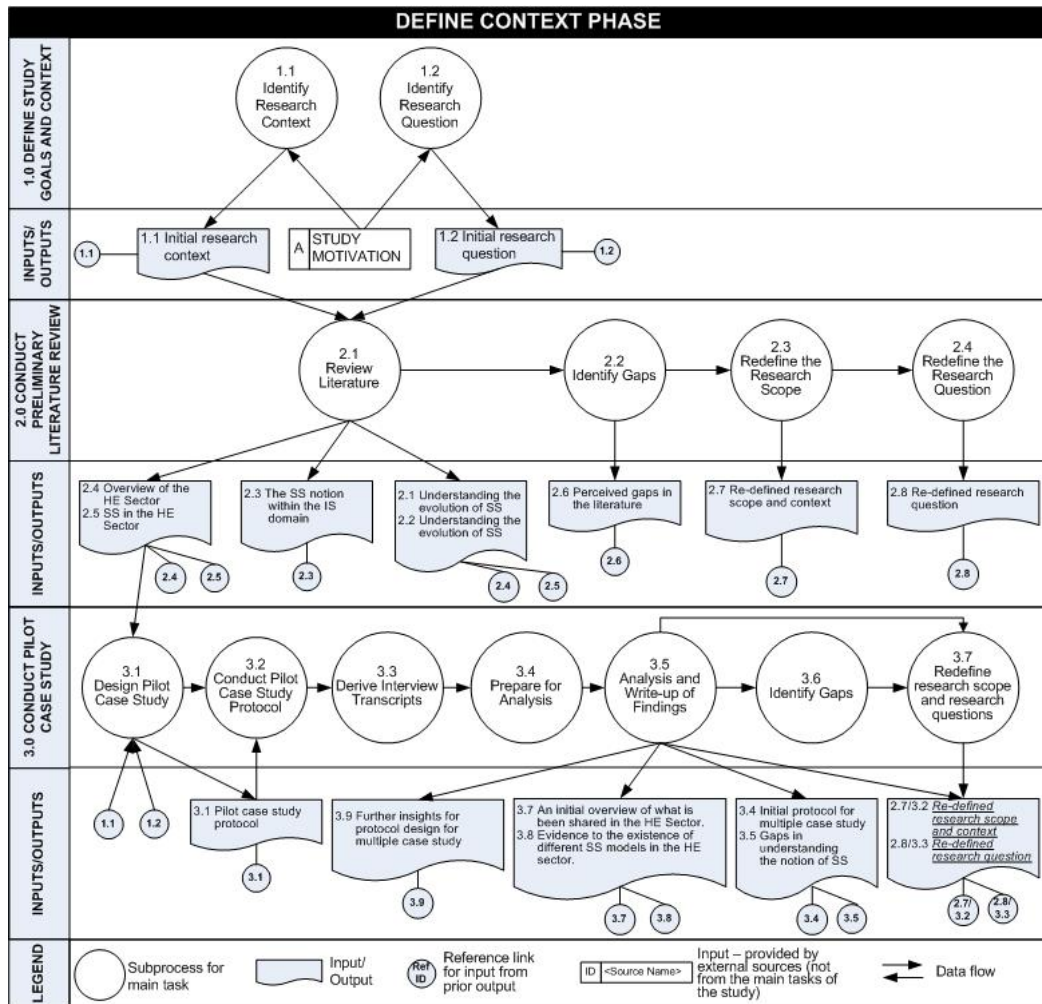


Figure 3.2: A detailed view of phase 1 - define context

The first Task (1.0 – Define study goals and context) was primarily focused on; bringing in the initial study motivations and based on preliminary investigation into the topic, to have clarity of the research scope and context, together with the formation of the initial research questions. Task 2.0 – the preliminary literature review (of shared services in general) used the outputs from Task 1; the research context and research questions and embarked on a more detailed literature review. Here, the literature was reviewed; to better position the notion of shared services, to understand its evolution and the role of ICT in its evolution, to understand the HE sector and its potential for shared services. Gaps were noted. Together with the gaps and an overview of the status of research in the domain, the research context, scope and questions were further re-defined. Task 3.0 – the pilot case study, was conducted almost concurrently to the latter phase of the preliminary literature review with two main intentions; to understand the context and gaps further with insights from practice and also to prepare for the multiple case study phase (which was the main goal of the study from the outset). A pilot case study protocol was designed and executed as the pilot case

took place. The case analysis was primarily based on interview data (analysis augmented with insights from other documentation). The interviews were transcribed and analyzed (within the NVivo tool). The pilot case study provided further input to the refinement of the research context and research questions, but also provided preliminary insights to the anticipated study outcomes and also indicated areas that were confused and needed further investigation.

Overall, this phase provided a thorough understanding about the status of shared services in general, its adoption and proliferation in the HE sector and how ICT played a role in the growth of shared services. It also clearly pointed out to the gaps in the field- more importantly to some fundamentals, which included a lack of common understanding of shared services, in particular from an IS perspective, the various different types of sharing that were labelled as shared services that needed investigation and clarity. The study hence embarked on an exploratory phase with the goal of addressing these gaps. This is discussed in detail next.

3.2.2 Phase 2: Exploratory Study Phase

As indicated earlier, this phase was added to the study design after some initial work (Phase 1), as a result of some core gaps identified, that needed to be addressed in order to proceed further. As Figure 3.1 and Figure 3.3 depict, this exploratory phase had two main tasks; Task 4.0: Conduct archival analysis of shared services literature in the IS domain, and Task 5.0: Conduct content and archival analysis of shared services in the HE sector.

Task 4.0, the archival analysis of shared services literature in the IS domain, was conducted to better understand the notion of shared services, specifically within the IS domain. It aimed to address the gaps identified earlier [for example: to have a clear(er) definition of shared services- what it is, who is involved, what is shared, why consider shared services etc], specifically from an IS lens – which was the scope and context of the study. Relevant literature from the IS domain were carefully extracted and the literature prepared for analysis – using a detailed archival analysis method. The actual coding of the papers were conducted within the NVivo data analysis tool and the results (as indicated with 4.2 – 4.12) in Figure 3.3 derived and presented- with supporting evidence from the literature.

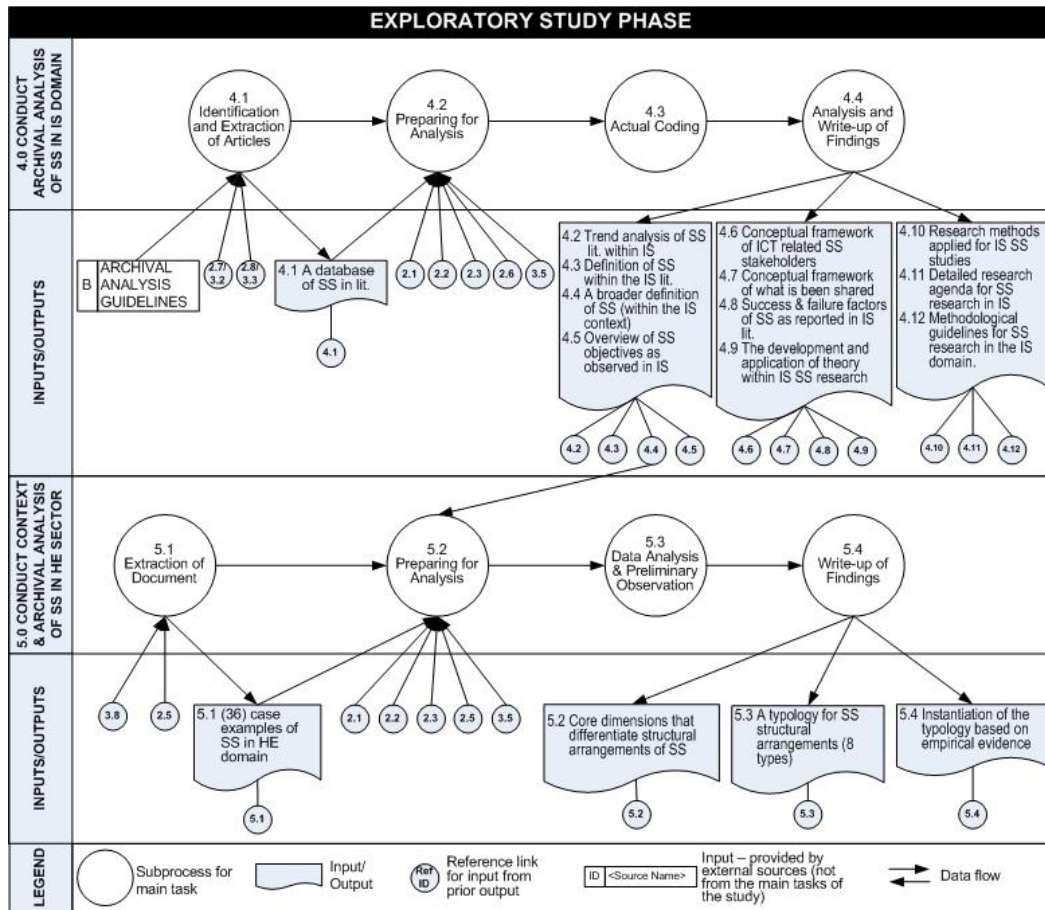


Figure 3.3: A detailed view of Phase 2 - Exploratory Study

Task 5.0, the archival analysis of shared services case studies in the HE sector, was conducted to get a better understanding of how the shared services notion has been adopted in this sector, in particular to identify how the sharing is structured. This phase also followed a carefully documented internet searching procedure to identify shared services case studies in the HE sector. This phase resulted in 36 case studies that were then analyzed to derive the outcomes depicted in 5.3-5.5 in Figure 3.3.

3.2.3 Phase 3: Multiple Case Study Phase

This phase had been the primary phase of the research from the outset – to investigate shared services in the context of the HE sector, and the Malaysian HE sector was the selected study setting (based on the study motivations discussed in Section 1.3 of Chapter 1).

The outcomes of the prior phases provided a firm basis for the design of this multiple case study phase and also the analysis of the case data. A detailed case study protocol was derived and the case study conducted following the protocol, where the primary data source was interviews. The interviews were conducted in the Malay language, which were

translated and transcribed as input for the detailed analysis that took place. The candidate used NVivo as a data management and advanced data analysis tool and presents the outcomes depicted in 6.2 to 6.6 of Figure 3.4 below.

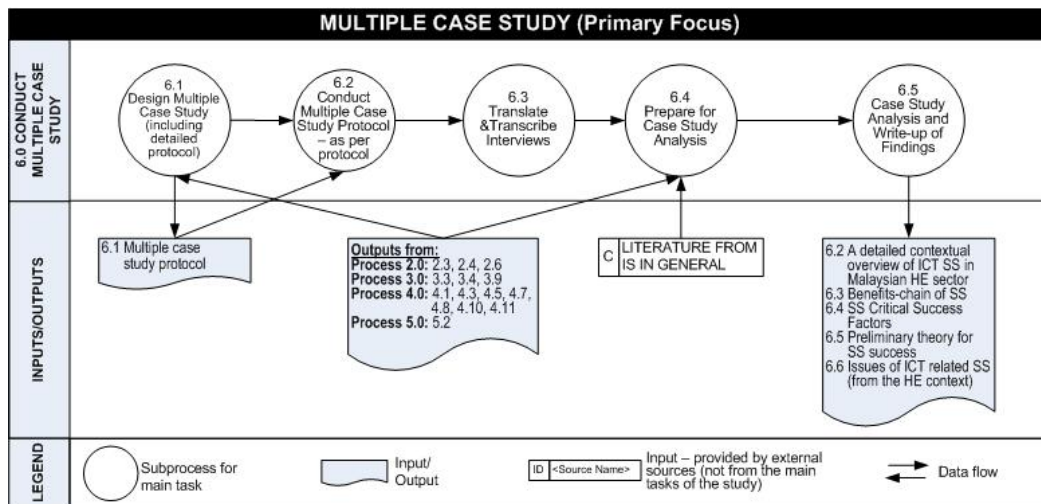


Figure 3.4: A detailed view of phase 3: Multiple case study phase

3.2.4 Phase 4: Interpretation and Outlook Phase

This is the final phase of the study, which in reality took place in parallel to the other phases. All the tasks and resulting outcomes were progressively documented as they were completed. As relevant and opportunity arose- parts of this study were documented as published papers (see Appendix B: Related Publications from this study for an overview of papers derived from this research). This final phase predominantly focused on the overall documentation of the thesis (this document) – pulling the overall ‘story line’, its flow and related content together.

3.3 THE STUDY’S RESEARCH PARADIGM

This section provides a summary overview to the different research paradigms available and describes and justifies the chosen paradigm for this study.

3.3.1 Overview of Research Paradigms

A rational scientific research paradigm includes basic assumptions of the research, the research questions, the research techniques and all relevant basic rules that will guide the thinking and behaviour of researchers while conducting research. As stated in Gummesson

(2000, p. 18), *“It will be used to represent people’s value judgments, norms, standards, frames of reference, perspectives, ideologies, myths, theories, and approved procedures that govern their thinking and action”*. Hirschheim and Klein (1989), state that the paradigms would typically consist of assumptions (1) about how knowledge can be obtained (epistemology), (2) about the views related to physical and social world (ontology), and (3) how to acquire it (methodology). According to Krauss (2005), epistemology have close connection between ontology and methodology, *“ontology involves the philosophy of reality, epistemology addresses how we come to know that reality, while methodology identifies the particular practices used to attain knowledge of it”* (p. 759). The chosen research paradigm is significant in shaping the researcher’s perspectives of the world (Maxwell, 2009). The paradigm is also influenced by the context of the research and also the people around the researcher. The researcher’s paradigm can also greatly influence the research design, the chosen research methods, how the data are being collected, analyzed and finally assist them in justifying the outcome of the inquiry, *“You need to make explicit which paradigm(s) your work will draw on, since a clear paradigmatic stance helps guide your design decisions and to justify these decisions”* (Maxwell, 2009, p. 224)

There are various schools of thoughts on classifying paradigms and these worldviews have continually evolved. Creswell (2007) named post-positivism, constructivism/interpretivism, advocacy/participatory and pragmatism for different paradigms in qualitative research. While Lincoln and Guba (2000), initially categorized positivism, post-positivism, critical theory et al. and constructivism as the basic beliefs of alternative inquiry paradigm. This section will however only focus on three paradigms which are mainly discussed by majority of IS research, the positivist, interpretive and critical paradigm (Klein & Myers, 1999; Myers, 1997; Orlikowski & Baroudi, 1991). The chosen paradigm will then be justified in section 3.3.2.

The **Positivist** stream of research is the approach of natural sciences and a widely used research paradigm in IS research (Kaplan & Duchon, 1988; Neuman, 2003; Orlikowski & Baroudi, 1991). This paradigm assumes that reality is objective, exists independent of human thought and can be described by measurable properties (Myers, 1997). Positivist researchers generally attempt to test hypotheses, normally through precise quantitative data by using experiments, surveys and statistical analysis (Orlikowski & Baroudi, 1991). Despite being widely used and successful in natural sciences, positivist paradigm is not necessarily the most appropriate paradigm to be use in information systems research (Galliers & Land, 1987) as it may not be able to capture subjective and complex phenomenon beyond the measurable variables. Qualitative studies can also be positivist (some examples been; Bandara, Gable, & Rosemann, 2005; Eisenhardt, 1989; Gable, 1991; Lee, 1991),

“qualitative research covers a plurality of research paradigms (positivist, interpretive and critical), within which there are many research methods (such as case studies, field studies, ethnography and action research), research processes and techniques” (Carroll & Swatman, 2000, p. 235). Structured approaches for positive qualitative work exist. For example, there are IS researchers who have already devised a set of methodological principle for case studies that are consistent with the precept of positivism (Benbasat, Goldstein, & Mead, 1987; Lee, 1989; Shanks, 2007).

Interpretive researchers attempt to understand the phenomenon through social constructions and sharing of meaning by the people for example based on the language used, their interaction, communication and overall atmosphere of the studied context (Klein & Myers, 1999; Myers, 1997). Interpretive research helps IS researchers to be able to explore human thought and action within social and organizational contexts as it allows them to have better understanding into information systems phenomena such as the management of information systems (Klein & Myers, 1999). Interpretive paradigm is much influenced by hermeneutic and phenomenological basis as the research and the researcher’s learning process continually iterate (Carroll & Swatman, 2000; Klein & Myers, 1999; Lee, 1991). Researchers are guided by the initial interpretation or understanding of the phenomenon and it will continuously be changed through further exploration of the literature and especially through investigation and interaction with the studied context (Klein & Myers, 1999, p. 71). The overall discoveries throughout the process are valuable and could be reflected by the researchers at the end of their journey.

There are seven principles of interpretive field research from the IS literature as presented in

Table 3.2 (extracted from Klein & Myers, 1999, p. 72). Klein and Myers (1999), suggested that the principle one (the fundamental principle of the hermeneutic circle) is the overarching principle upon which the other six principle expand. The interdependence of the other six principles can be applied in IS research when *“a researcher's deciding on what relevant context(s) should be explored (principle two) depends upon the following: how the researcher "creates data" in interaction with the subjects (principle three); the theory or concepts to which the researcher will be abstracting and generalizing (principle four); the researcher's own intellectual history (principle five); the different versions of "the story" the research unearths (principle six); and the aspects of the "reality presented" that he or she questions critically (principle seven)”* (Klein & Myers, 1999, p. 78)

Table 3.2: Seven principles of interpretive field research

	Principles	Descriptions
1	The Fundamental Principle of the Hermeneutic Circle	This principle suggests that all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form. This principle of human understanding is fundamental to all the other principles.
2	The principle of Contextualization	Requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged.
3	The Principle of Interaction Between the Researchers and the Subjects	Requires critical reflection on how the research materials (or "data") were socially constructed through the interaction between the researchers and participants.
4	The Principle of Abstraction and Generalization	Requires relating the idiographic details revealed by the data interpretation through the application of principles one and two to theoretical, general concepts that describe the nature of human understanding and social action.
5	The Principle of Dialogical Reasoning	Requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings ("the story which the data tell") with subsequent cycles of revision.
6	The Principle of Multiple Interpretations	Requires sensitivity to possible differences in interpretation among the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study. Similar to multiple witness accounts even if all tell it as they saw it.
7	The Principle of Suspicion	Requires sensitivity to possible "biases" and systematic "distortions" in the narratives collected from the participants.

Critical theory very much revolved around the ground of class, ethnicity, and gender where it focus much on issues of domination, power and resistance (Brooke, 2002). Critical theorist is seen as being one of social critique and use research in bringing status quo into light by supporting or challenging it (Myers, 1997). In simpler term, in this paradigm researchers intend to use the findings from the research to help subjects under study to change and improve the current conditions. Research may result in social theorizing (Creswell, 2007) such as creating strategies, empowering subjects and initiating actions. Critical IS researchers specifically aim to reveal interests and agendas of certain groups of people and how they are supported or protected by a particular information system design or use (Cecez-Kecmanovic, 2011, p. 442), *“Critical researchers also aim to reveal hidden interests and agendas guiding IS development and deployment and expose the assumed roles that IS are expected to play in strengthening existing social structures and increasing control”*.

3.3.2 The Chosen Paradigm

All three of these research paradigms have been used in Information Systems, offering insightful perspectives on a plethora of phenomena. While some research schools strongly adhere that a researcher should follow strictly one of these paradigms in a single study, others argue that one can combine them within different phases of a single study (Gable, 1994; Kaplan & Duchon, 1988; Lee, 1991). Individual researchers may be influenced by their various institutional contexts and trainings when trying to answer the question, ‘which approach is best to use?’, and yet, it is a critical element that has to be addressed early on in a study design. The selected approach will dictate the researcher to focus attention on certain aspects and not on others and will also influence the whole research methodology. In other words, the selected approach influences the ‘operational plan’ on how one proceeds to solve the problem (Gable, 1991).

This study primarily employs an interpretive view to addressing the research questions. This primary, interpretive approach was used due to the following:

- 1) The nature of the driving primary research questions; **P-Q1**: “What are the benefits of ICT shared services in the Higher Education context?”, **P-RQ2**: “What are success factor for ICT shared services, in particular in the Higher Education Context?”, and **P-RQ3**: “What are issues that can hinder ICT shared services, in particular in the Higher Education context?”. These primary research questions seemingly seek a better understanding of the study, be guided by initial interpretation and will continuously be changed through further exploration of the literature and especially through investigation and interaction with the studied context (Klein & Myers, 1999).
- 2) The fact that many previous studies on shared services (i.e. Becker, Niehaves, & Krause, 2009; Borman, 2008a; Goh, et al., 2007; Janssen & Joha, 2006b; Schulz, et al., 2010) used case studies which are interpretive¹³ in nature, as the main research methodology. This is due to the fact that shared services are a ‘young’ field of research, and a yet emerging phenomenon in IS, warranting the investigation of rich contextual data. This study can apply an interpretive paradigm in the effort to derive a rich and meaningful understanding of the nature of ICT shared services in HE sector in Malaysia and to answer the research questions as described above. Interpretive research enables to better focus on the

¹³ It is acknowledged that this is a judgement statement made by the candidate, based on her understanding on interpretive research and how she perceived the content presented in these studies. Most published papers do not state upfront the paradigm they follow.

complexity of emerging phenomena, from the understanding and conceptualization (Kaplan & Duchon, 1988).

Nevertheless, this study is well aware of the weaknesses and potential limitations of a purely interpretive approach (Orlikowski & Baroudi, 1991, p. 18), and an attempt has been made to address these by, at times, adapting quantitative (hence more positivist) approaches for the analysis of data. For example, this study used content analysis for systematically coding and analyzing qualitative data in an **archival analysis** approach as part of the overall exploratory phase of the study. “*Whether the research task is exploratory or confirmatory, content analysis is usually quantitative analysis*” (Bernard & Ryan, 2010, p. 287). Content analysis applied in this study in alignment with a positivist paradigm, where data was synthesized based on counts; how often and by how many the same construct/ concept were mentioned. Section 3.4.1.1 will discuss this in more detail. The archival analysis results were used as input to the more interpretive case study work and was also used for triangulation purposes to further justify the observations found in the case studies.

The following section will discuss the study findings reported within this thesis and in principle how they can be perceived/ aligned within some of Klein and Myer’s (1999) principles for interpretive field research (as introduced in Table 3.2 above).

3.3.2.1 Applying the fundamental principle of the hermeneutic circle (Principle 1)

The fundamental principle of the hermeneutic circle is “*to understand a complex whole from preconceptions about the meanings of its parts and their interrelationship*” (Klein & Myers, 1999, p. 71). Furthermore, “*hermeneutics can therefore serve as a strategy to address a broad range of research questions*” (von Zweck, Paterson, & Pentland, 2008, p. 116).

This study has applied the fundamental principle of the hermeneutic circle in addressing the primary and secondary research questions of this study (see Section 1.4 in Chapter 1). This study used the hermeneutic circle to help broaden the understanding of shared services. Hence, the research design of this study followed the hermeneutic spiral method suggested by Paterson and Higgs (2005) and von Zweck et al. (2008). The hermeneutic circle, whereby the candidate attempts to understand the whole study (the primary objectives) by understanding its parts (the secondary objectives), and grasping the meaning of the parts deriving the whole (Paterson & Higgs, 2005). “*In practice this involves repeatedly and cyclically moving between the parts or aspects of the phenomenon and the whole, with the objective of gaining a growing understanding of the phenomenon*” (Paterson & Higgs, 2005, p. 345). Consideration of the output from several sources (i.e. main tasks)

and comprehending the fit of this information within the whole picture of shared services in IS domain and HE sectors was used to gain a growing understanding of the benefits, success factors, and issues that related with ICT shared services in the Malaysian HE sector. This is consistent with von Zweck et al.'s (2008) circle of understanding; new information was integrated with previous outputs and served as input for the main tasks as the study progressed to an enlightened view of shared services in this study.

Figure 3.5 illustrates the hermeneutic circle in this study further (adapted from Paterson & Higgs, 2005). This study recognize that the understanding of shared services is understood as a whole because it's parts (i.e. shared services in IS domain and shared services in HE sector) are integrated in the whole (ICT shared services in Malaysian HE sector) and define it by using the concepts of the hermeneutic circle. At the same time, the candidate recognizes how the whole contextualize each of the parts, seeking to shed light on the phenomenon within its context. The process involves an examination of the parts, defining each component before it is reintegrated into the whole (Paterson & Higgs, 2005).

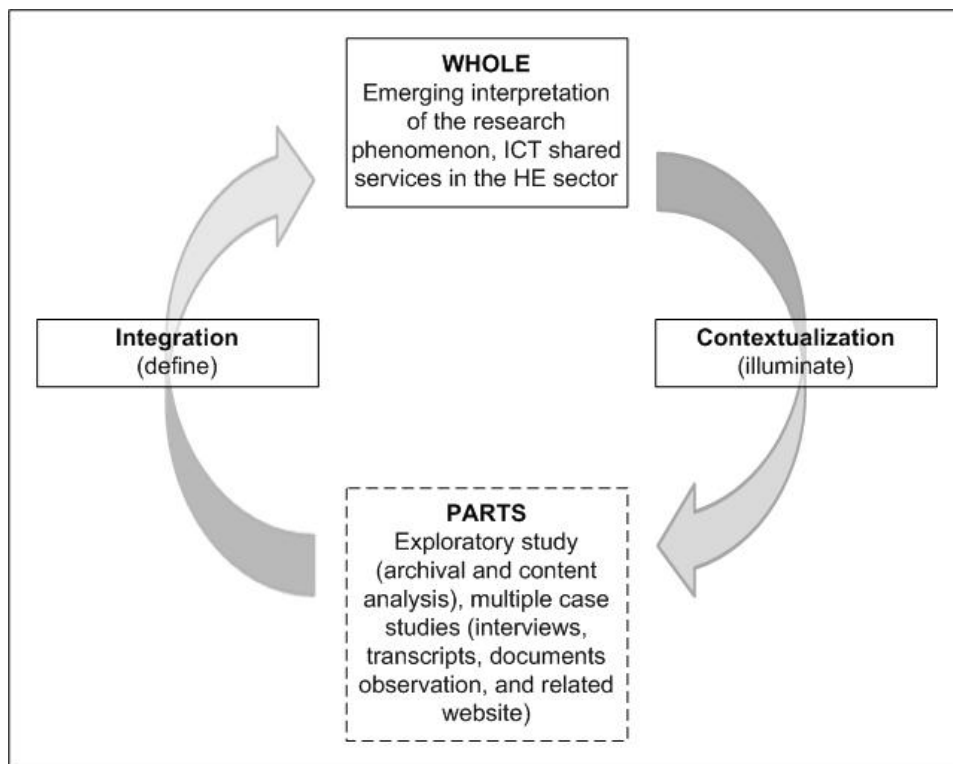


Figure 3.5: Use of hermeneutic circle in this study

3.3.2.2 Applying the principle of contextualization (Principle 2)

The principle of contextualization “is an inevitable difference in understanding between the interpreter and the author of a text that is created by the historical distance

between them. ... one of the key tasks becomes one of seeking meaning in context." (Klein & Myers, 1999, p. 73).

This study has applied the principle of contextualization by generating a firm understanding of the study domain (i.e. in the 'Define context phase', see Section 3.2.1 for further details); through a detailed literature review, a pilot case study, and overall study goals derived from historical motivations from the study context. This enabled the candidate to better understand the phenomena of interest. Furthermore, this also pointed to the need to embark on an exploratory phase (see Section 3.2.2), which also can be seen as 'parts' of the hermeneutic circle as depicted in Figure 3.5. An overview of the current status of shared services in the HE sector (see Chapter 6) and further details about the Malaysian HE sector and its interest for shared services (see Appendix A) are presented in this thesis as a means of contextualizing the study. Overall, the principle of contextualization helped the candidate to decide on what relevant context(s) should be explored (Klein & Myers, 1999).

3.3.2.3 *Applying the principle of interaction between the researcher and subjects (Principle 3)*

The principle of interaction between the researcher and subjects is more focused on describing the ways in which data collection and interpretation affected each other (Klein & Myers, 1999). This study has applied this principle by providing a dedicated chapter for research design. Furthermore the candidate also provides more discussion of research methods/designs and the ways in which data were collected as each main task in this study are presented. These research methods/designs are found in Chapters 4 until Chapter 10. Each core phase of the study was designed with careful attention to procedures outlined in the respective chapter, thus also providing a theoretical contribution to the field in a methodological aspect.

3.3.2.4 *Applying the principle of abstraction and generalization (Principle 4)*

This requires interpretative researchers to relate the data interpretation through the application of theories (Klein & Myers, 1999). This means that their data are explained by the application of general concepts or theories that describe the nature of human understanding and social action. The difference from the positivist way of theory application is that the researchers are not interested in falsifying a theory; rather they use theories as a sensitizing device to view the world in a particular way (Klein & Myers, 1999).

In line with the interpretive tradition, Walsham (1995) identifies four types of generalization in interpretive studies: the development of concepts, the generation of theory,

the drawing of specific implications and the contribution of rich insights. The latter two are considered more relevant to the purpose of this study with its highly contextualized approach - ICT shared services in HE sector. The primary outcomes of the multiple case studies phase (see Chapters 8-10) were early efforts of building theories. Specific implications that may be 'valuable in the future in other organizations or contexts' was also drawn from the study; see Section 11.3 in Chapter 11. Rich insights can also be gathered from a deep understanding of the case contexts (i.e. findings from Chapter 8 to 10 – shared services in HE sector) and how that context revealing tendencies that may apply to other contexts.

3.3.2.5 *Applying the principle of dialogical reasoning (Principle 5)*

The principle of dialogical reasoning requires “*researcher to confront his or her preconceptions (prejudices) which guided the original research design (i.e. the original lenses) with the data that emerge through the research process*” (Hirschheim & Klein, 1989, p. 82).

This study has applied this principle, by requiring the candidate to confront her preconceptions with data that emerge from research. This principle also suggests that the research findings might not support the initial theoretical preconceptions of the study and that the researcher must be aware of the need to revise these as necessary. The selection of an interpretive perspective has certain implications for the research approach. The inductive approach, which moves from observation towards theory, better suit the emergent nature of ICT shared services and ties in well with the fundamentally hermeneutic nature of this interpretive study as described in Section 3.3.2.1. There are three key points at which the research design was altered or certain approaches in the study need to be considered as a result of the study.

First, the initial research question provided in this study was succinct and relevant to the research and study context as demonstrated by the initial study motivations. The results of the literature review and pilot case study conducted pointed to the need to re-define the research questions and research context, which helped to focus the study and allowed the researcher to constantly confront any preconceptions (principle of dialogical reasoning) – see Section 3.3.2.5.

Second, this study’s primary focus was to understand the potential for shared services in the Malaysian HE sector, in particular ICT related shared services; by deriving theoretically based conceptualizations of the potential benefits of shared services, and success factors and issues of pursuing shared services. The study embarked on these goals

with a literature review and pilot case study (conducted in an Australian University) as a means to further define the context of the study. This context definition phase illustrated a range of unaddressed issues; including a lack of common understanding of what shared services are, how they are formed, what objectives they full fill, who is involved etc. The study thus embarked on an exploratory phase that aimed to address this gap (see Section 3.2.1) and again allowed the researcher to constantly confront any preconceptions.

Third, inductive and deductive approaches were considered initially as a potential strategy because of its strengths in relating to Klein and Myers' principles 5. This approach is effective in countering the question of researcher bias by specifying that a researcher has to set aside theoretical beliefs at the first place and let the theory emerge from the data (Fernández, 2005). Hence, in this core phase of this study (the multiple case study- see Chapters 8 to 10), the data was first analyzed inductively to derive preliminary themes from within the case data alone, and the findings were then subject to frameworks based on literature and earlier phases of the study (i.e. Chapters 2, 5 and 6) - hence a deductive influence, to further fine tune and justify the themes identified. Furthermore, this study carried out a detailed exploratory study prior to the multiple case studies phase to prevent bias and improve reliability of interpretations. Hence, the principle of dialogical reasoning has been applied to make the research as transparent as possible to the reader.

34 RESEARCH APPROACHES

The selection of research approach is important as the selected approaches may, contribute to or limit, the research study and eventually allow the candidate to satisfy the objectives of research (Marshall & Rossman, 2011). The differences, strengths and weaknesses of qualitative and quantitative research (i.e. Kaplan & Duchon, 1988; Lee, 1991; Orlikowski & Baroudi, 1991) have long been debated, especially in the social sciences (Kohlbacher, 2006). The decision of whether to choose a quantitative or a qualitative design is a philosophical question. It is up to researchers to choose the methods as it depends on the nature of the research, the type of information needed, context of the study and the availability of recourses (time, money, and human). Although the two approaches share basic principles of science, researchers need to use careful, systematic methods to gather high-quality data (Neuman, 2003). However, both significantly differ in various aspects. Quantitative research relies on measurement and counts while qualitative research relies on the meanings, concepts, contexts, description and settings (Orlikowski & Baroudi, 1991). Quantitative research involves analysis of numerical data while qualitative research involves

analysis of data such as words (e.g. from interviews), pictures (e.g. video), or objects (e.g. an artifact) (Miles & Huberman, 1999).

Qualitative methods and interpretive perspectives have recently been widely used in information systems research (Benbasat, et al., 1987; Kaplan & Duchon, 1988), this study also sought to better understand the phenomenon of interest through qualitative research. This is because a thorough understanding about the status of shared services in general, its adoption and proliferation in the HE sector and how ICT played a role in the growth of shared services is needed in this study. This will usually raise various issues that are complex to be explored or measured only with quantitative methods. The data that can be obtained from the field are so rich; it needs more than categorization and identification of relationship in analyzing the situation. An in depth data collection and analysis with qualitative methods would allow better understanding of the phenomenon.

Qualitative research comprised several methods as mentioned in (Savenye & Robinson, 2004, p. 1046), “typically include interviews and observations but may also include case studies, surveys, and historical and document analyses”. Unlike quantitative research which categorizes people or events in terms of academic theories (Rubin & Rubin, 2005), qualitative methods enable researchers to produce richer explanation and more complex data from the studied context (Markus & Robey, 1988). However, Bernard and Ryan (2010) argue that the words ‘qualitative data analysis’ is vague, “It can be ‘the analysis of qualitative data’ or it can mean ‘the qualitative analysis of data’” (p. 4). Table 3.3 illustrated the possibilities in eliminating the confusion by clearly differentiating data and analysis in the qualitative approach (extracted from Bernard & Ryan, 2010, p. 4).

Table 3.3: Key qualitative and quantitative distinctions

Analysis	Data	
	Qualitative	Quantitative
Qualitative	A Interpretive text studies. Hermeneutics, Grounded Theory, etc.	B Search for and presentation of meaning in results of quantitative processing.
Quantitative	C Turning words into numbers. Classic Content Analysis, Word Counts, Free Lists, Pile Sorts, etc.	D Statistical and mathematical analysis of numeric data.

As mentioned earlier, this study primarily applied the qualitative method and interpretive perspective (see the top left cell, A, in Table 3.3). However in order to address potential limitations of a purely interpretive view, the candidate adapts a positivist approach for the analysis in this study (i.e. use content and archival analysis in exploratory study) to

support the whole of the study which is ICT shared services in Malaysian HE sector (see Section 3.3.2.1). The bottom left cell, C, in Table 3.3 illustrated the quantitative analysis of qualitative data used in this study (see Section 3.4.1.1, and 3.4.2.3.2 for further details). Hence, this study has applied a mixed-method of data analysis for the qualitative data resulted from exploratory and the multiple case study phases.

In order to address the primary and secondary research questions (as described in Section 1.4 – Chapter 1) for this study, two research methods were used; **Archival Analysis** (to provide the required foundations for the study) and **Case Study** (to attend to the primary goals of this study). These two research methods are introduced below.

3.4.1 Archival Analysis

An archival analysis was used in the overall research design (see Phase 2 of Figure 3.1) to analyze the secondary data resources to further understand the: (1) shared services in IS domain and (2) shared services in the HE sector. As indicated earlier, this phase was added to the study design after some initial work (resulting from Phase 1).

Archival analysis ideally is a systematic procedure for reviewing or evaluating documents, text or speech to see what themes emerge. According to Vom Brocke et al. (2009) archival analysis is an observational method, where the researcher examines an accumulation of documents (articles, magazines, and newspapers). In an archival analysis, sources of data (i.e. documents that may be used) are various. They can include “*advertisements; agendas, attendance registers, and minutes of meetings; manuals; background papers; books and brochures; diaries and journals; event programs (i.e., printed outlines); letters and memoranda; maps and charts; newspapers (clippings/articles); press releases; program proposals, application forms, and summaries; radio and television program scripts; organizational or institutional reports; survey data; and various public records*” (Bowen, 2009, p. 27). Archival data/documents are the routinely gathered records of community, organization or society and “*these may further supplement other qualitative methods*” (Marshall & Rossman, 2011, p. 161). Archival Analysis will often also include an activity to see what the other researchers talk about the most. The researchers seek for ‘themes’ of interest and also try to see how these themes are related to each other.

Yin (2009, pp. 102-103) argues that document and archival analysis is a relevant methodology since the information is usually precise, can be reviewed repeatedly, has broad coverage and is accessible through proper searches. In addition, some findings should lead to important deductions.

The documents/data used in Archival Analysis studies are secondary data resources, which presents a variety of untapped opportunities in IS research (Jarvenpaa, 1991). Yin (2009) emphasizes that all documents should be carefully scrutinized for any indications of bias. Information in these documents is useful but not always accurate, and biases need consideration. In order to address this concern, a variety of documents were included in this study's Archival Analysis efforts which were obtained from various sources as described in summary below.

As depicted in Figure 3.3, the archival analysis of shared services literature in the IS domain (Task 4.0), was conducted to have a clear(er) definition of shared services- what it is, who is involved, what is shared, and why consider shared services, specifically from an IS lens (scope and context of the study). Relevant literature from the IS domain (i.e. selected IS journal and IS conference articles published from the inception to September 2011) were carefully extracted and the literature prepared for analysis (see Section 5.3.1 in Chapter 5 for further details).

The archival analysis of shared services case studies in the HE sector (Task 5.0, see Figure 3.3) was conducted to get a better understanding of how the shared services notion has been adopted in the HE sector, in particular to identify how the sharing is structured. An early pilot effort using internet and database searching quickly revealed that information on shared services case studies was not to be found in academic outlets, but rather was scattered across disparate sources and formats (e.g. reports, white papers, slide presentations and web site information etc.). These early information retrieval trials suggested the need to search for documented evidence via a structured internet search strategy, using an effective search engine. Hence, this study followed a carefully documented internet searching procedure (i.e. Google) to identify shared services case studies in the HE sector (see Section 6.4.1 in Chapter 6 for further details) and resulted in 36 case studies that were then analyzed to derive eight possible shared services structural arrangements.

Archival analysis is suited for this study; overall in general, but also to how it was positioned in the research design. Archival analysis can be viewed as secondary data analysis that “*can complement the primary research*” (Jarvenpaa, 1991, p. 66) when it's used in conjunction with other sources. Thus, study uses archival analysis in combination with primary data [which is obtained from the multiple case studies (i.e. Task 6.0)] to investigate a problem more thoroughly and to understand its major features (Jarvenpaa, 1991). Furthermore, this method is suitable to answer types of question such as ‘who’, ‘what’, ‘how’ and ‘why’ (Yin, 2009) when conducting the analysis of archived documents for shared services in; IS domain and HE sector which will be described further in the following

section. Hence, this study uses Archival Analysis in the attempt to address the primary objectives, by understanding the secondary objectives (as described earlier in Section 3.3.2.1), which are addressed by conducting the archival analysis of shared services in the IS domain and HE sectors.

3.4.1.1 Content analysis

Content analysis is a technique usually used in document analysis (McNabb, 2008). Content analysis is a research tool used to determine the presence of certain concepts within texts or sets of texts. Content analysis is extensively used as a textual data codification and synthesis technique (Chua, Wareham, & Robey, 2007; Grazioli & Grazioli, 2003; Kohlbacher, 2006) for efficient analysis of large data sets (Sonpar & Golden-Biddle, 2008). An example of such data is an archival data of secondary resources such as selected IS journal conference articles and also ranges of reports, white papers, slide presentations and web site information etc. (Burrus-Bammel, Bammel, & Kopitsky, 1988, p. 33), as described earlier in Section 3.4.1. Most essential is that the data enabled to provide useful evidence for answering the research questions (White & Marsh, 2006). This section presents how content analysis of such data can be used within Archival Analysis to analyze extracted articles. This approach was chosen and applied in this study: (1) to understand the status of shared services as presented in IS literature, (2) to understand how the nature of shared services was perceived and reported by other researchers in IS, and (3) to understand how shared services is applied in the HE sector.

There are three types of content analysis, namely (1) conventional content analysis, (2) direct content analysis, and (3) summative content analysis. Table 3.4 summarizes the three different types of content analysis which is extracted from (Hsieh & Shannon, 2005, p. 1277).

Table 3.4: Three different types of content analysis

Types of Content Analysis	Description
Conventional content analysis	Coding categories are derived directly from the text data
Direct content analysis	Analysis starts with a theory or relevant research findings as guidance for initial codes
Summative content analysis	Involves counting and comparisons, usually of keywords or content, followed by the interpretation of the underlying context.

As mentioned earlier in Section 3.4.1, this study uses archival analysis and content analysis to consolidate and synthesize the findings of existing material published on shared services. Overall, all three types of content analysis described in Table 3.4 have been used within this study. Findings resulting from this effort is presented in Chapter 5: shared

services in the IS domain and Chapter 6: shared services in the HE sector where systematic means of identifying, extracting, analyzing and synthesizing published resources were presented together with the resulting outcomes. How these types of content analysis were applied within this study is briefly discussed below.

Conventional content analysis involves identifying and extracting relevant text based on the goal of the main task in the research design (see Section 3.4.1.1) and later distilling core themes from the extracted text. Both archival analysis of shared services in; IS domain and HE sector (i.e. Task 4.0 and 5.0 as depicted in Figure 3.3) used this type of content analysis. As discussed earlier, the goal of Task 4.0 was to derive a synthesized review of shared services literature within IS academe. Hence, the pre-codification scheme was based on the basic questions of what, why, who and how for understanding shared services. This study captures the ‘what’ and ‘why’ of shared services by addressing the definitions and objectives. This study also analyzed and synthesized the ‘who’ and ‘how’ by identifying the stakeholders and exploring the ‘notion of sharing.’ In addition, this study addressed the research perspective by capturing the reported theoretical backgrounds and research methods (see Section 5.6 in Chapter 5 for further details). The goal of Task 5.0 was to identify and explicate the different structural arrangements. For instance the composition of and relationships among organizational units in relation to shared services, as reflected in the pool of evidence gathered. The analysis took place in multiple rounds to extract text that explain ‘how’ the sharing arrangements were structured, ‘who’ was involved and ‘what’ types of sharing arrangements involved in shared services initiatives. The result of this analysis showed that all dimensions (i.e. D1-Separate organizational entity, D2-Sharing boundary, and D3-Third party involvement) were instantiated across the case study data (see Section 6.5.1 in Chapter 6 for further details).

Direct content analysis involves the use of prior frameworks to support coding and analysis of the case data. This type of content analysis is used in parts of Task 5.0: conduct content & archival analysis of shared services in IS domain, particularly in understanding the objectives of shared services. For example, the study used Janssen and Joha’s (2006) framework, identified from the early literature review phases of this study and applied the framework to guide the archival analysis of both primary and secondary papers (see Section 5.5.2 in Chapter 5 for further details).

Summative content analysis involves clear account of the themes and is followed by the interpretation of the underlying themes, where one uses evidences such as; number of sources and number of coding references (how many separate instances of this concept was mentioned across the sources. In this study, summative content analysis is applied as a

second step of content analysis (after conventional and/or direct content analysis) to facilitate the candidate in interpreting findings better. This type of content analysis is used in Task 5.0: conduct content & archival analysis of shared services in IS domain. This analysis was used to report several findings as reported by IS literature which is presented in Chapter 5: shared services in IS domain. For example, it was applied when; (1) reporting the status of shared services in the IS literature - see Section 5.4, (2) synthesizing the categories of shared services objectives – see Section 5.5.2, (3) a summary overview of data gathered from literature about shared services stakeholders was provided – see Section 5.5.3, (4) a summary of data gathered from literature about different forms of sharing was provided – see Section 5.5.4, and (5) summary results of success/failure factors of shared services was provided– see Section 5.5.5. ‘Counts’ of evidence types and categories identified were used at all these instances to provide overall synthesis and meta-level analysis of these observations made.

3.4.2 Case Study Research

Based on the overall research design presented in Section 3.2 above, a multiple case study (primarily exploratory and theory development in nature) has been included in this study. The study has been designed based on the guidelines of interpretive case researcher Klein and Myers (1999). However, positivist approaches (i.e. content analysis) were also embedded when deemed relevant, especially when the results from the content analysis were used as input to the more interpretive case study work and was also used for triangulation purposes to further justify the observations found in the case studies. For example, this study used archival and content analysis for systematically coding and analyzing qualitative data in an archival analysis approach as presented earlier in Section 3.4.1, which was input to the case study phase. Jarvenpaa (1991), Yin (2009), and Marshall and Rossman (2011) justify how such a ‘mix’ of views is valid, in fact deemed more rigorous.

Case study research is conducted by employing various methods of data collection to gather information in natural settings and within the current context of one or several entities which can be individuals, groups of people, an activity or organization (Benbasat, et al., 1987). Case studies could be single or multiple-case designs. Results obtained from any types of case study design is generalizable to the proposed theory but not to the population studied (Yin, 2009).

Case study research can include various methods of data collection, including; interviews, focus groups, observation, document analysis and questionnaires (Yin, 2009). Results from a case study are not statistically generalized since it normally involves only a

single or a few cases of study (Stake, 1995). Stake (2005) views case studies are more valuable in refining theory, and propose further investigation to assist in establishing limits of generalizability as not all instances in a research are suitable to be generalized. Qualitative case studies are more for particularization of experience rather than to generalize instances (Patton, 2002; Stake, 2005).

The case study method is suited for this research, as the context of this study; shared services, is not well researched, is complex in nature, and warrants to be studied in its rich and natural context. This study aims to study shared services from an IS perspective. The focus of this study is on IS in organizations, and on understanding ICT shared services in HE sector which concur with statement made by Benbasat et. al (1987, p. 382) which concluded that *"the case strategy is particularly well-suited to IS research because the technology is relatively new and interest has shifted to organizational rather than technical issues"*. A case approach is an appropriate way to research an area in which few previous studies have been carried out. The case study method is *"especially appropriate in new topic areas"* (Eisenhardt, 1989, p. 532). *"Case research is particularly appropriate for certain types of problems: those in which research and theory are in their early formative stages"* (Benbasat, et al., 1987, p. 369). Furthermore, the case studies *"can employ an embedded design, that is, multiple levels of analysis within a single study"* (Eisenhardt, 1989, p. 534).

Yin (2009) states that there are three types of case studies used for research: Exploratory, Explanatory and Descriptive.

- 1) Exploratory case studies are generally used to answer 'what' questions where the goal is to *"develop pertinent hypothesis and propositions for further inquiry"* (Yin, 2009, p. 9). This is often applied as a prelude to a larger study, to assist in the formation of the research questions and hypothesis.
- 2) Explanatory or causal case studies are designed to answer 'how' and 'why' questions. The goal is to determine whether there are causal (or any other relationships) between variables or events (Yin, 2009).
- 3) Descriptive case studies are generally used to answer 'what' questions in the form of 'how many' or 'how much' (Yin, 2009). The goal is to provide the researcher with a rich description of the phenomenon being studied.

In this study, the pilot case study was exploratory in nature and was applied solely to design the final case study protocol. Exploratory *"pilot projects are very useful in*

determining the final protocols that will be used” (Tellis, 1997). The pilot case study (see Chapter 4) served as the primary test ground for deriving the overall case study design (see Chapter 7), which was documented in a detailed multiple case study protocol (see Appendix D, Section D.2). This protocol provided detailed procedural guidelines to complete the multiple case studies with rigor.

Based on the foundations presented above, the case study work undertaken in this study can be classified as exploratory in nature. The main objectives of applying the case study method in this research area as follow:

- 1) to explore and better understand the shared services topic area,
- 2) to explain the sharing arrangement that occurs in the HE sectors,
- 3) to describe the current status of shared services in the HE sectors, and
to develop a deeper understanding of the benefits, success factors and issues of implementing shared services in the HE sector.

3.4.2.1 Unit of analysis and case selection

The unit of analysis and the selection of cases are crucial factors in case study research. An individual case unit is “*typically a system of action rather than an individual or group of individuals*” (Tellis, 1997, p. 1). Yin (2009) suggests that the unit of analysis defines the case in a case study. He suggests five possible units of analysis: individuals, decisions, programs, implementation processes, and organizational change. The unit of analysis of this study is the organization. Here, the shared services notion is studied at a whole of organization perspective. Thus, department/unit/ICT project head that are responsible to provide and manage IT in the organization were sought as candidate case study participants

Case selection is important in case study research as such cases provide “*a better opportunity to gain knowledge of the phenomenon under investigation*” (Collier, Mahoney, & Seawright, 2004, p. 87). Tellis (1997) have noted that case selection is a difficult process, however according to the suggestion by prominent authors in the field, Yin (2009) and Stake (1995) recommend the case selection on two factors: feasibility and participants willingness. For example, cases are very often selected because of their historical importance or because they have accessible evidence (George & Bennett, 2005, p. 25). Further details on unit of analysis and case selection in conducting case study research are presented in Section 7.2.1, Chapter 7.

3.4.2.2 *Interview strategy*

Interview is one of the primary data collection methods that are widely used in qualitative research. Seidman (2006) indicated that this method suits the qualitative research approach as it allows the understanding of interviewees' experience. An interview technique fitted with the aim of this study; to explore the experience of the participants in implementing sharing arrangements within the university or/and across universities in Malaysia.

Qualitative interviewing can be informal, semi-structured or open-ended interviews (Patton, 2002). Informal interviews much relies on the spontaneous questions by the interviewer with natural interaction with the respondents where the respondents might not even be aware of the interview taking place. A semi-structured interview involves the interviewer to outline a set of issues to be asked prior to the interview. However, these issues may not necessarily be asked in any particular order and only serve as a checklist during the interview to ensure all the relevant topics to be covered. While standardized open-ended interviews consists of set of questions which are structured in particular order which need to be followed by the interviewers throughout the interview process.

Semi-structured interviews were chosen for the study as it offers the flexibility in exploring emergent themes and ideas rather than relying only on concepts and questions defined in advance of the interview. However, the questions drawn for the interviews were still bound to the interview questions developed (see interview protocol in Appendix D) prior to the data collection, which aligned to the main research goal, to ensure that the interview will not go astray. The interview questions based on the case study protocol was used to guide the interviewer but the respondents were given sufficient time to reflect and steer the interviews. At times, the interviewer prompted respondents based on the initial answers given by the respondent or summarized their responds to seek clarification or probed deeper. The interviews were conducted in a mix of both English and Malay Language, a language commonly spoken by public servants especially in West Malaysia where the case studies were being conducted.

Each of the interviews lasted between sixty to ninety minutes. The interviews were all tape-recorded (with the respondents who gave their permissions), and transcribed. The transcripts were then organized and recorded accordingly; see section 7.3.3 in Chapter 7 and section D.9 in Appendix D for further details.

Similar to conducting interviews, researchers need to be organized, and pre-read as many pieces of information that is available. They should yet be open for unexpected cues while collecting data through document reviews (Stake, 1995). It can capture useful information that interviews may miss (Creswell, 2007). Documentation related to the case participants' organizational background was reviewed. Examples of such documents reviewed were; secondary resources gathered in the organizations from annual reports, company directories, business and specialist press, homepages and other published materials about the organizations. Any information related with the interview sessions (e.g. participants' profile) and to understand the sharing activities related with the case organization (e.g. any published articles, booklets, pamphlets related with the implementation of sharing initiative related with the case organizations) were also analyzed to compliment and augment the understanding of the interview data (see Section D.1 in Appendix D for further details about the types of documents that were reviewed).

3.4.2.2.1 Sampling for interviews

Interview sampling is to find the right respondents for the interviews which involves *“those who have made the experience relevant for the study”* (Flick, 2007). The interviewees were selected by purposeful sampling, based on their position in the university, or by their recommendation by other interviewees (referred to as snowballing). In order to choose cases with rich of information, the selected interviewees were also experienced, having mostly been with the university for over 3 years, having a considerable historical knowledge and understanding of the sharing arrangements occurred in the university (Patton, 2002), see further details in Section 7.4.4 – Chapter 7.

Criterion sampling, which filters interviewees as they relate to the study purpose was also used (Patton, 2002), as the researcher sought information from different aspects of sharing arrangements in the university (i.e. the types of sharing arrangement and anticipated benefits, success factor and issues related with such sharing arrangements) to form an understanding of how the implementation was viewed from all sides (Patton, 2002).

The first level of interviewees identified were the Directors of ICT Centres who are located in each university and provided direct support to the university's business process. This first level of interviewees acted as gatekeepers; see Section 3.4.2.2.2 for further details. The second level of interviewees was selected based on recommendations by the gatekeeper or by other interviewees from the second level of interviewees. The second level of interviewees looked after the sharing arrangements as a whole either within the university of across universities in Malaysia (i.e. the Deputy ICT Director and related sharing arrangement ICT Project Leader), see Section 7.3.3 in Chapter 7.

3.4.2.2 *Access strategy*

Entering and gaining access to the organizations where the case studies are to be conducted requires a flexible strategy plan or action (Neuman, 2003). A proper strategy minimizes potential problems the researcher may encounter while collecting data in the organizations and avoids gathering of superficial and irrelevant data to the objectives of the research. The research methods and roles adopted by researchers are two important considerations to access an organization (Gummesson, 2000). The Director of ICT Centre will normally assume the role of IT “gatekeepers” to the organizations and sometimes the role was assigned to other IT personnel. *“Gatekeepers are those who can open or close the researcher/consultant; informants, those who can provide valuable information and smooth the way to other”* (Gummesson, 2000, p. 28). The role of these “gatekeepers” is essential in ensuring effective access to the organizations. At the initial preparatory phase, the gatekeepers were approached through email with a mini proposal (see D.5 in the Appendix D) seeking support for a case study at the respective university and to allow them to have an idea of what to expect during the case study. Once approved by the respective university, an interview was arranged and scheduled.

3.4.2.3 *Data analysis*

Data analysis is the process of scrutinizing the data collected by examining, categorizing, mapping, comparing and conducting any other necessary procedures in order to answer the research questions indicated early in the research (Yin, 2009). Miles and Huberman (1999) describe the process of data analysis as a form of an interactive model which include various components of the data analysis processes namely data collection, data reduction, data display and conclusion drawing/verifying.

In a qualitative research, it is inevitable for researchers to go through these processes. Data analysis was not necessarily conducted only after the data collection took place, but it may occur before, during and after the data collection process (Bernard & Ryan, 2010). *“... in qualitative research, data analysis often begins during, or immediately after, the first data are collected, although this process continues and is modified throughout the study”* (Burnard, Gill, Stewart, Treasure, & Chadwick, 2008, p. 430). In the case of this study, the analysis started at the very early stage of the research. While doing the literature review and exploratory study, relevant criteria were developed according to the chosen categories/themes (i.e. the anticipated benefits, success factors, dimensions of shared services typology etc.). This categorization then becomes the guide in data collection which also can act as a form of a filter, by reducing the amount of unnecessary data to be collected

(data reduction) (Miles & Huberman, 1999).. This process assisted in directing the flow of data collection while in the field; for example probing of further questions to the respondents if the initial given answers were considered insufficient. The advantage of overlapping the data analysis with data collection is noted by Eisendhardt (1989, p. 539), “*Overlapping data analysis with data collection not only gives the researcher a head start in analysis, but more importantly allows researcher to take advantage of flexible data collection*”. This however also depends on the researcher’s experience. A better experienced researcher would be able to conduct simultaneous data analysis during the data collection process more effectively.

Once the study has chosen the case sites, settled on an access strategy, selected a sample, and determined the methods to be adopted for collecting data, and then the study can proceed towards collecting, analyzing and interpreting the data. The following section will discuss these in details.

3.4.2.3.1 Approaches to analyzing data

Interview transcripts, field notes and observations do not provide any intended meaningful explanations directly to the study, but they provide a descriptive account of the study in form of collating data (Silverman, 2005). It is the researcher responsibility to make sense of the data that have been collected by analyzing and interpreting them. “*One of the most important steps in the qualitative research process is analysis of data*” (Leech & Onwuegbuzie, 2007, p. 557). There are two fundamental approaches to analyze qualitative data: the inductive approach and the deductive approach (Burnard, et al., 2008).

Inductive approach basically involves analyzing data to generated ideas [e.g. codes emerge from the data (Leech & Onwuegbuzie, 2007, p. 565)] which involves “*with little or no predetermined theory, structure or framework and uses the actual data itself to derive the structure of analysis*” (Burnard, et al., 2008, p. 429). Conversely, the deductive approach begins with certain framework or idea and uses the data to confirm or negate the framework or idea. “*Essentially, the researcher imposes their own structure or theories on the data and then uses these to analyze the interview transcripts*” (Burnard, et al., 2008, p. 429). This study uses both approaches in analyzing the case study data. The data was first analyzed inductively to derive preliminary themes from within the case data alone, and the findings were then subject to frameworks base on literature and earlier phases of the study (i.e. Chapters 2, 5 and 6) - hence a deductive influence, to further fine tune and justify the themes identified. “*The inductive/deductive approach and the constant reference to the data helps to “ground” the theory*” (Mangan, Lalwani, & Gardner, 2004, p. 572). This is further described in Section 7.5.3 in Chapter 7 and also within the ‘Applied Approach’ sections in Chapters 8-10, as each of the different core outcomes is presented.

The approaches of analysis described earlier can be managed manually or can be managed and assisted by computer-assisted qualitative data analysis software (CAQDAS) packages available (Burnard, et al., 2008). This study uses NVivo (see Section 3.5.1 for further details) to analyze the data in the multi phased study (this further described in Section 7.5.1, Chapter 7).

3.4.2.3.2 *Strategy for coding data*

Qualitative data is complex, and it is necessary to analyze it to find some sort of order and coherence within the data set, and to see how the data relates to the research questions. The excellence of the research rests in large part on the excellence of the coding. Coding is a way of classifying or tagging data so it can be reviewed by category as well as source. *“Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study”* (Miles & Huberman, 1999, p. 56). According to Buchanan and Jones (2010) data codification is an important part of data analysis and *“coding requires the researcher to firstly identify the meaningful segments of text among the less valued data, and secondly, to tag or label these data so that they can be located alongside equally salient data”* (p. 3). In doing so, codes must be descriptive and sufficient to hold other similar pieces of information that exemplify some theoretical or descriptive idea.

There are various different approaches to coding data which researchers used to analyze data for themes, either pre-determined or emerging. This is also influenced by the overall analysis approach (inductive or deductive) selected. Open coding and axial coding are two types of coding identified by (Corbin & Strauss, 2008), which contributes to an inductive analysis approach.

An open coding refers to the process of **coding** or **labelling words and phrases** found in the text or transcripts, and ideally *“stick closely with data”* (Charmaz, 2006, p. 47). There are four initial coding practices, as introduced by Charmaz (2006): (1) Word-by-word coding, (2) Line-by-line coding, (3) Coding incident-to-incident, and (4) In vivo codes. Axial coding refers to deriving **categories** or **themes** by grouping codes or labels given to words and phrases, *“Axial coding relates categories to subcategories, specifies the properties and dimensions of a category, and reassembles the data you have fractured during initial coding to give coherence to the emerging analysis”* (Charmaz, 2006, p. 60). In this study, both types of coding types have been used to help the candidate to analyze data for themes. See dedicated section for coding strategies in Chapter 7 (see Section 7.5.2) and 8-10 (see Section 8.2, 9.2 and 10.2) for further details on how the candidate applies the coding strategies.

35 COMPUTER-ASSISTED ANALYSIS APPROACH

In 1960s onward the use of computers for basic content analysis of text became popular which was also referred to as CAQDAS - Computer-Assisted Analysis of Qualitative Data (Silverman, 2005). A CAQDAS program should have content searching features, coding features, linking features, query features etc. CAQDAS packages may also enable the incorporation of quantitative (numeric) data and/or include features for taking quantitative approaches to qualitative data (Lewins & Silver, 2004). There are ranges of CAQDAS software can be found in the market such as NVivo (Gregorio, 2000; Richards, 1999a, 2002b), NUD*IST (Barry, 1998; Pope, Ziebland, & Mays, 2000; Richards, 2002c) and ATLAS.ti (Barry, 1998; Gregorio, 2000; Pope, et al., 2000).

In this study, computer-assisted analysis, specifically NVivo is used in two main tasks as presented in overall research design in section 3.2: (1) when investigating shared services in IS domain (see Task 4.0 of Figure 3.1) and (2) when conducting the multiple case studies (see Task 6.0 of Figure 3.1). NVivo is chosen as a qualitative data analysis and management software package in this study, due to the following reasons:

NVivo provided functionalities that were well suited for the researcher's needs. Prior studies recommended the use of NVivo and provided guidance for literature reviews (Beekhuyzen, 2007; Gregorio, 2000) and case study research (e.g. Bandara, 2006; Beekhuyzen, Nielsen, & Hellens, 2010).

- 1) The licensing of this software was provided freely by the candidate's university.
- 2) The tool was easy to learn use and helped manage the qualitative data collected
- 3) The tool features helped in speeding up the qualitative data analysis
- 4) It aided in traceability of the analysis, specifically in the PhD journey and writing articles. It functioned as a tool that supported the communication within the research team – as all coding details and thoughts captured during the coding were captured as memos and annotations and was available for the whole team to review.
- 5) It also served as a repository of maintaining all data files electronically

The following section describes with some further details how NVivo was used as a research management tool within the archival analysis work and the case study work.

3.5.1 NVivo as a Research Management Tool.

NVivo is a computer program for qualitative data analysis allowing the import and coding of textual data, editing of the text; retrieval, review and recoding of the coded data; searching for combinations of words in the text or patterns in the coding; and importing from or exporting data to other quantitative analysis software. NVivo was developed by QSR International¹⁴.

Time and effort is required to learn and master NVivo; this discussion is not intended to provide a tutorial on the tool in general. Many resources exist to assist with the NVivo tool such as the user manual and HELP facility provided with the tool itself, articles (Bandara, 2006; Gregorio, 2000; Richards, 1999a; Richards, 2002c), books (Gibbs, 2002; Richards, 1999b, 2002a, 2002b) and online resources¹⁵. The NVivo help, online tutorials and the above mentioned resources, describe navigation and functionality in detail. NVivo 9.0 was used as a qualitative data management and analysis tool; to systematically code and analyzes the data within one single repository. NVivo has effectively been applied for analyzing prior literature (Bandara, 2006; Gregorio, 2000), and this study adapted the coding and analysis strategies based on these prior studies.

3.5.2 Applying NVivo in Archival Analysis

The archival analysis in this study had several goals. NVivo is used as a qualitative data analysis technique in this study to synthesize and manage the plethora of literature that was extracted in the Archival Analysis phase (Chapter 5: shared services in IS domain). The application of a qualitative data analysis tool in a literature review process can increase ‘representation’; “*the ability to extract adequate meaning from the underlying data*” (Leech & Onwuegbuzie, 2007, p. 579). Most of the main qualitative data analysis software packages can be used to systematically capture, code, and analyze the literature within a single repository (Lewis, 2004). This study employed NVivo 8.0, adapting coding-and-analysis strategies from prior work by (Bandara, 2006; Beekhuyzen, 2007; Gregorio, 2000). There were two primary intentions of using NVivo with the archival analysis component of this study, which looked at the status of shared services in an IS lens (see Chapter 5):

- 1) to provide a holistic view of the current status of research in the study domain, and

¹⁴ See vendor web page at <http://www.qsr.com.au/>.

¹⁵ See vendor web page at <http://www.qsr.com.au/>.

- 2) to provide a structured approach to writing a comprehensive study findings (i.e. Bandara, Miskon, & Fielt, 2011).

All data within the NVivo tool is arranged around ‘Documents’ and ‘Nodes’. Documents are simply data that one analyses in the study. Nodes are places where one stores ideas and categories. It is important to note the difference between a code and a node, in NVivo parlance. A Node is a physical location where you store the groups of ideas that would be coded, and these nodes can be organized in branches (like a folder-tree). Coding (putting things into codes) is a process; a way to label certain aspects of the data and to sort information in distinct categories. The coding process applied three types of content analysis as described earlier in this chapter (see Section 3.4.1.1 for further details in coding this task). The node on the other hand holds all the information that has been coded under a certain category.

The high-level analysis approaches used within NVivo for the Archival analysis work is presented in Section 5.3.2 in Chapter 5. The analysis was conducted iteratively, yielding summary concepts (including definitions), synthesized lists, and conceptual frameworks; based in the literature which provide a holistic view of current status of research in shared services in IS domain. Finally, Bandara et al. (2011), which resulted from this study phase provides further details on how to synthesize and analyze the findings of a literature review and what are ways to effectively write and present the results of a literature review.

3.5.3 Applying NVivo in Case Study Analysis

NVivo is used in this study as a qualitative data analysis technique to synthesize and manage the study findings within the case study phase. The main aims of using the tool, within the case study phase were as follows:

- 1) to assist in coding and analyzing the qualitative data fields which “*can provide more thorough and rigorous coding and interpretation, and provide researchers with enhanced data management*” (Jones, 2007, p. 64)
- 2) to aid in identifying the potential relationships between identified nodes [e.g. relationship (positive or negative) or reciprocal-relationship] to provide a more synthesized explanation of the study findings.

Analysis of the case study data was conducted mainly by coding the data (through the use of NVivo 9.0), thereby yielding counts and data points that were then analyzed further (see Section 8.3, 9.3 and 10.3 in Chapter 8-10 respectively for further details). Appendix D presented a copy of the protocol that was developed to guide the conduct of the exploratory

case study. Figure 3.6 presents a sample snapshot of the tree node structure developed that captured the initial coding areas.

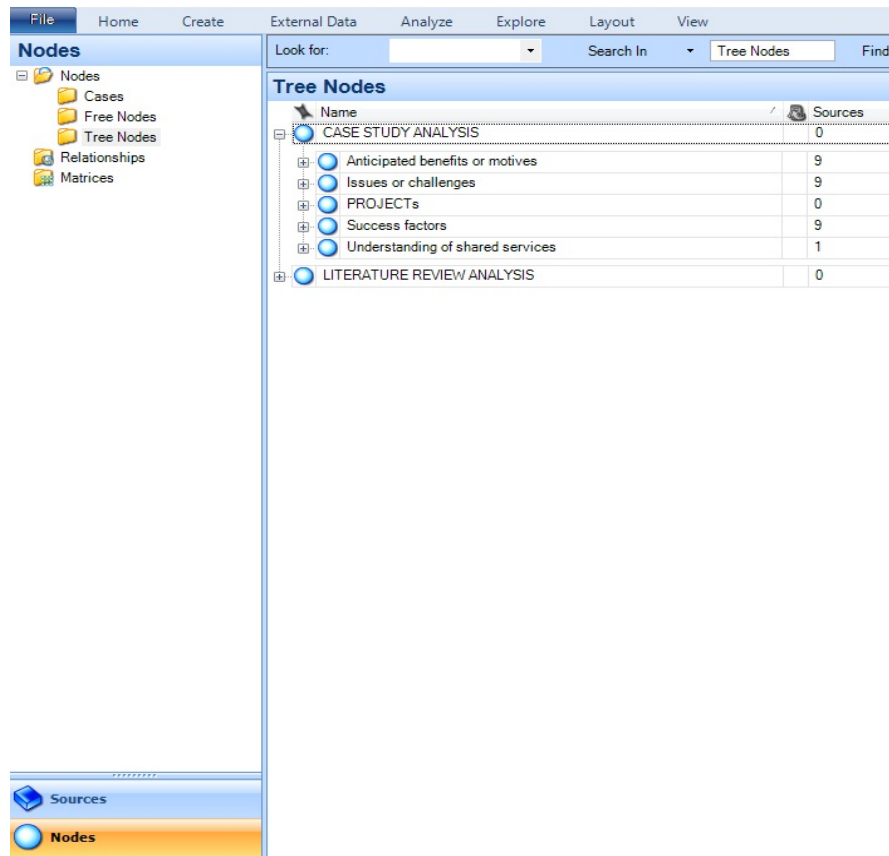


Figure 3.6: Example of Tree Node Structure

The NVivo **Search** tool can be used to search for strings, coding patterns or attribute values in the project database. These features enable the user to search for patterns across their data. The primary search feature utilized in this study was **Matrix Intersections**. **Matrix Intersections** (following Bandara, 2006; QSR International, 2011) were used to reduce redundancy and derive parsimony of lists of derived concepts, and their sub-themes.

Matrix Intersection search is a two-dimensional type of **Boolean** search made available through NVivo, *“It takes the searched feature from two collections at a time, and finds passages in the documents or nodes, in which the search term is contained in both”* (Bandara, 2007, p. 377). A proximity search, which is a kind of Matrix Intersection search, finds passages with specific features which are close to each other. NVivo has three different types of proximity searches; (1) Near Content, (2) Preceding Content and (3) Surrounding Content see **Table 3.5** for the brief description of each types of proximity search. They were also used to identify possible interrelationships within the different constructs identified. Hence in this study, NVivo’s query facilities is used to analyze the data further, to identify

potential interrelationships within the constructs are also presented in Section 7.5.3 (Chapter 7).

Table 3.5: Types of proximity search (extracted from NVivo Help)

	Types of Proximity Search	Description
1	Near Content	This search gathers coded content that is near other coded content. For example, Gather content coded at the node <i>'Organizational Environment'</i> within 20 words of content coded at the node <i>'Top Management Support'</i> .
2	Preceding Content	This search gathers coded content that precedes other coded content. It combines two text searches to search for content where one term precedes another. For example, it can gather content coded at the node <i>'Understanding of Shared Services and the Notion of Sharing'</i> where it precedes content coded at the node <i>'IT Environment'</i> .
3	Surrounding Content	This search gathers coded content that surrounds other coded content. For example, it can gather content at the node <i>'Change Management'</i> where it is surrounded by content at the node <i>'Project Management'</i>

The basic procedures to set up the tool in preparation for the study findings are presented in more detail in Chapters 7-10 (see Section 7.5, 8.2, 9.2 and 10.2). The resulting research findings are presented in the next three subsequent Chapters 8-10, (see Section 8.3, 9.3 and 10.3).

3.6 CHAPTER SUMMARY

This chapter first presented how the design evolved throughout the process of the research which consisted four main phases: (1) Context definition phase, (2) Exploratory study phase, (3) Multiple case study phase, and (4) Interpretation and outlook phase. It described in detail the main tasks, objectives, methods and deliverables for each phase of the research.

The next sections were dedicated to justifying the overall research design further. The study's research paradigm and selected research approaches were presented. An interpretive paradigm was chosen to conduct the study as this approach is believed to be suitable to understand a new phenomenon under investigation; ICT shared services in Malaysian Higher Education sector. Archival analysis (with content analysis as the primary technique) and Case study research (with interviews as the primary data collection approach) were selected for this study. NVivo was used as an overall data management tool for the archival analysis and case study work.

The next chapters of the thesis are dedicated to unfolding the details (both approach and findings) of each of the main phases presented here. The following chapter will present the pilot case study that took place.

Chapter 4: Pilot Case Study

4.1 CHAPTER INTRODUCTION

As stated in Chapter 1, a preliminary pilot case study was designed to take place early on in the study with the two primary goals:

- 1) to understand the research context better, and
- 2) to prepare for the multiple case study phase

It is important to highlight here that the case study was mainly exploratory in nature, designed to enable the candidate better understand the notion of shared services within the HE sector. However, all recommended practices of case study design and conduct as presented by Yin (2009) was adhered to as will be presented with the description of the Case study and its findings.

This chapter will first describe the case organization, and then the overall approaches applied to conduct the case study. The preliminary findings gathered will then be presented—with an overview of how this influenced the overall research design.

4.2 THE CASE ORGANISATION

Queensland University of Technology (QUT) is the organization in which the pilot case study took place. Queensland University of Technology (QUT) is a university with an applied emphasis in courses and research. It has a history dating back to the beginning of technical and teacher education in Queensland when the Brisbane School of Arts was established in 1849. The Queensland University of Technology (QUT) was created in January 1989 by the re-designation of the Queensland Institute of Technology. In May 1990, QUT amalgamated with the Brisbane College of Advanced Education (BCAE) which specialized in courses in arts, business, education and social sciences. The institution resulting from the amalgamation of BCAE with QUT retained the title Queensland University of Technology.

QUT aims to strengthen its distinctive national and international reputation by combining academic strength with practical engagement with the world of the professions, industry, government, and the broader community. In line with this aim, QUT's overall vision for the future is:

- 1) to provide outstanding learning environments and programs that lead to excellent outcomes for graduates, enabling them to work in, and guide a world characterized by increasing change;
- 2) to undertake high-impact research and development in selected areas, at the highest international standards, and
- 3) to strengthen and extend strategic partnerships with professional and broader communities to reflect both of academic ambitions and civic responsibility.
- 4) Five key goals guide QUT's progress towards attaining this vision:
 - 5) to build research capacity in selected areas;
 - 6) to strengthen reputation for quality teaching and learning and provide among the best learning environments in Australia;
 - 7) to strengthen 'real-world' positioning in teaching and research through better partnerships across internal and external boundaries;
 - 8) to integrate information and communications technology into teaching, research, business support functions and infrastructure; and
 - 9) to develop environments that foster and reward high-quality scholarship and that build a sense of community.

Today, QUT has an enrolment of around 40,000 students. Its prime concerns are the quality of its teaching, the employability of its graduates and the application of its research for the benefit of the community. Its vision is to strengthen its distinctive national and international reputation by combining academic strength with practical engagement with the world of the professions, industry, government, and the broader community. Therefore, one of the five key goals towards attaining the vision is to integrate information and communications technology into teaching, research, business support functions and infrastructure.

Organizationally, the Division of Technology, Information and Learning and Support (TILS) plays a central role in advising the University's faculties and divisions on the management of information as a critical University resource, and in supporting QUT's top level plans for the academic functions of QUT Faculties and technological support for communication and administration within all areas of the University. Information Technology Services (ITS) is one of the departments that make up the TILS division. Five sections make up ITS: Infrastructure Services, Client Quality Services, IT Security, High Performance Computing and Research Support, and Enterprise Information Services. ITS

provides computing facilities, services and support for staff and students, hardware and systems support for management computing and corporate information systems. It also provides office technology, voice and data communications services and support. Therefore, ITS is a primary contributor towards supporting QUT's vision, with leading information technology services in partnership with the QUT community.

Furthermore, at national level, QUT's ICT executives hold leading roles in relevant associations, including CAUDIT¹⁶ (the Council of Australasian University Directors of Information Technology) and the HES (Higher Education Services- part of the Human Resource Information Systems (HRIS) Group). For instance, the member of CAUDIT currently is Mr. Chris Bridge who also acts as Director of Information Technology Services (ITS) in QUT.

As a primary contributor in supporting QUT's vision, Information Technology Services¹⁷ (ITS) division provides many of the IT services which enable QUT to achieve its goals in the teaching, research and community arenas. QUT's IT services are provided to more than 3000 staff and almost 40,000 full time equivalent students and many of these services are available online 24-hours-a-day, 7 days per week. QUT's Director of Information Technology Services is accountable for the reliable delivery of these services. The list of applications/services provided by the ITS can be grouped into four main categories namely; (1) research, (2) teaching and learning, (3) business supports function, and (4) ICT Infrastructure. Table 4.1 below list the main business services offered by ITS.

Table 4.1: Services offered by ITS, QUT

	MAIN CATEGORY	LIST OF APPLICATIONS/SERVICES
1	Research	a) Research Services <ul style="list-style-type: none"> ▪ eResearch Support ▪ Data Analysis and Visualisation ▪ High Performance Computing and Research Support ▪ Portia
2	Teaching and Learning	a) Learning Environments <ul style="list-style-type: none"> ▪ AV Classroom Support ▪ Conference Services ▪ AV Equipment Loans

¹⁶ CAUDIT is an incorporated entity with membership drawn from the Information Technology (IT) Directors/Chief Information Officers of higher education institutions in Australia, New Zealand, the South Pacific and Papua New Guinea, as well as the Commonwealth Scientific & Industrial Research Organization (CSIRO) and the Australian Institute of Marine Science. See <http://www.caudit.edu.au> for further details, last accessed March, 2012.

¹⁷ For further details please refer to <http://www.its.qut.edu.au/>, last accessed March, 2012.

		<ul style="list-style-type: none"> ▪ AV Installation Consultancy and Specialist Advice ▪ Central Student Computing Lab ▪ External Study Support ▪ Lecture Video and Audio Recording ▪ Central Teaching Software Image Maintenance ▪ Off-air Recording of TV and Radio and Cable Programs ▪ Table and Video Conferencing ▪ Video and Audio Editing <p>b) Teaching and Learning Systems Development and Services</p> <ul style="list-style-type: none"> ▪ Data entry ▪ Learning and teaching evaluations ▪ Multiple choice exam processing ▪ QUT Blackboard ▪ Student e-Portfolio
3	Business Support Functions	<ul style="list-style-type: none"> • Oracle Financials <p>b) Business Applications Management</p> <ul style="list-style-type: none"> ▪ QUT Virtual ▪ Staff e-Portfolio ▪ StaffConnect
4	ICT Infrastructure	<p>a) Collaborative Systems</p> <ul style="list-style-type: none"> ▪ QUT Diary ▪ Staff Email ▪ Student Email <p>b) Network Services</p> <ul style="list-style-type: none"> ▪ Dial-in Service ▪ VPN ▪ Wired Network Services <p>c) Staff and Student Support Services</p> <ul style="list-style-type: none"> ▪ Computer Equipment Purchasing And Advice ▪ IT Training ▪ Software Acquisitions ▪ Software Packaging And Deployment <p>d) Telephony Services</p> <ul style="list-style-type: none"> ▪ Mobile phones ▪ Pagers ▪ Telephones ▪ Voicemail

-
- e) Web Services
 - QUT Home site
 - Web Governance
 - Web Hosting
-

QUT was chosen as the pilot case site for this study as:

- 1) they had been implementing the different services and applications, with sharing arrangements for a while
- 2) QUT IT executives hold leading roles in relevant national associations, including CAUDIT and the HES, hence are in the leading-edge for ICT solutions for HE in Australia. They were willing to take part in the study and had already supported prior studies related to Higher Education ICT conducted by the research group.
- 3) their geographical proximity to the candidate's study place, which assisted in the feasibility of the data collection phase.

43 THE PILOT CASE CONDUCT AT QUT

The case study conduct at QUT, as mentioned earlier, was exploratory in nature, with the primary goal to better understand the research context (shared services in the HE Sector) and to give the candidate a bit of early exposure and experience on case study research. It was also intended that this pilot case study will give insights to the multiple case study design- its protocol and conduct. Hence, a protocol (see next section) was designed and executed (and reflected upon).

The unit of analysis was at an institution level- where we sought to understand the notion of ICT related shared services and the potential for ICT related shared services at the whole institutional level. For this we sought to speak to higher authorities of the institute that were leading and accountable for ICT at the chosen institution.

The Associate Director of QUT's IT Services division was the main contact person in this pilot case study. At the initial preparatory phase, he was approached (with the aid of the supervisory team) with a mini proposal (see C.2 in the Appendix C) seeking support for a case study at QUT. Once approved by QUT, a preliminary interview was arranged to present the overall case study goals, planned conduct and collection of data. Two detailed rounds of interviews with the Associate Director of QUT's IT Services division, each 1.5 hours long, were completed. All interview sessions were recorded and transcribed for further analysis.

4.3.1 The Case Study Protocol

Case study protocol is an important guide for the researchers when conducting a successful case study, as it increases the reliability of the research (Yin, 2009). In this study, the case study protocol was designed to describe the procedure and general rules of conducting the pilot case study. It also provides some pre planned thoughts and a de-brief of the expected data to be collected from the field, which was documented and planned in detailed (see Appendix C, Sections C.1, C.3 and C.4).

The pilot case study was exploratory in nature and also served as a basis to prepare for the multiple case study protocol design. However, its focus was limited. Instead of aiming to address all the three primary research questions¹⁸ (see Chapter 1 Section 1.3), it focused mainly on RQ 1: *What are the benefits of ICT shared services in the Higher Education Context?*, and had a strong focus on clarifying the context- with a firmer understanding of *how shared services were understood, what was shared and how things were shared*. The section below presents the case study findings in detail.

4.3.2 Overview of Data Analysis

The preliminary findings were analysed based on three different forms of sources as stated below:

- 1) a range documentation were collected about QUT and its IT services– these were used mainly to further understand the organization of case study, to aid in the interview conduct (i.e. probing) (see Appendix C in section C.1)
- 2) QUT and other organization’s official HE websites (for instance the CAUDIT website) – were also analyzed to understand further the information related with the interview sessions.
- 3) Interview transcriptions with the key respondents (2 interviews were completed with Mr Joe Dascoli; Associate Director of QUT’s IT Services division). The interviews were the main sources that were analyzed in depth and from where the findings presented herein is based on.

¹⁸ The Primary Research questions were:

P- RQ1: What are the benefits of ICT shared services in the Higher Education Context?

P- RQ2: What are issues that can hinder ICT shared services in the Higher Education Context?

P- RQ3: What are ICT shared services critical Success factors in the HE Context?

The analysis lead to the findings around 4 core themes; (1) How are shared services understood? (2) What are the anticipated benefits of shared services initiatives in the HE sector? (3) What do the universities share? and (4) How are these sharing arranged- what forms do they take? . The results are presented in detail in the next section.

44 PILOT CASE STUDY FINDINGS

The following sections present the preliminary findings (predominantly descriptive in nature) around the core theme that resulted from the data analysis.

4.4.1 Insights into the Perceptions of Shared Services

The literature review showed how the notion of shared services first emerged in the late 1990s within the HE sector and universities in UK began to acknowledge that there were common things that can be shared amongst universities such as systems (for example: HR, Financial, Students, Research and Reporting) (Universities UK, 2011). Literature also showed how most universities have been under pressure in recent times, to provide exceptional services to their students and staff and maintain the quality of service while minimizing the cost and improving the performance (Deloitte Touche Tohmatsu, et al., 2001; KPMG, 2006). This has resulted universities- like other sectors, to turn to shared services, as they start to recognize the benefits of sharing.

According to Joe Dascoli (The Associate IT Director at QUT), shared services is a mechanism that

“allows a set of universities to start working together and share their vision and desires, not only at a business level but also at an IT level”.

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)

He also stated

“But there’s just so many collaborative works that are going on,.. the nature of university is to work together... I mean we compete, but we also share in resource”

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)

Thus, shared services is perceived as a very broad notion (where people ‘*start working together*’), and there is a lot of sharing that does take place. ‘Sharing’ within the Higher Education Institutions (HEI) can occur at two levels of the organization: at a business level and an IT level.

At the business level, the universities are able to share the common business requirement as well as the organization's vision. As stated by Joe Dascoli "*shared services, it's not just the services, it's also sharing the mindset of that business requirement*". While at the IT level, various kinds of sharing arrangements can be performed such as the sharing of; software license agreements, common application systems, and application systems development and maintenance efforts.

"You share the application, you share the set up of the application and if you're really, really into the nth degree shared services you also then have somebody who runs the application for you right?"

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)

But even here

"You're not just sharing the technology, you're also sharing the way you do the vision and business"

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)

The literature review in Chapter 2 illustrated how the different kinds of definitions have created potential confusion about shared services, where the scope and boundary of shared services was vague and unclear. When asked to define and describe shared service, Associate IT Director , QUT, Joe Dascoli's response was:

"But trying to have a very clear definition of what is shared services, my answer is it can be as simple as nothing or it can be as complicated as the whole supply chain. ... Then you go on and on and on. And I haven't given you a simple answer of what is shared services. I'm saying you can make it this big or you can make it this small. What you need to do is carve off a little bit and say it is big, I'm going to look at this bit"

This pointed to the fluidity for shared services definitions; what it *is* and *is not* was vague, and was similar to the un-clarity observed in the literature. This further pointed to a need to develop a deeper and clearer understanding of what shared services actually is in particular with the IS/IT domain and in the HE sectors.

4.4.2 Insights into the Anticipated Benefits of Shared Services Initiatives in the HE Sector

Based on insights from main interviewee Mr. Joe Dascoli (The Associate IT Director at QUT), a number of benefits of shared services were identified. These benefits are presented in summary in Table 4.2.

Table 4.2: Benefits of ‘sharing’ or ‘shared services’

ID	BENEFITS	GENERAL DESCRIPTION
1	Cost effectiveness	<p>Universities were able to gain built-in cost advantages by having a group to liaise with the vendor to achieve common interest and pay the services as a group (realize economies of scale). <i>“And if the answer is yes, then this group can liaise with the vendor, alright, to get it built and you pay for it. And you pay for it in a group basically”</i> (Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)</p> <p>Furthermore, cost effectiveness can be achieved when universities were able to reduce cost by sharing the resources (infrastructure) and maintaining the systems. <i>“...And the cost of maintaining that, you may as well have built it yourself because you’re now unique, right? But if you take the approach that in the journey if you collaborate with others and you make them compromise and you try to get some business ah... I guess it’s making some concession right, on the way through that would make the system a little easier to do.”</i> (Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)</p>
2	Support standardization	<p>Certain activities in the universities such as requesting for research funds and teaching/learning evaluation processes inevitably become more comparable. Thus, process standardization can be seen when drawing together these activities that have been performed similarly in various locations before. <i>“I’m talking about things like financial, student systems, HR. Right? Research. Right? Reporting. So they got themselves together and created this thing which is what they called user requirement document. What is it that we want, right? So there’s a shared vision, to use the word shared, what is it that we all want or need about the place. And when you get a number of disparate organizations, there’s a fine line between what you want and what you need, I think you focus more on the want than the need right?”</i> (Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)</p>
3	Support consolidation	<p>Concentrate the ICT departments to one center, to perform certain activities such as user acceptance testing. <i>“... and that’s the process we have, once the centre has been built, instead of twenty universities each testing at once at a time, and finding an issue, we nominate two lead sites, one in New Zealand and one in Australia and they do all the testing”</i> (Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)</p>
4	Avoid duplication of efforts	<p>Universities that have a common set of business requirements were able to better realize their vision, by working together (having a shared vision). <i>“...So they got themselves together and created this thing which is what they called user requirement document. What is it that we want, right? So there’s a shared vision...”</i> (Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)</p>
5	Deploy new technologies	<p>Universities were able to deploy new technologies by sharing the infrastructure. For instance, a new computer center to manage the IT disaster recovery. <i>“So for instance if you look right now as we speak, QUT, USQ, Griffith University are the three universities in Brisbane are discussing in some detail how they may share a computer centre.”</i> (Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)</p>
6	Improve services	<p>Universities were able to improve service efficiency through increased functionality, increased space and increased flexibility within concise implementation time. Furthermore, shared services enabled easy maintenance and/or upgrades to the latest version of the systems, easy patching including consultation to support growing business needs, without disruption. <i>“But then they’ve also said well hang on, getting the hardware is not all that</i></p>

		<p><i>hard and putting it in place, that's not a lot of effort. Where the real time consumption occurs is then this product evolves, and therefore you've got to take another upgrade, you've got to do some patching, you've got to do some upgrading. And that's a lot of resources for an organization to in fact put in place. Right? So if you're running a shared service, you upgrade once and you force everybody to run the new version."</i></p> <p>(Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)</p>
7	Facilitate sharing	<p>Universities that have common business requirements can come together as a group, and were able to provide common business requirements that might fit with other universities' needs.</p> <p><i>"... for example with HR where you have a group of university that have common system requirements and it goes beyond then each being an individual customer of this organization. Because you come together as a group and you lobby and you negotiate so you have the shared arrangement that the real benefits for the group and I think that's an important characteristic of what we're looking at."</i></p> <p>(Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)</p>
8	Propagation of best practice	<p>Collaborations and opportunities for discussions can lead to the generation of novel ideas – 'better practice'. Propagation of best (or better) practice occur through peer collaborated initiatives. These can support and drive sustainable business improvements through shared learning. Shared learning can be achieved when a set of universities that share a common interest are able to identify their own developmental needs and see how to apply best practice to address them.</p> <p><i>"But if you have that in a conversation amongst different people coming at it from a different angle, the meeting of minds occurs and you learn better ways and you learn the best practice . Is there anything, I mean people talk about best practice."</i></p> <p>(Joe Dascoli, Associate IT Director at QUT, 30th September, 2009)</p>
9	Continuous improvement	<p>Continuously reviewing will keep on improving the processes. Collaboration supports this as (a) it provides access to resources that will enable continuous review cycles, and (b) collaboration can also generate new ideas that otherwise might not have been identified (it supports the 'meeting-of-minds').</p> <p><i>"So it's continuous improvement. How do you get continuous improvement? By challenging. By having the meeting of minds and having conversation."</i></p> <p>(Joe Dascoli, Associate IT Director at QUT, 30th September, 2009)</p>

The pilot case findings pointed to many benefits that can be realized from various sharing efforts - which are presented in Table 4.2. The findings show that while 'sharing' is introduced primarily with cost effectiveness and service improvements expectations (which is similar to what literature points to as well), that is also has a strong emphasis on *collaboration or partnership between the involved parties, and that IT plays an important role* in the overall sharing initiatives, supporting and driving the anticipated outcomes (as presented in Table 4.2). Despite its apparent benefits, anecdotal evidence (Craike & Singh, 2006; Janssen & Joha, 2006b; Lawson, 2007; Shah, 1998) suggests that many organizations have difficulty understanding the context and details of shared services, and benefits can be realised. This has motivated the candidate to investigate into this further.

4.4.3 What is Been Shared and How Things are Shared

As mentioned earlier, in order to understand the context of shared services further, data was gathered about ‘what’ is been shared and ‘how’ things are shared. Table 4.3 presents those different things that are shared, as identified in the pilot case study, with some summary descriptions.

Table 4.3: Different types of things shared

	TYPES OF SHARING	GENERAL DESCRIPTION
1	Sharing of software license agreements	Software license agreement is being shared by several HEIs. This group can liaise with the vendor and pay for it as a group.
2	Sharing of common application-systems-development	Shared development of a common applications or sharing in certain phases of application development (for example requirements gathering, analysis, design, coding, testing, acceptance, and maintenance - <i>example: Australian Access Federation – AAF</i>)
3	Sharing of common applications	Running the same application but with local operations support (<i>example: HR systems, Financial Systems, ERP Software</i>).
4	Sharing of common production services	Running common applications in a shared environment or shared resources (<i>example: AskQUT, @Connect</i>)
5	Sharing of infrastructure	Shared hardware and communications systems (<i>example: Computer Center for Disaster Recovery</i>)

The case data pointed to a number of different things that can be shared. Although the interviewee also mentioned that it is not only IT, but also Business aspects that are also shared- the findings (based on examples that were discussed) were very much closely aligned to IT elements (i.e. applications, licences agreements, infrastructure etc). It is acknowledged that this is only preliminary findings and that further investigation into the different things that are shared is required to further understand the context of sharing.

The pilot data did however imply that based on what is been shared, the nature of the sharing arrangement (how things are shared) can be different, and that there are potentially different ‘sharing models’ that can take place.

The data described shared services where there is a dedicated unit to run and maintain shared applications:

“ You share the application, you share the set up of the application and if you’re really, really into the nth degree shared services you also then have somebody who runs the application for you right?”

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 30th September, 2009)

It described how things (i.e. IT application building) can all be done in house within the same university:

“shared service is you do it all in house, shared service category one ... financial, student systems, HR, Research, Reporting... So they got themselves together and created this thing”

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 30th September, 2009)

and how multiple universities can get together and build shared applications:

“It’s part of the quarter CAUDIT partnership but as the director of quarters for the IT area, that work is being built in a shared way between ten pilot organisations. CSIRO, us and the other university. So that’s another collaboration work in terms of technology”

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)

and how multiple universities can simply form collaborations to negotiate better services and products from vendors, hence also pointing to how outsourcing is integrated with shared services.

“the HR world which is just one of those places, we have a lot of universities that come around with payroll and they have been in there saying I need to do this and the other one is saying well I do too, and I do too. Well ...we then define what it is we want to do and give it to the vendor... So a vendor might come to QUT and run the payroll, and do the payroll transactions so you don’t have a pay department at all”

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 11th September, 2009)

“So recruitment, well we don’t recruit through our HR department, you have the shared services provider. We ask ‘how can you get any people with this characteristic?’, they do it for you. You see what I’m saying?”

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 30th September, 2009)

The data specifically pointed to ‘different levels’ of shared services:

“I think there are different levels of shared services”,

(Personal Communication, Joe Dascoli, Associate IT Director at QUT, 30th September, 2009)

hence pointing the need to further investigate what these levels (or types) of shared services are, who is involved what is shared between them, and how they are configured. It was acknowledged that better understanding the potential organizational design choices for shared services, was an important contextual element to have clarity on.

4.4.4 Summary of Pilot Case Study Findings

This section aims to recap the summary observations from the pilot case study phase and discuss the implications, especially in-terms of the overall study design.

The literature review also (see Chapter 2) showed very little evidence of prior studies that could provide a clear definition and positioning of shared services. The pilot findings further illustrated the lack of a clear understanding of shared services, and illustrated how broadly (and vaguely) the term has been in use. The findings did imply that sharing can occur at two levels of the organization, namely: at a business level and an IT level, but pointed to a need to develop a deeper and clearer understanding of what shared services actually is. Hence, the need to investigate the notion of sharing and shared services more closely, in particular the need to derive a clear definition, was noted. This was integrated as an extension to the original study design.

A range of benefits from sharing activities were identified; cost efficiencies being the most prominent. The desire to maximise the use of ICT and build partnerships and collaborations was also emphasised. Despite its apparent benefits, pilot case study findings and prior literature illustrate how many organizations have difficulty understanding the context and details of how benefits can be realised. This has motivated the candidate to explore this aspect further. Hence, a closer investigation into shared services benefits or strategic intentions for shared services was integrated in the extended exploratory analysis phase (which will be presented in Chapter 5- and later revisited in Chapter 8).

The pilot case study illustrated a variety of things that can be shared within the HE sector, hence contributing to the question '*what can be shared?*' The examples identified here were preliminary and illustrative in nature, and further investigation was required for a more complete understanding of what can be shared within the HE sector.

The case data referred to different 'levels' of shared services, indicating that there can be different shared services models, and that the chosen model can be influenced by what is been shared and other contextual elements (i.e. potential sharing partners, their needs, and what is available internally and externally to the partnership). A further understanding these sharing models, was recognised as an important precursor for this study and also the progression of shared services within the HE sector.

Overall, the preliminary findings from the pilot cases study showed several gaps that needed to be consider before proceeding to the multiple case study phase. All these gaps pointed the candidate towards the need to pause and better explore the domain prior to further continuing the study, which lead the candidate to expand the overall study design (as explained in Chapter 3) with an exploratory phase (using secondary data) to analyse in more detail; shared services in the IS context (see Chapter 5) and shared services in the Higher Education sector (see Chapter 6). The following two chapters will present the design, conduct and outcomes of these extended phases. The pilot case conduct also provided

insights to the design and conduct of the multiple case studies. This will be revisited and described further in Chapter 7, when the multiple case study design is presented.

4.5 CHAPTER CONCLUSION

This chapter first discussed the purpose of conducting the pilot case study as a means to understand the research context better and to prepare for the multiple case study phase (the primary focus). This was followed by introducing the case organization and a discussion with further details on the pilot case conduct at the selected case organization (QUT). Next, the pilot case study findings were discussed around the main themes of; (1) how are shared services understood?, (2) what are the anticipated benefits of shared services initiatives in the HE sector?, (3) what do the universities share?, and (4) how does the sharing take place?. The final section of this chapter discussed the gaps identified from the study and the next steps taken with the aim of addressing these gaps.

Chapter 5: Shared Services in the IS Domain

5.1 CHAPTER INTRODUCTION

As stated in Chapter 1, new gaps were identified (based on the results of the preliminary literature review and the pilot case study), which needed to be addressed. These included a lack of common understanding of what shared services are, how they are formed, what objectives they full fill, who is involved etc. Thus, the study embarked on an exploratory phase that aimed to address this gap, where a detailed archival analysis of shared services literature within the IS context was conducted to better understand shared services from an IS perspective.

The review of past literature is fundamental to all academic research (Webster & Watson, 2002). This study goes further, entailing a comprehensive archival analysis of IS literature on shared services. Guided by Chiasson et al. (2008), Dibbern et al. (2004), Leedy and Ormrod (2001) and Levy and Ellis (2006), the main aims are; to methodologically collect, analyze and synthesize all related literature within this domain; understand its current status and trends; provide a firm foundation to the fundamental understanding and characterization of shared services through an IS lens; and derive a research agenda to guide shared services research in the IS domain, including the identification of potential theoretical bases and guidelines.

This chapter will first describe the need to investigate shared services in IS domain and will be followed by a description of the research design for this effort. The IS literature on shared services was analyzed in depth to report on the current status of shared services research in the IS domain; in particular this section looks at shared services definitions, objectives, stakeholders, the notion of sharing, theories used, and research methods applied etc, all of which provide a firmer base to the study's design. This chapter ends with a discussion and conclusion that summarises the content covered and the observed gaps from the current findings.

5.2 THE NEED TO INVESTIGATE THE STATUS OF SHARED SERVICES IN THE IS DOMAIN

Information Systems (IS) have dual relevance to shared services; as a core function amenable to the shared services arrangement, and as a key enabler of shared services across

other functions. Though not as widespread as in Finance or HR, the adoption of shared services for the IS function is growing rapidly (Lacity & Fox, 2008; Peters & Silver, 2005). “*Successful management of IS shared services was recently listed as one of the seven habits of effective CIOs*” (Lacity & Fox, 2008, p. 17). As this trend continues, it is incumbent upon CIOs and IS professionals to better understand the potential from shared services (Lacity & Fox, 2008).

Additionally, IS applications and infrastructure are both a driver and enabler of shared services generally (e.g. in Finance, HR, etc.). As computer-based corporate information systems have become de facto and the internet pervasive and increasingly the backbone of administrative systems, the technical impediments to sharing have come down dramatically. Moreover, shared services has the potential to leverage IT related benefits with respect to faster, more accurate process coordination and execution and greater accuracy of and visibility into organizational data (Seddon, Calvert, & Yang, 2010). In addition, shared services can also require (radical) change to the IS applications and infrastructure, for example combining corporate-wide standardization with business unit specific customization. IS can also, either internally or through an external service provider, play a major role in transitioning to a shared services environment and its ongoing operation and evolution. Hence, it is incumbent upon IS academics to understand shared services and inform the wider IS community and practice.

As an applied discipline “that is driven by rigor and relevance” (Benbasat & Zmud, 1999; Davenport & Markus, 1999; Lee, 1999), it is incumbent upon IS academics to understand shared services and inform the wider IS community and practice. Information Systems can play a major role in identifying opportunities for shared services, analyzing strategic implications, and preparing the business case. IS can also, either internally or through an external service provider, play a major role in transitioning to a shared services environment and its ongoing operation and evolution. Anecdotal evidence (Craike & Singh, 2006; Janssen & Joha, 2006b; Lawson, 2007; Shah, 1998) suggests that many organizations have difficulty understanding the context and details of shared services. Evidence from shared services initiatives has been mixed, suggesting value from an academic investigation of the phenomena. While there have been industry-based research reports, these are typically limited to trend analysis (e.g. Accenture, 2005; Deloitte, 2007a, 2007b) or narrative descriptions of the journey from shared services concept-to-implementation (e.g. Farquhar, Fultz, & Graham, 2006; Gartner, 2008; Longwood & Harris, 2007).

Hence, this chapter specifically aims to understand the status of shared services as presented in Information Systems (IS) literature. This is a detailed chapter that is the first

attempt to consolidate the shared services literature in the IS domain. The remainder of this chapter will proceed as follows. First the research strategy which was designed to ensure a rigorous and systematic analysis process is presented. The discussions on findings are presented and discussed in the next section.

5.3 RESEARCH DESIGN

This study is specifically devoted to searching and reviewing the literature on the shared services concept; predominantly the focus here is on how, the nature of shared service is perceived and reported by other researchers in Information Systems. Following recommendations by Levy and Ellis (2006), vom Brocke et al. (2009) and Webster and Watson (2002), this study followed a three-phase method to extract, analyse and interpret (and report) the literature based findings. The first extraction phase involved the methodical search, identification and extraction of articles to be included in this review. The subsequent analysis phase comprised (1) preparing for the analysis - designing and implementing an appropriate classification and coding scheme to match the study objectives, and (2) conducting the analysis by applying the scheme. Finally, the third interpretation phase entailed synthesizing the coded details and analysing the literature to respond to the research objectives of this study. The next sections describe each phase in detail.

5.3.1 Extraction of Relevant Papers

In defining the research method for a comprehensive review of the IS literature on shared services, two main criteria must be identified and clarified: (1) the literature sources, i.e. those outlets to be searched (Webster & Watson, 2002), and (2) the search strategy, i.e. the choice of search terms to utilize during the article extraction process (Cooper, 1998; Levy & Ellis, 2006).

This study was an exploration of shared services from an IS perspective. If the study is specifically focused on the status of research in a selected domain, then academically refereed, full text papers should be sought employing a clearly defined sampling frame that includes all relevant reputable outlets of the target domain (following Levy & Ellis, 2006). Selecting a target set of sources within a predetermined justified scope, has been practiced in past IS literature studies (e.g. Esteves & Pastor, 2001; Orlikowski & Baroudi, 1991; Vessey, Ramesh, & Glass, 2002). Thus, academically refereed, full text papers were sought from a clearly defined sampling frame that included the main IS outlets, derived by consolidating a list of IS journals and conferences of four main sorts (see **Figure 5.1**). It is acknowledged that

our approach which limits to only IS outlets would not capture IS papers published in other (non-IS) outlets. However, given the scope and goal of this paper (to critically synthesize shared services research as observed in the IS field) and considering feasibility requirements and rational for justification, the selected scope was appropriate and sufficient. This study started in 2009 and hence the selected outlets were defined based on the information that was then available. The extraction and analysis has continued, with the information reported herein based on data extracted from the selected outlets through September 2011.



Figure 5.1: Overview of the sampling frame

The IS journals included in the search were; firstly, the 8 journals listed as the ‘Senior Scholars’ basket of journals¹⁹, which the Association of Information Systems (AIS) represents as “top journals in our field.” Next, it was resolved to further canvass the 40 IS journals listed at the AIS web site²⁰. This extended journal list from AIS was derived through comparison of 9 published papers on IS academic journal rankings (namely; Hardgrave & Walstrom, 1997; Katerattanakul, Han, & Hong, 2003; Lowry, Romans, & Curtis, 2004; Mylonopoulos & Theoharakis, 2001; Peffers & Ya, 2003; Rainer & Miller, 2005; Walstrom, Hardgrave, & Wilson, 1995; Whitman, Hendrickson, & Townsend, 1999 - as reported by AIS). The latest study used to derive this list was from 2005. Hence, in order to assure completeness and to also include journals that have more recently achieved recognition in the field, more current ranking lists were sought. Since the research team was based in Australia, the 2010 Excellence in Research for Australia (ERA) Ranked Journal List²¹ was

¹⁹ See <http://home.aisnet.org/displaycommon.cfm?an=1&subarticlenbr=346> for further details. Last accessed April 8th 2010. The journals listed here include; European Journal of Information Systems, Information Systems Journal, Information Systems Research, Journal of AIS, Journal of MIS, MIS Quarterly, Journal of Strategic Information Systems and Journal of Information Technology.

²⁰ Available at: <http://ais.affiniscap.com/displaycommon.cfm?an=1&subarticlenbr=432>, last accessed November 7th 2011.

²¹ See <http://www.arc.gov.au/era/default.htm> for further details on what the ERA initiative is. In January 2011, the Australian Government revised the ERA system and removed all rankings for journals across all disciplines. A copy of the full list of the ERA rankings used as the base of this study can be obtained from the authors. Though not an official ERA site, the details of the prior ERA journal rankings for the IS discipline are still maintained and available at a web portal maintained by Professor John Lamp, of Deakin University (<http://lamp.infosys.deakin.edu.au/era/>), the ERA rankings list for IS journals can be found under historical information stored at <http://lamp.infosys.deakin.edu.au/era/?page=fordet10&selfor=0806>.

used as an additional resource for the sampling frame. The ERA is an initiative of the Australian Federal Government to identify and promote excellence across the full spectrum of research activity in Australian Higher Education institutions, and commenced with research outlet rankings based on impact factors and other elements. The ranks range from A* to C (A* been the highest and C the lowest). For feasibility, only the top 3 layers (A*, A, and B) of the ERA journal ranking levels were included, and only those journals which were categorised as information systems [where the primary research field was Information Systems (0806)] were included.

Given the relative newness of shared services in IS, and to ensure that the literature reviewed was as current and inclusive as possible, the proceedings from major IS conferences were also examined. The IS conferences targeted were those sponsored, affiliated by the AIS or run by an AIS chapter which was also included within the top layer (A) of the 2010 ERA Ranked Conference List²² [as per the ERA 2010 rankings for Information systems (under primary research code 0806)]. The conferences papers, like the journals included all articles published from the conferences' inception to September 2011, which were accessible through the relevant conference proceedings²³.

Paper extraction occurred in two steps. In the first step, the focus was on extracting papers where shared services was a central focus, thus the key word "shared service*" was searched for in the title, abstract or keywords of the sampling frame described above. This yielded 8 papers from IS journals and 21 from conferences (henceforth, the candidate refers to these 29 as the "primary" set of papers). Given the small number, the candidate extended the search, this time extracting papers that may have mentioned shared services in a meaningful way (e.g. within the context of some other IS study focus). Thus, the research team decided to conduct a systematic search for "shared service*" in the body-text of the papers within the sampling frame.

Given the magnitude of this highly manual effort, it was infeasible to fully canvass the entire sampling frame employing a body-text search. To constrain scope, the candidate first included all papers from the 8 journals listed as the 'Senior Scholars' basket of journals, as well as all selected IS conferences' proceedings. The 'Senior Scholars' basket of journals were included, as these are recognised as the most prominent outlets in the IS field²⁴.

²² Thus, the following IS Conferences were included within the scope; the proceedings of International Conference on Information Systems (ICIS), European Conference on Information Systems (ECIS), Pacific Asia Conference on Information Systems (PACIS), Australasian Conference on Information Systems (ACIS), and Americas Conference on Information Systems (AMCIS).

²³ Some conferences do not have poster sessions in their proceedings. Such papers that might have been presented at a conference, but was not included in the proceedings were not included.

²⁴ Extracted from <http://home.aisnet.org/displaycommon.cfm?an=1&subarticlenbr=346>. Last accessed April 8th, 2011.

Conferences were included as they are more appropriate targets to search in emerging fields (like shared services) (Klaus, et al., 2000; Thomson Reuters, 2008). From the remaining sources²⁵ (see Figure 5.1), we included those in which shared services appeared to be relatively more prominent, based on our limited information. First, all sources from which the primary papers originated were added. Next, those sources in which, more than one paper mentioned ‘shared services’ in the body-text, were included (the candidate searched this criteria using the search facilities of the journal, host databases). From these sources, 164 further papers which mentioned shared services somewhere in the text of the paper in a meaningful manner²⁶ were identified. The candidate and the other researcher (main supervisor) carefully reviewed all papers to determine their relevance. The 164 additional papers were included in the study as the “secondary” set; the analysis phase thus commencing with a sample paper pool of 193 papers (29 primary and 164 secondary). Overall, while a comprehensive approach was followed in extracting papers deemed most suited for this review, the candidate do acknowledge that there may be some papers which might be relevant, still excluded due to the defined scope and applied approach. This can be expected with any literature review; one can only try to define a feasible and appropriate scope and approach and demonstrate in a transparent manner, how all relevant papers that fitted the specifications were included in the analysis.

5.3.2 Preparing for the Analysis

A protocol was devised that articulated the analysis procedures and related preparations. The protocol included a pre-codification scheme and guidelines on how to apply the tool (NVivo) to support the overall analysis.

Pre-determining what is important to capture and report is a critical aspect for an effective and efficient archival analysis (Okoli & Schabram, 2010). The goal of the study was to derive a synthesized review of shared services literature within IS academe. Hence, the pre-codification scheme was based on the basic questions of what, why, who and how for understanding shared services. The candidate capture the ‘what’ and ‘why’ of shared services by addressing the *definitions* and *objectives*. The candidate also analyzed and synthesized the ‘who’ and ‘how’ by identifying the *stakeholders* and exploring the *notion of*

²⁵ Remaining sources refer to 40 IS Journals listed at the ‘AIS webpage’ and IS Journals ranked in the ERA ranking list.

²⁶ Those papers that did not discuss shared services in a meaningful context were removed. Examples included papers that had the term shared services only mentioned once in passing, or it was a part of a title in the references list

sharing.' In addition, the candidate addressed the research perspective by capturing the reported *theoretical backgrounds* and *research methods*. This is consistent with (1) past similar meta-literature-review papers (i.e. Chen & Hirschheim, 2004; Orlikowski & Baroudi, 1991; Vessey, et al., 2002), (2) detailed literature reviews in award winning IS dissertations²⁷ to identify and extract common themes reported in IS, and (3) a high level analysis of shared services publication based on an initial scan of most cited papers in the field (Borman, 2008a; Lacity & Fox, 2008; Sia, Soh, & Weill, 2008; Ulbrich, 2006). The data for each of these topics were analysed in different ways, depending on the kind of topic, what was reported in the identified IS literature, and other prior work that could support the analysis. When prior research on the topic existed the candidate used a deductive approach, the default being an inductive approach where the topic area was previously unexplored.

Analysis of 'stakeholders' and the 'notion of sharing' resulted in a priori conceptual frameworks. Conceptual frameworks explain, either graphically or in narrative form, the main aspects of the phenomena of interest. It is the candidate's representation of the conceptual structure brought to the research; which will capture core concepts, possible interrelationships between these concepts and related boundaries (Miles & Huberman, 1999, p. 18). Carroll and Swatman (2000) explain how conceptual frameworks can form an essential start for theory building and further investigations. Some studies (i.e. Beyer & Trice, 1982; Detlor, 2003; Xia & Lee, 2005) are solely dedicated to deriving literature based conceptual frameworks for topics of interest. IS research still relies heavily on conceptual/framework developments (Chen & Hirschheim, 2004). This study here also present conceptual frameworks in an attempt to better understand the stakeholders and the notion of sharing. These conceptual frameworks are a springboard to assist the derivation of broader research themes, intended to provide an understanding of current knowledge in the areas to which they relate (following Miles & Huberman, 1999, p. 18).

Most of the main qualitative data analysis software packages (there are many tool options, such as NVivo, Atlas/ti) have similar features (Lewis, 2004) that can be used to systematically capture, code, and analyse the literature within a single repository. The study employed NVivo 8.0, adapting coding-and-analysis strategies from prior work by Bandara (2006), Beekhuyzen et al. (2010), and Gregorio (2000) . The study protocol prescribed how extracted papers would be stored in the data base, how they would be coded and analysed, and how the results would be captured and presented. The high-level analysis approaches are

²⁷ Past award winning thesis's from the ACM SIGMIS Doctoral Dissertation Award Competition listed at <http://home.aisnet.org/displaycommon.cfm?an=1&subarticlenbr=138#dissertation> (last accessed July 31st 2010), and the Australian Council of Professors and Heads of Information Systems (ACPHIS) PhD Medal, available at <http://www.acphis.org.au/index.php?option=content&task=category§ionid=2&id=23&Itemid=40> (last accessed July 31st 2010) were observed.

explained below, following brief introduction to the tool used (and tool-related terminology employed hereafter in the paper). Further details of how the outcomes were derived will be explained as the findings unfold.

As introduced in Chapter 3, NVivo is a computer program for qualitative data analysis that allows one to import and code textual data, edit the text; retrieve, review and recode coded data; search for combinations of words in the text or patterns in the coding; and import from or export data to other platforms. Another useful aspect in the tool is 'Attributes'. Attributes are properties assigned to nodes or documents. Once attributes are defined, each document or node will have specific values for each attribute. These attribute values can be numeric, string, Boolean or date-time type and they can be usefully applied for better data management and effective searches. The NVivo 'Query' functions can be used to search for strings, coding patterns or attribute values in the project database; which enables one to search for patterns across their data.

All 193 articles selected were entered and saved within NVivo as 'documents'. The overall coding was designed to be conducted at two levels. The goal of the *first-level-coding* was to capture the content that related to each main theme (based on the pre-codification scheme), as main tree-level nodes within the NVivo database (a tree-level node being a logical location within NVivo, where one can capture and store content and ideas that are logically grouped together). The protocol specified that the content be identified inductively from the data, where each paper was manually scanned within NVivo. Coding involved mapping relevant sentences/statements to the nodes (with annotations and memo notes made, to keep track of emerging thoughts), at single or multiple nodes as deemed relevant. In the *second-level-coding*, coded content of the nodes resulting from the first level analysis was reviewed in detail to synthesise and derive further findings from the data coded. Sub-folders (with relevant labels) were created to group the statements that described the same (or similar) aspects within these themes. The analysis of this study was conducted iteratively, yielding summary concepts (including definitions), synthesised lists, and conceptual frameworks; based in the literature. The overall research findings and the analytical activities that supported these findings are presented in detail in the next sections.

5.4 THE STATUS OF SHARED SERVICES LITERATURE IN THE IS DISCIPLINE

This section provides a descriptive overview of shared services literature found within the IS domain. As in any other study, a descriptive overview of the data used is a useful precursor to presenting the detailed research findings, as it clearly positions the data-context from which the analysis is drawn.

Recall that 29 primary papers (8 journal and 21 conference papers) specifically focusing on shared services were identified from the pool of IS outlets, and 164 secondary papers that discussed shared services as part of a different topic were extracted (63 journal and 101 conference papers). Figure 5.2 plots these papers across the 18 years (from 1994 till 2011 September) covered by the study. It is notable that none of these papers appeared in high-ranked IS journals e.g. the ‘Senior Scholars Basket of eight’ or the ERA A* or A journals.

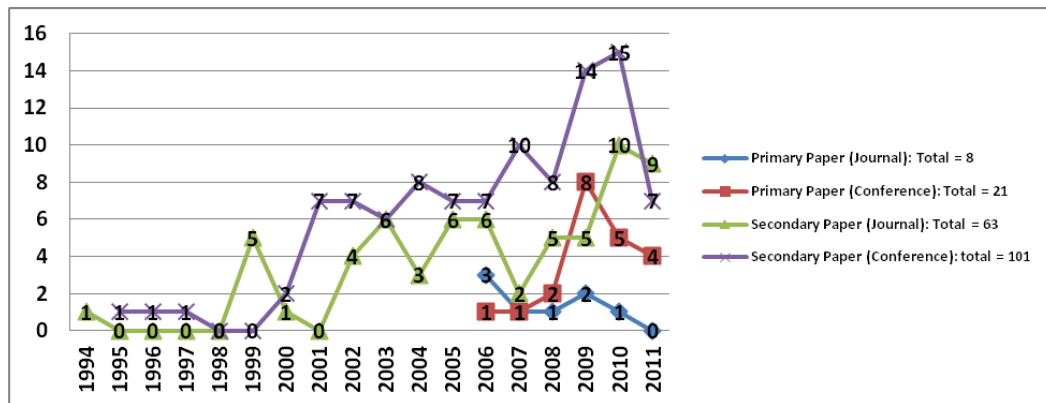


Figure 5.2: Number of IS Journal and Conference Articles Pertaining to Shared Services

The first mention of shared services in the IS literature analyzed was in 1994, when Earl (1994, p. 8) talked of shared services as “another route to administrative efficiency” in his paper on Business Process Design. He presented Baxter Healthcare, as an example of how to “combine and centralize many accounting and related services” (Earl, 1994, p. 8) and spoke of ‘economies of scale’ that shared services can yield, in particular for administrative processes. The first papers to ‘focus’ on shared services (from the primary set) appeared in 2006. Versteeg and Bouwman (2006) discuss how business architectures help to clarify the complexity within an organization and help to develop subsequent functional, information, process and application architectures that form a useful starting point from which to create shared service centers. Ulbrich (2006) presents a literature-based study that depicts the similarities between the business process reengineering (BPR) and shared service approaches and discusses how emerging shared services initiatives can learn from the implementation lessons of the (BPR) era. Motives for introducing shared services

centers in public administration are discussed by Janssen and Joha (2006a). They compare the initial motives for introducing a shared services centre with post-implementation benefits. Janssen and Joha (2006b) provide an analytical overview (with case study data) of the governance of shared services in Public Administration.

Over 150 papers (our secondary set of papers), mention shared services indicating a growing interest in and prevalence of shared services in IS, especially in relation to the topics – Sourcing (e.g. Ghodeswar & Vaidyanathan, 2008; Mani, Barua, & Whinston, 2010); IT Governance (e.g. Weill, 2004); E-Government (e.g. Feller, Finnegan, & Nilsson, 2011); Public and Private Sector (e.g. Gewald & Dibbern, 2009; Manwani & O’Keefe, 2003; Ross, 2003; Wheeler, Marakas, & Brickley, 2002); Healthcare (e.g. Bennett & Eustis, 1999; Lockamy III & Smith, 2009); Business Process Management (e.g. Al-Mashari & Zairi, 1999) and Enterprise Systems (e.g. Davenport, 2000; Elbanna, 2008; Shang & Seddon, 2002). Nonetheless, though Figure 5.2 depicts growth, the sample constitutes an extremely small portion of the IS research output. This is surprising, considering the shared services notion has been around since 1994, and it’s relevance is endorsed by extensive discussion of potential related benefits in the commercial press (A.T. Kearny, 2005; Beard & Rupp, 2004; Deloitte, 2009; Firecone, 2007), as also discussed in the introduction.

The next sections present an analytical review of the status of IS literature on shared services, also identifying the current gaps and suggesting potential research directions. The candidate will first address the understanding of shared services in the IS literature in terms of definitions, objectives, stakeholders, and notions of sharing. Thereafter, the candidate will discuss the research perspective in terms of the theories applied, methods used, and the limitations and future research potential reported.

55 THE UNDERSTANDING OF SHARED SERVICES IN THE IS LITERATURE

This section discusses in detail the understanding of shared services based upon the shared services literature in the IS discipline. It addresses what the candidate know and what the candidate yet need to know. It is structured along the basic questions of ‘what’, ‘why’, ‘who’ and ‘how’. Firstly, the candidate discusses what shared services are by addressing the definitions. Thereafter, the candidate looks closer at the why and who by identifying the objectives and the stakeholders. Finally, the candidate discusses the ‘how’ by describing different notion of sharing.

5.5.1 Defining Shared Services in the IS Literature

To advance the understanding of shared services in IS and to build an accumulated body of knowledge, it is essential to define the meaning of the concept. The definitions of shared services originating or cited in the primary and secondary papers are presented in Table 5.1. Of the 193 papers, 18 make an explicit attempt to define shared services; 13 primary papers (out of 29) and 5 secondary papers (out of 164). Several papers cite definitions originating from articles outside the IS discipline. The overview of definitions shows that there is little consensus. A grounded look at definitions is warranted during the continuing genesis of this phenomenon; convergence of thought is important for an emerging area to grow.

Though the definitions are diverse, concentration or consolidation is a key theme. Many refer to support or back-office functions (e.g., Finance, HR, IT and procurement) and the services they deliver via processes and IT. Several refer to organizational, business and governance aspects. Some refer to a specific organizational model, where the services are provided by a (semi-)autonomous organizational entity to multiple other entities. This is sometimes more explicit, with specific reference made to a shared service 'centre'. There are also themes that relate to a business approach, in terms of being managed like a business, being service and customer oriented, and having a provider-client relationship (e.g. service level agreements). Governance is implicit in the concept of 'sharing' and in themes like collaboration.

While there are many common themes and similarities between the definitions, there are also some significant differences in terms of characteristics included, as well as conflicting characteristics. An example of the former is the semi-autonomous entity, which is sometimes included in the definition (Yee, et al., 2009) and sometimes not mentioned at all (Becker, et al., 2009). Moreover, some refer explicitly to a shared services 'centre' (e.g. Whitaker, et al., 2006). An example of conflicting characteristics is whether shared services are intra-organizational (within a single organisational boundary) (e.g. Goh, et al., 2007) or can also be extended across inter-organizational (multiple organisations) boundaries (Yee & Chan, 2009). In addition, we see that some definitions include one or more objectives of shared services such as increase efficiency, create value or improve service (e.g. Goh, et al., 2007). Borman (2008) argues, however, to keep – objectives out of the definition.

Table 5.1: Summary of definitions of shared services found within IS literature

Paper		Definition	Comment	
<i>IS papers specifically defining shared services</i>				
Primary Papers	1	Becker et al. (2009, p. 1)	<i>"The term 'shared services' might be defined as the concentration of company resources performing activities in order to service multiple internal partners (Schulman et al. 1999), which comes along with the standardisation and consolidation of redundant information processes (Wang & Wang, 2007)."</i>	Refers to definition of Schulman et al (1999, p. 9) and Wang and Wang (2007).
	2	Borman (2010b, p. 1)	<i>"...the aggregated provision of back-office services typically underpinned by ITs"</i>	Citing Quinn et al. (2000), Ulbrich (2006), Longwood and Harris (2007), and Hagel III and Brown (2001).
	3	Borman (2008a, p. 3)	<i>"...retains the core concept of concentration while avoiding prescriptive requirements to achieve specific objectives or operate in set ways."</i>	Citing Longwood and Harris (2007), Schulman et al (1999, p. 9) and Bergeron (2003, p. 3).
	4	Goh et. al (2007, p. 252)	<i>"Shared services is a collaborative strategy whereby the staff functions of a firm are concentrated in a semi-autonomous organization and managed like a business unit competing in the open market to promote greater efficiency, value generation and improved service for internal customers."</i>	
	5	Lacity and Fox (2008, p. 17)	<i>"the consolidation of support functions (such as human resources, finance, information technology, and procurement) from several departments into a standalone organizational entity whose only mission is to provide services as efficiently and effectively as possible."</i>	Citing Accenture (2005)
	6	Miskon et al. (2009, p. 378)	<i>"shared services as the internal provisioning of services by a semi-autonomous organizational unit to multiple organisational units involving the consolidation of business functions supported by a sharing arrangement"</i>	Based on a review of IS literature on shared services
	7	Schulz et al. (Schulz, et al., 2009b, p. 9)	<i>"An SSC consolidates processes within a concern in order to reduce redundancies; it delivers support processes; it is a separate organizational unit within the group; it is aligned with external customers; cost-cutting is a major driver for implementation; it is focused on internal customers; and it is operated like a business."</i>	Based on a review of literature on shared services
	8	Sedera and Dey (2007, p. 1)	<i>"The concept is simple; bring-together functions that are frequently duplicated across divisions, subsidiaries or operating units and offer these services more efficiently and at a lower cost."</i>	Refers to definition of Schulman et al (1999, p. 9).
	9	Su et al. (2009, p. 382)	<i>shared services refers to an organizational model where a firm merges common business functions performed by multiple operating entities into a distinct unit that delivers services to the rest of the firm as its business clients.</i>	Refers to definition of Ulrich (1995).
	10	Ulbrich (2009, p. 1)	<i>"Shared services centers are commonly described as independent organizational entities that provide well-defined services for more than one unit within an organization"</i>	Refer to definitions of Moller (cited in Ulbrich, 2009).
	11	Ulbrich (2006, p. 197)	<i>"... shared services gather a selection of common and well-defined services to provide these services to an</i>	Refers to definitions of Schulman et al

		<i>organization's units, acting independently."</i>	(1999, p. 9), Bergeron (2003, p. 3), Quinn et al. (2000), and Moller (cited in Ulbrich, 2009).	
	12	Yee and Chan (2009, p. 1)	<i>"...the sharing of services across more than one organisation is made. IOSS, as opposed to traditional SS which involves intra-organisational sharing of services, inherits the benefits of SS and in addition to efficiencies and economies, may also result in collaborative decision-making and "cooperative competition" (co-opetition) whereby organisations cooperate on one level, while remaining competitors on another."</i>	Refer to definitions of Bergeron (2003, p. 3) and Quinn et al. (2000).
	13	Yee et al. (2009, p. 492)	<i>"Shared Services (SS) is a collaborative strategy in which a subset of existing business functions are concentrated into a new, semi-autonomous business unit for the internal customers of the parent corporation, like a business competing in the open market"</i>	Refer to definitions of Bergeron (2003, p. 3).
Secondary Papers	14	Gibson and Arnott (2005, p. 9)	<i>"A shared service is the standardisation and consolidation of business functions, in order to reduce process duplication and at the same time centralise controls and processes."</i>	
	15	Kemp and Low (2008, p. 236)	<i>"Operations department staff described shared services as "a transaction processing centre" and "where you go when you need help".</i>	
	16	Bækgaard (2009, p. 3)	<i>"Shared services are support processes from which many parties can benefit"</i>	Refer to definitions of Ulbrich (2006).
	17	Van Veenstra et. al (2009, p. 5)	<i>"Shared service centers can then be formed, in which services from multiple organizations are concentrated in one joint centre"</i>	Refer to definitions of Janssen and Joha (2006b).
	18	Whitaker et al (2006, p. 3249)	<i>"...consolidating IT and business processes throughout the firm into a single or small number of centers owned and run by the firm."</i>	Refer to definitions of Shah (1998) and Ulrich (1995).
<i>Other common definitions (from outside the IS literature) cited by IS authors</i>				
Papers Outside IS (cited by IS Authors)	1	Bergeron (2003, p. 3)	<i>"Shared services is a collaborative strategy in which a subset of existing business functions are concentrated into a new semi-autonomous business unit that has a management structure designed to promote efficiency, value generation, costs savings and improved service for the internal customers of the parent corporation "</i>	Referred to by Ulbrich (2006), Borman (2008a), Yee and Chan (2009) and Yee et al. (2009).
	2	Moller (1997, cited in Ulbrich, 2006, p. 197)	<i>". . . a shared service centre (SSC) is an independent organisational entity which provides well defined services for more than one unit (which may be a division or business unit) within an organisation. The SSC is responsible for managing its costs and the quality and timeliness of the services it provides to its internal customers. It has its own dedicated resources and typically will have informal or formal contractual arrangements, often called service level agreements, with its customers."</i>	Referred to by Ulbrich (2006, 2009).
	3	Schulman et al. (1999, p. 9)	<i>"The concentration of company resources performing like activities, typically spread across the organization, in order to service multiple internal partners at lower cost and with higher service levels, with the common goal of delighting external customers and enhancing corporate value"</i>	Referred to by Becker et al. (2009), Ulbrich (2006), Sedera and Dey (2007) and Borman (2008a).
	4	Ulrich (1995, p.	<i>"Shared services is as its name implies – the</i>	Referred to by Su et

	14)	<i>combining or consolidating of services within a corporation."</i>	al. (2009) and Whitaker et al. (2006)
5	Quinn et al. (2000, p. 7)	<i>"... shared services at a simple level refers to the practice of business units, operating companies and organizations deciding to share a common set of services rather than have a series of duplicate staff functions."</i>	Referred to by Borman (2010b), Ulbrich (2006) and Yee and Chan (2009).

Two papers on shared services in the IS literature explicitly canvass then existing definitions and their interrelation: Miskon et al. (2009) and Schultz et al. (2009b). The former defines shared services as *"the internal provisioning of services by a semi-autonomous organizational unit to multiple organisational units involving the consolidation of business functions supported by a sharing arrangement."* Schultz et al. (2009b) is followed by Schulz and Brenner (2010, pp. 215-216), a publication which defines the shared services centre as *"an organizational concept with the following characteristics: consolidates processes within the group in order to reduce redundancies; delivers support processes as its core competency; has cost cutting as a major driver for implementation; has a clear focus on internal customers; is aligned with external competitors; is a separate organizational unit within the group; and is operated like a business."* While these integrative definitions progress toward a common understanding of shared services, it remains unclear whether a unified definition is feasible. Commenting from a management rather than IS perspective, Bangemann (2005) attributes the diversity of definitions to the diverse perspectives on shared services – strategic, operational, process, and technical (IT), and differential reasoning and goals. In a similar Schulman et al. (1999) argue that shared services need to be tailored to each organization. Therefore, a variety of approaches to shared services have been proposed and implemented. In addition, there is currently still uncertainty about the most appropriate ways to conceive, implement and manage shared services (Aksin & Masini, 2008). This would argue for a broad definition of shared services that would include different types and implementations.

So while there is convergence around the concentration or consolidation theme, there exists no common understanding or agreement on a specific definition within, and even outside, the IS community. Given that only 18 of 193 papers explicitly define shared services (recognising, in the secondary papers, shared services may not be sufficiently central to warrant definition), it may be the notion is inappropriately considered well understood, requiring little explanation. However, as preceding discussion shows, the concept is neither well-established nor consistent in the IS discipline. For the remainder of this paper we define shared services broadly as *"a collaboration arrangement of multiple organizational units involving the concentration of resources for providing and using services that support their*

business processes.” This definition captures the main ideas of ‘sharing’ and ‘services’ as an organizational arrangement and includes the common theme of concentration. It also captures the core idea of shared services creating business value Schulman et al. (1999), interpreted from the IS context as the support of business processes (Melville, Kraemer, & Gurbaxani, 2004a). The definition is inclusive, accommodating most perspectives on shared services found in the IS literature (e.g. whether based on consolidation or not, whether specifying a shared services centre or not, and whether intra- or inter-organizational). This working definition can serve as tentative definition; however, further research into a more specific, unified definition for Information Systems is required; we call for closer and careful attention to the notion of shared services in IS research. Deriving from the preceding analysis and discussion of shared services definitions, we suggest the following questions for further, more focused future research on the definition of shared service from an IS perspective:

- 1) What is shared services in the IS context?
 - a. What are the core themes or characteristics of shared services in IS?
 - b. To what extent is shared services in IS similar or different to shared services in other domains (e.g. Finance, HR)?
 - c. What characteristics of shared services in IS should be included in the definition of shared services?
 - d. How to deal with (conflicting) characteristics of shared services in IS (e.g. intra- or inter-organizational)?

Important in understanding shared services and its distinctiveness, is its relation with centralization/decentralization and outsourcing, seemingly overlapping concepts. The need for consolidation is a reaction to the negative effects of the decentralization (or duplication) of business functions in multi-business-unit organizations. Shared services differs from centralization, as argued by researchers within IS (e.g. Janssen & Joha, 2006b, p. 103) and outside of IS (e.g. Ulbrich, 2003). Goh et al. (2007) see shared services as a specific form of a ‘federal’ mode of IT organization in large division-based organizations, combining centralization and decentralization. As Hodgkinson (1996) suggests, this way of organizing the IS function attempts to capture the benefits of both centralized and decentralized IT. Shared services can be perceived as a sourcing arrangement, and thus a clear description of what shared services is, and in particular how it differs to other sourcing arrangements, in particular outsourcing, is required. In reference to confusion regarding alternative sourcing arrangements, Whitaker et al. (2006, pp. 3249) suggest “*There is a need to integrate these concepts for a comprehensive view*”; it is important to clearly understand what sourcing arrangement is used and when it is best to change from one arrangement to another.

Davenport (2000, pp. 175) maintains, “*Looking to the future, the large-scale changes to the business environment... are likely to tip the balance of factors associated with outsourcing toward... shared services.*” Some authors make an attempt to compare and contrast shared services to other sourcing arrangements. Ulbrich (2006) states that shared services is somewhat similar to outsourcing, and that “*the main difference is where the service provider is located organizationally and that internal resources are used rather than those of a contractual partner*” (Ulbrich, 2006, pp. 197). Shared services can also be seen as a step towards external outsourcing (Kagelmann, 2000, pp. 79-81; cited in Ulbrich, 2006, p. 199). Therefore, a more advanced understanding of shared services in relation to other forms of organizing and sourcing the IS function, applications and infrastructure should be a priority for future research.

- 1) What are the similarities and differences with other forms of organizing and sourcing the IS function, applications and infrastructure?
 - a. How does shared services relate to centralization and decentralization?
 - b. How does shared services relate to the federal mode of organization?
 - c. How does shared services relate to outsourcing?
 - d. What are other areas in IS that are relevant for or have similarities with shared services?

5.5.2 Objectives of Shared Services in the IS Literature

Specifying organizational objectives is known to be valuable, as specific objectives give direction, and focus attention and resources. The introduction of shared services is a highly consequential, strategic decision requiring long-term commitment and entailing substantial complexity and risk (Janssen & Joha, 2006b). Industry analysts stress the importance of understanding the objectives of shared services, e.g. Gartner (2008, p. 1) stating “*Make sure you know why you’re implementing shared services*”.

As discussed in the data analysis section above (see Section 5.3.2), this study first captured all instances of any direct or indirect mention of shared services objectives / motives, through open coding to an ‘objectives’ node. A total of 103 objective-instances were identified from 41 primary and secondary papers, which were grouped into low level themes. This study sought after IS literature that discussed shared services motives, to aid the candidate with the synthesis of these lower level themes, to derive higher level categories. Papers like Goh et al.(2007), Janssen and Joha (2006b), and Su et al. (2009) specifically

discuss shared services objectives. This study chose the Janssen and Joha (2006b) framework, which the candidate saw as the most comprehensive framework found on shared services motives. They discuss four categories of motives for shared services: (1) strategic and organizational, (2) political, (3) technical, and (4) economic. This categorization originates from Baldwin et al. (2001) which pertains to outsourcing motives. Janssen and Joha (2006b) used and adapted Baldwin's motives to understand shared services motives and to compare them with outsourcing motives.

The different themes that were identified in the first round of inductive analysis, was mapped on to the Jansen and Joha's (2006b) framework. All four categories of the Jansen and Joha framework were instantiated. However, the candidate felt that the strategic and organizational motives needed to be re-specified. Jansen and Joha had included process improvement related content [such as workflow support (see p. 108) and standardize processes (see p. 109)] under the strategic and organizational motives. Jansen and Joha do not provide specific definitions for each motive category, however the candidate see strategic and organizational motives as those that are more long-term, high-level goals related to achieving a company's vision. The candidate see this different to the more operational, day-to-day process centric goals, hence proposed a new category of motives to capture 'process' objectives. This was further supported by the inductive coding process, where process related goals were specifically mentioned a number of times (see Figure 5.3 below) and by prior shared services literature such as Ulbrich (2006) and Lacity and Fox (2008) that specifically discusses the role of processes within shared services. Shared services are characterized by process orientation, with a strong focus on processes (Ulbrich, 2006). The redesign and management of business processes is a core phase within shared services initiatives (Lacity & Fox, 2008).

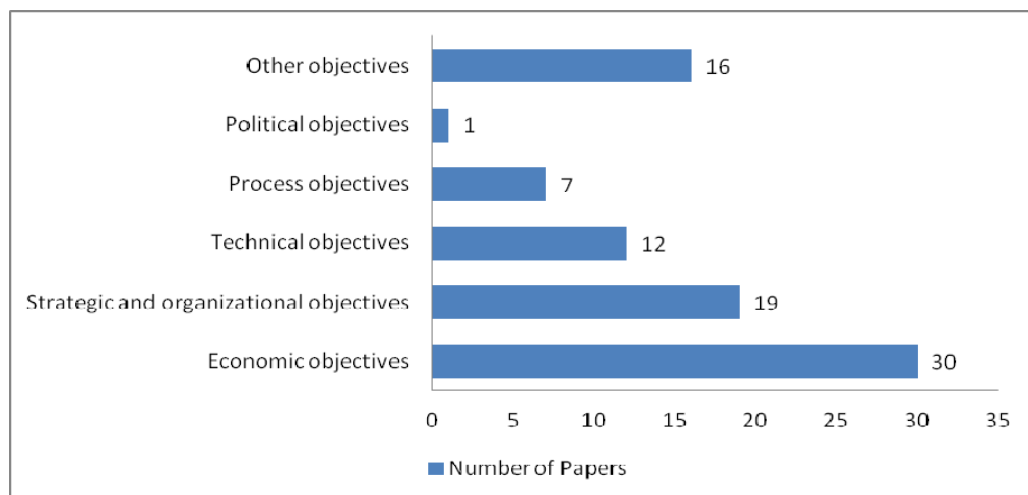


Figure 5.3: Categories of shared services objectives as reported by IS literature.

Figure 5.3 presents a summary of this analysis depicting the main categories, how many papers mentioned each category, and how many times each category was mentioned across the different papers. Two coders (the candidate and her main supervisor) reviewed and confirmed the coding procedures and results. Though, due to the approach applied (i.e. limitations of content analysis in general) the results may not be complete or mutually exclusive, they provide a clear account of the objectives of shared services as reported in IS literature.

Economic objectives are most prevalent (59 instances in 30 papers), followed by strategic and organizational objectives (33 instances in 19 papers). Economic objectives relate mainly to cost reduction. For example, Becker et al. (2009, p. 8) state that “*We assumed that reduction of costs is the crucial motive for establishing a shared service organization.*” Schulz et al. (2009a; 2009b) also conclude that the main objective of shared services is cost reduction. In addition, economies of scale and leveraging resources are also often mentioned as economic objectives, which are related to cost reduction.

Within the strategic and organizational category, professional service delivery was the most cited objective; also mentioned was customer orientation, synergy and innovation, restructuring and working better across multiple regions. For example, Su et al. (2009, p. 383) argue that “*shared services may increase service quality by forming a customer-oriented mindset within the service organization and professionalizing service delivery.*” Economic and strategic objectives are often stated jointly, the core goal being provision of better services against lower costs. For example, Lacity and Fox (2008, p. 17) mention that “*organizations create shared services to dramatically reduce costs, improve services, and even to generate revenue.*” Janssen and Joha (2006b, p. 104) emphasize the value of economic and strategic objectives of shared services even more extensively by stating that “*The popularity of SSCs seems to originate from a combination of advantages, including efficiency gains and an increase in service levels without giving up the control of the organizational and technical arrangements and expertise.*”

Technical objectives (14 instances in 12 papers) relate to, for example, business/IT alignment, access to expertise and technology, and the use of ERP systems. From an IS perspective, technical objectives and motives are an area of particular interest, both in terms of shared services as an organizational arrangement for the IS function, as well as the role of IS in shared services in general. Janssen and Joha (2006a, p. 2310) state that “*By creating a SSC, the municipalities have access to more skills and expertise and they were able to develop new systems and services, as prior to the introduction of the SSC, the maintenance and control efforts consumed almost all resources.*”

Political objectives seemed to have received little attention in the IS literature on shared services, with only Su et al. (2009, p. 383) stating that “*Shared services may also bring political advantages such as enhancing credibility and solving internal conflicts.*” Care must be taken when interpreting this as the results can differ based on the contexts of the studies looked at. Jansen and Joha (2006b) studied public sector organizations. Politics are more likely to play a more prominent role in different sectors than others and the results hence can be biased based on the pool of papers included in the analysis. Regardless, more research into the political objectives of shared services may be warranted as their importance in relation to the centralization or decentralization of IS has been recognized early in the wider IS discipline. For example, King (1983), from a behavioural viewpoint states that, the driving issues in the centralization or decentralization debate are the politics of organization and resources, centering on the issue of control.

The process objectives (9 Instances of 7 papers) related mostly to process improvement. Goh et al. (2007) report on the formation of shared services with global governance to improve processes, and Boh and Yellin (2006, p. 175) state that “*the sharing of IT services helps organizations to innovate business processes.*” Process objectives are particularly relevant from an IS perspective; business processes being a core IS research focus (e.g. Kettinger, Teng, & Guha, 1997) and seen as fundamental to capturing value from IT (e.g. Melville, Kraemer, & Gurbaxani, 2004b).

Some ‘other’ objectives did not fit the five categories (10 instances within 8 papers) and none of these ‘other’ objectives were mentioned in more than 1 or 2 papers. Themes within the ‘other’ category were scattered and included examples like; ‘Information sharing’, a topic of interest to IS – e.g. “*The objective of the ERP implementation was to create a shared service hub for the organizational logistics and financial systems so as to facilitate multi-functional information sharing*” (Wan, Ling, & Huang, 2001) and ‘a less risky alternative to outsourcing’ (e.g. Goh, et al., 2007; Schulz, et al., 2010).

Shared services as an organizational arrangement and sourcing approach for the IS function, requires understanding the specific objectives for IS in the arrangement. While IS may have specific concerns with respect to the objectives and their realization, the IS function can learn from other functional areas having a longer shared services tradition (e.g. Finance, HR). In addition, more research is required to gain a deeper understanding of the objectives of shared services generally (e.g. Finance, HR, IS) in relation to the enabling role of IS, such as the role of IT infrastructure, the need for IT service management, or experimentation with new technology. For example, Lacity and Fox state that “*Reuters found that technology was a critical enabler of its regional shared services [...] This is worth investing in before anything else*” (Lacity & Fox, 2008, p. 22) and “*In 2001, the corporate*

CFO decided to significantly reduce finance costs by standardizing finance policies for global delivery (BPR), implementing standard, global enterprise resource planning (ERP) and workflow systems (technology enablement)” (Lacity & Fox, 2008, p. 19). Hence, this study encourages further research about objectives of shared services as an organisational arrangement for the IS function and to further understand the role of IS in relation to achieving shared services objectives in general, and suggest these research questions:

- 1) What are the objectives for shared services as organizational arrangement for the IS function?
 - a. Can we better understand and explain the core idea of shared services in terms of better service at lower cost in the IS context?
 - b. What combination of different (economic and strategic) objectives of shared services is most relevant in the IS context?
 - c. What is the role of technical objectives of shared services in the IS context and how do these relate to the economic and strategic objectives?
 - d. Do we need a better understanding of political motives of shared services for the IS function and, if so, what are the possible political motives?
 - e. What other types of objectives, such as those related to process or information, are relevant for shared services in the IS context?
 - f. What is similar and different for the objectives of shared services for the IS function relative to other functional areas (e.g. Finance, HR)?
 - g. How can an IS perspective contribute to better understanding the objectives of shared services; in particular, can it contribute to a better understanding of technical, process and information objectives?
- 2) What is the role of IS in relation to the objectives for shared services as organizational arrangement in general?
 - a. What is the role of IT infrastructure in relation to the objectives for shared services and what does shared services mean for the IT infrastructure?
 - b. What is the role of IT applications, in particular integrative enterprise software, in relation to the objectives for shared services and what does shared services mean for the IT infrastructure?
 - c. What do the objectives of shared services mean for the development or procurement of new software?

- d. What do the objectives of shared services mean for the IT function and/or IT outsourcing?

As implied in earlier discussion on the definition, shared services is often seen as combining the benefits of centralization, decentralization and outsourcing (e.g. Goh, et al., 2007; Ulbrich, 2009); for example, providing efficiency gains and an increase in service levels without yielding control of organizational and technical arrangements and expertise (Janssen & Joha, 2006b). While this combination of advantages has made shared services popular, Janssen and Joha observe that it has also resulted in unrealistic expectations. They warn that stakeholders often have different requirements and expectations and that best practices can be conflicting. For example, economies of scale often come at the expense of customer focus. Janssen and Joha also compare the motives for shared services with those for outsourcing and conclude that while there is overlap, there are also motives that are particular to each strategy. Janssen and Joha (2006b) consider expected versus realized benefits (relating to objectives) and based on a public sector case study, observe that some main benefits anticipated from initiating shared services are not realised, while other benefits realized, were not anticipated. To realize the benefits of shared services, Lacity and Fox (2008) argue that coordinated integration of four change programs is required: business process redesign (BPR), organizational redesign, sourcing redesign, and technology enablement. Similarly, Ulbrich (2006) concludes that the implementation of shared services can benefit from lessons learned in the BPR area. A better understanding of shared services benefits and how to realise them is warranted. Hence, in addition to the suggested research questions above, we also recommend to pursue on answering:

- 1) How can the objectives for shared services as an organizational arrangement for the IS function be realized?
 - a. How realistic are the objectives of shared services for the IS function in terms of combining the benefits of different approaches such as centralization, decentralization and outsourcing?
 - b. What is needed for the realization of the objectives of shared services for the IS function? What is required in terms of business process redesign, organizational redesign, sourcing redesign, and technology enablement?

In summary, the limited literature perused suggests a broad range of objectives for shared services, however, it is unclear how realistic benefits expectations are or how they can be realized. There is an onus on IS researchers to understand, on the one hand, what the implications are for the IS function, and on the other hand, how IS can play an enabling role for objectives of shared services in general.

5.5.3 Identifying Stakeholders

Prior research in IS as discussed in Jiang et al. (2006) and Seddon et al. (1999), has shown the importance of properly identifying the correct stakeholders. Seeking the appropriate perspectives of the relevant stakeholders is important for research (e.g., when defining the unit of analysis, framing the research questions and deriving and executing the research design) and in practice (e.g., when gathering requirements for the implementation of shared services or when evaluating the initiatives). However, the IS literature about stakeholders in relation to shared services is very limited. There have not yet been any papers in the IS literature (our primary and secondary sets of papers) that are specifically dedicated to the topic of shared services stakeholders or have a section specifically dedicated to this topic. This section aims to address this gap by deriving a preliminary conceptual framework of shared services stakeholders, based on a synthesized summary of mentions made of stakeholders in the IS literature on shared services. This is intended to form a descriptive overview that can contribute to a better understanding and further investigations of stakeholders in relation to shared services.

The overall synthesis occurred in multiple phases: first any mention of any type of stakeholder (a person, group or organization with an interest and/ or role in the shared services arrangements) was captured under a single main node ‘Stakeholders’. This was further analyzed in a second round of analysis, where specific roles/groups were identified from the data. At the end of this stage (when extracted quotes were grouped into similar categories as indicated by the data), the candidate sought literature on organizational stakeholders, to help further justify and confirm the observations. Table 5.2 presents the summary results of this analysis.

Table 5.2: Summary overview of data gathered from literature about shared services stakeholders

1	2	3	4	5
Higher level classifications	Role(s)/ groups identified	# of citations	# of sources	Example Citations ²⁸
Stakeholders internal to the shared services centre	Strategic roles	9	5	<p><i>“A new position - VP Corporate IT (i.e., CIO) - was created to take charge of global IT management and coordination of shared service activities” (Sia, Soh, & Olfato, 2011, p. 8)</i></p> <p><i>“In July 2004, the company hired a new manager to head up the captive center... this man knew how to efficiently and effectively manage a center.” (Lacity & Fox, 2008, p. 29)</i></p>

²⁸ Some text in the examples provided here have been made bold for emphasis, to illustrate the key words that supported the classifications we observed

	Middle management roles	5	4	<p><i>"the governance model also specified global IT officers assigned to each business function"</i> (Goh, et al., 2007, p. 255)</p> <p><i>"A Shared Services Center (SSC) was established... The SSC was co-managed by one university employee (responsible for managing SSC operations)... and was staffed by ... an administrative head (responsible for aligning the facility's IT architecture with that of the university)"</i> (Huang & Zmud, 2010, p. 4)</p> <p><i>"...four 'channel managers', each responsible for the relations with a specific group of stakeholders (citizens, government, business, visitors)."</i> (Vaast & Binz-Scharf, 2008, p. 6).</p>
	Operational roles	4	4	<p><i>"A helpdesk function was created functioning as a one-stop shop for all users. The helpdesk prioritizes requests and forwards the user requests to the right person."</i> (Janssen & Joha, 2006a, p. 2310).</p> <p><i>"The recommended organizational structure envisaged the creation of a web portal core team, ...It consisted of a director and six core team members: A portal manager, a webmaster, ..."</i> (Vaast & Binz-Scharf, 2008, p. 6).</p>
	Support roles	1	1	<p><i>"One federal employee [was] responsible for ensuring that the SSC was not in violation of federal security policies"</i> (Huang & Zmud, 2010, p. 4).</p>
Stakeholders external to the shared services centre	Parent Organisation	12	7	<p><i>"Finally, in the role of shared services, the parent assumes responsibility for various operative processes of the SBUs and tries to improve efficiency by centralizing them"</i> (Böhm, Nominacher, Fähling, Leimeister, & Yetton, 2010, p. 6)</p> <p><i>"The three options were presented in late January 2004 to the executive sponsor of shared services, the Director of Shared Services, and the shared services leaders"</i> (Lacity & Fox, 2008, p. 25)</p> <p><i>"Managers [of the parent organisation] who are presently dissatisfied with an organization's current performance often consider shared services as one of their first-choice change alternatives"</i> (Ulbrich, 2006, p. 191)</p>
	Customers	17	5	<p><i>"The federation has several user boards consisting of representatives of the users, which might be process owners, line managers, and administrative workers"</i> (Janssen & Joha, 2006a, p. 2311).</p> <p><i>"It delivers IT services to the various business units in the organization, i.e. its customers."</i> (Ulbrich, Schulz, & Brenner, 2010, p. 1).</p>

				“...four ‘channel managers’, each responsible for the relations with a specific group of stakeholders (citizens, government, business, visitors).” (Vaast & Binz-Scharf, 2008, p. 6).
	Outsourcing partners	5	4	<p>“In the Reuters case, the sequence for creating shared financial services was iterative and involved two overlapping phases....They established a new captive center in Bangalore, India, and outsourced specialized financial services to third-party suppliers.” (Lacity & Fox, 2008, p. 19) “... Selective use of outsourcing partners would fill in gaps...” (Lacity & Fox, 2008, p. 23).</p> <p>“By the time P&G’s shared services were outsourced, their operations were drastically transformed and streamlined” (Gospel & Sako, 2010, p. 28)</p>
	3 rd party Suppliers	2	1	<p>“In addition to the major outsourcing partner, specialty partners were engaged to perform very specific processes like scanning, facilities administration, and local taxes.”....“...The shared services team also expanded existing relationships with Reuters’ banking partners to ensure that global shared services could handle payment transactions across borders and across partners.” (Lacity & Fox, 2008, p. 29).</p>
	Consultants	7	6	<p>“The company hired a management consulting firm to help the finance and HR functions roll out Oracle and launch the shared services initiative.” (Lacity & Fox, 2008, p. 22)</p> <p>“Consultants from shared services organization (APSS) provided expertise in SAP package and business processes tailored for region”. (Brown & Vessey, 2003, p. 75)</p>

Papers dedicated to stakeholders in shared services were scarce. Those that did discuss stakeholders were always in the context of a shared services centre (SSC), a semi-autonomous unit responsible for providing the shared services. The roles identified from the above mentioned analysis were grouped around those that were ‘internal’ – within the SSC, and those that were ‘external’ – outside the SSC (as depicted in Column 1 of Table 5.2). The roles, both internal and external to the SSC, identified from this analysis are depicted in Column 2 of Table 5.2. Columns 3, 4 and 5 provide supporting evidence for each role, with the number of citations, number of sources and example citations. In addition to the different roles and their groupings, special attention was given to capturing key terms that indicate the relationships between these various parties (e.g. ‘serves’, ‘is in charge of’, ‘interacts with’). The results of this analysis were used to derive a conceptual framework of shared services stakeholders, as graphically illustrated in Figure 5.4.

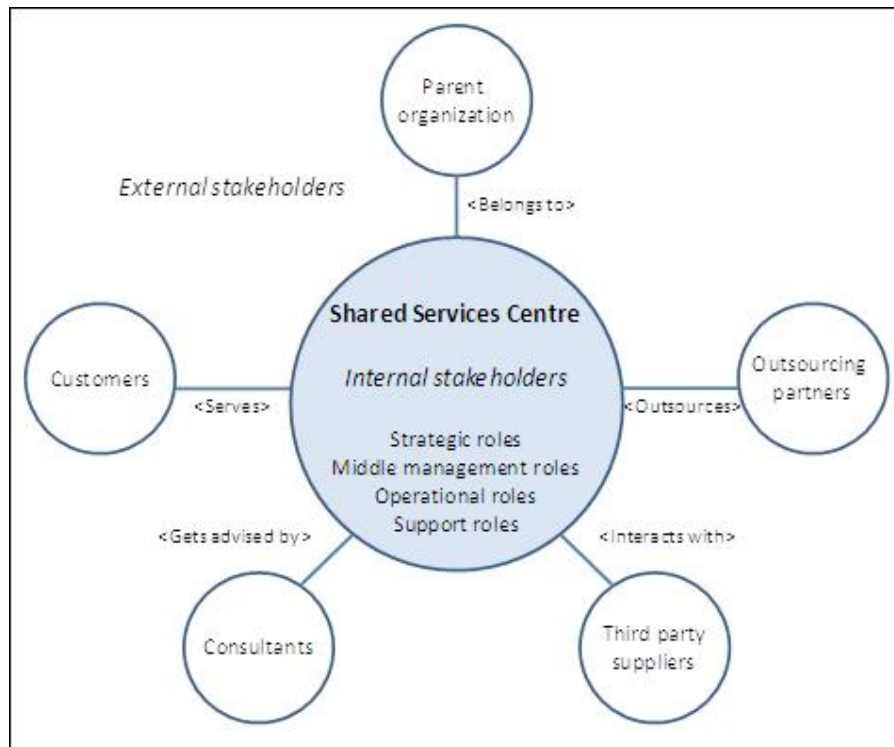


Figure 5.4: Stakeholders of shared services a conceptual framework

The internal stakeholder categories identified from the inductive coding, mapped with the Mintzberg's (1979) organisational structure model; a model that describes the main component parts of an organizational configuration. Prior studies [e.g. Peterson et al. (2000); Carver and Lewis (2000)] have applied the Mintzberg's model when describing stakeholders through an organisational-structure-lens and when describing governance through authority and division of responsibilities for various tasks. This study found it as a useful framework to justify the categories that had formed inductively (as the data closely mapping onto the categories presented by the Mintzberg framework- which has been used in prior stakeholder analysis studies). The candidate describes the internal stakeholders of a shared services centre as consisting of: strategic roles within the SSC (those who control the SSC); middle managers (those who connect the strategy with the operational tasks and manage the operational activities); operational roles (those who are directly involved in producing the services of the SSC), and support roles (those who provide support to the rest of the organization, including those who are involved with the planning and control of work). These findings are also consistent with common roles in SSCs as reported in shared services practitioner reports (i.e. Corporate Leadership Council, 2006).

The strategic roles in shared services consist of designations such as: General Manager Shared Services; Director Corporate Services; Manager Client Services; Finance Director, Group Executive Shared services etc (Borman, 2008a). This role involves overseeing the overall conduct of the Shared Services Centre (SSC) and managing

relationships the SSC has with the business unit leaders, in particular advising the business units on how to realize the full potential of shared services (Borman, 2008a; Lacity & Fox, 2008). The senior executives are the figureheads of the SSC when interacting with the external members. Lacity and Fox (2008, p. 21) explain how the senior management of a SSC may act as “*coaches who evangelized the vision set by the ‘owners’ of the business units*”. The middle management role in shared services is responsible for overlooking specific functional areas within a SSC; people in a shared services middle management role may be known by designations such as: account manager or line manager (Lacity and Fox, (2008). Only a few operational roles of SSCs were described in the IS literature. Personnel in operational roles consist of those that actually perform the core business of the SSC. For instance, in an IT shared services centre, this would include all those who serve in the helpdesk function. As with all organizations, shared services units also require support tasks to take place. Huang and Zmud (2010), for instance, mention how a dedicated role exists to assist the SSC to conform with required security policies.

With respect to *external stakeholders*, the literature points to shared services interacting with a parent organization, which is often an organization or a group of organizations that have collaborated to create the shared services centre. These are the founders of the SSC. The SSC has its own responsibilities and is accountable to a ‘board’ of the parent organization, as they provide services to the business units and customers of the parent organization.

The most prominent external interactions of the SSC are with the customers to whom the SSC provides its services. Most of the customers are the business units within the parent organization. Sometimes, the SSC may also directly serve the customers of the business units and parent organization. Research studies discuss in detail the issues that SSCs face when trying to get their “clients” in the business units to accept and appreciate the services they offer (Lacity & Fox, 2008). The SSCs should not only consider the needs of the business units they serve, but also need to be well attuned to the needs of the business unit’s customers. For example, Janssen and Joha (2006a), describe a shared services initiative in the public sector where the potential users of the shared services were *all* public government agencies in the Netherlands; hence the need to understand the needs of the citizens that these agencies serviced.

At certain times, the SSC might decide to collaborate with external service providers to fill in gaps in the SSC’s capabilities. This can be through outsourcing services, involving consultants or through partnering with special service providers (e.g. banks for financial services). For example, Lacity and Fox (2008, p. 29) describe how Reuters filled their gaps

with “*one major outsourcing partner, several specialty partners, and expanded relationships with its existing banking partners*”. Often, specialized consultants are brought in when designing and implementing shared services. For example, Lacity and Fox (2008) describe how Reuters hired a management consulting firm to help the Finance and HR functions roll out Oracle and launch the shared services initiative.

Overall, information about stakeholders of shared services is scarce and scattered, with very little dedicated literature addressing the topic of shared services stakeholders to date. While the framework presented in Figure 5.4 provides an initial conceptualization of shared services stakeholders, much more work is warranted to better understand stakeholders within a shared services context, as diverse interests and influences from different stakeholder groups can be a success or failure factor for shared services. This requires researchers to further develop and re-specify the a-priori conceptual framework presented here and empirically validate this initial framework. Further development of the preliminary stakeholder framework should not only address who the stakeholders are, but also what they want in terms of their specific interests; the latter is related to the objectives of shared services, as discussed earlier. Hence, we suggest future research to better understand different stakeholders and their diverse interests, for example:

- 1) How can a shared services centre manage and engage the stakeholders and their interests?
 - a. How can a shared services centre manage and engage the internal stakeholders?
 - b. How can a shared services centre manage and engage the external stakeholders?
 - c. How can a shared services centre deal with diverse and conflicting interests of stakeholders?

In addition, our understanding of stakeholders in a shared services context can be further advanced by making use of stakeholder theory as it has evolved in management literature. This can provide insights into how stakeholders can influence the shared service centre (see for example, Frooman, 1999 on stakeholder influence strategies) and, on the other hand, how the top management of the shared service centre can manage and engage the stakeholders (see for example, Freeman, 1984 on stakeholder management). Of particular importance for shared services is understanding and managing the interests and influence of the business units (its customers) and the parent organization, as this is related to the debate on centralization and decentralization (see also the sections on definition and objectives above). The candidate provides some potential questions for future research on these aspects:

- 1) How can the stakeholders influence the shared services centre’s decisions, processes and outcomes?
 - a. How can internal stakeholders influence the shared services centre?
 - b. How can external stakeholders influence the shared services centre?
 - c. What is the impact of stakeholder influence on the decisions, processes and outcomes?
- 2) How can a shared services centre manage the relation with customers (i.e. the business units) and the parent organization?
 - a. What are the interests and influence of the business units?
 - b. What are the interests and influence of the parent organization?

5.5.4 Understanding the Notion of ‘Sharing’

This section aims to provide a synthesized understanding of ‘*what*’ is been shared and ‘*how*’ things are shared in shared services, as reported within the IS literature. The analysis process was similar to that described under the stakeholder analysis above. The overall synthesis occurred in multiple phases where any mention of ‘sharing’ was first captured under a single high level node. Recurring themes were extracted inductively from the next detailed analysis rounds, and are presented below. The ‘*what*’ is being shared has as its main themes business and technology perspectives; ‘*how*’ things are shared has as its main themes the structural arrangements for sharing, the organizational boundary within which the sharing occurs, and geographical dispersion of the sharing.

Table 5.3: Summary of data gathered from literature about different forms of sharing

		1	2	3	4
		What is been shared	# of citations	# of sources	Example citations ²⁹
Business Perspective	1) Business functions – core business functions of the organizations (e.g. HR, Finance, IT etc)	20	15	<p><i>"A functional SSC covers processes of a function (e.g. finance, HR, IT)... By contrast, a multi-functional SSC offers various functional fields, e.g., IT and HR"</i> (Schulz, et al., 2009b, p. 6)</p> <p><i>"The business functions that may be shared are very diverse, including both front-office work, such as customer support, and back-office work, such as finance"</i> (Su, et al., 2009, p. 382)</p>	
	2) Process – A process or several processes in	14	12	<i>"Therefore, shared services can especially be applicable for supporting processes like wage and</i>	

²⁹ Like in Table 5.2, above, some text in the examples provided here have been made bold for emphasis, to illustrate the key words that supported the classifications we observed

	a function (e.g. payroll, budgeting)			<p><i>salary administration</i>" (Becker, et al., 2009, p. 2)</p> <p>"Thirty-three percent of the organizations in our study are even taking the concept of consolidation and shared services beyond the organization's four walls by sharing applications, hardware or core business processes with other firms to further reduce costs." (Davenport, Harris, & Cantrell, 2004, p. 20)</p>
	3) Knowledge and Expertise – knowledge and expertise that can be shared	4	3	<p>"The sharing of IT services helps organizations to innovate business processes, share best practices, gain economies of scale, and reduce redundancy, waste, and suboptimal allocation of IT human resources" (Boh & Yellin, 2006, p. 175)</p> <p>"ITU (www.ITu.nl) is a central knowledge sharing and IT-development foundation aimed at supporting local organizations to adopt information technology." (Janssen & Joha, 2006a, p. 2309)</p>
Technology Perspective	4) IT Infrastructure – hardware, storage and networks that can be shared.	21	17	<p>"Therefore, shared services can especially be applicable forIT-infrastructure..." (Becker, et al., 2009, p. 2)</p> <p>"One is to create an internal shared services IT organization. The IT group may begin by identifying a set of infrastructure services needed by multiple business units and then provide them firmwide." (Weill & Vitale, 2002, p. 21)</p>
	5) IT Applications – Software and application suites that can be shared.	15	13	<p>"The delivered services comprise applications in the area of citizen data, human resources, transportation and housing, social and youth affairs, and SAP applications" (Becker, et al., 2009, p. 5)</p> <p>"those investments in enterprise-wide software programs such as ERP systems, or e-commerce solutions, can be realized earlier or at all. Moreover, adjustments – needed to response to external changes such as software evolution or updating systems to legal requirements in, e.g. accounting – will be easier to implement" (Ulbrich, 2006, p. 198)</p>
	6) Data & Information – data or information that can be shared within organizations.	5	4	<p>"....shared services unit providing data to twelve work units housed in a newly-constructed facility on the research campus of a university" (Huang & Zmud, 2010, p. 4)</p> <p>"The objective of the ERP implementation was to create a shared service hub for the logistical and financial systems in order to facilitate multi-functional information-sharing processes." (Lim, et al., 2005, p. 141)</p>

As Table 5.3 presents two broad themes; a ‘business’ perspective and a ‘technology’ perspective, were identified when analyzing the details of what had been reported as being shared. From the business perspective, the literature explains sharing of **business functions** such as Human Resources, Information Technology, Finance, Legal etc and at times discusses the sharing of specific **processes** (such as payroll, IT helpdesk, accounts payable etc.). The data shows how organizations can share entire functional areas of a business or selected processes through shared services. The literature also refers to sharing of **knowledge & expertise**, in particular in relation to identifying and executing best practices

and developing new services, products (including technologically supported solutions), that can be accumulated and accessible when sharing business functions and processes.

From the technology perspective, the analysis points to the sharing of **IT applications**, **IT infrastructure** and **data & information**. Authors such as Ulbrich (2006) show how new leading-edge technologies (including software and related infrastructure) and systems updates, that a single company business unit might not be able to afford or manage, can be made accessible by sharing. Organizations can also use shared services to consolidate and integrate data and information. These categories are interrelated. For example, when large scale *IT Applications* (such as ERP systems) are shared, the *IT infrastructure* to support the sharing of these applications is also included in the sharing, and the technology is often used to collaboratively conduct the tasks of the *business functions* and *processes*. For instance Lim et al. (2005) provide an example of how multinational companies like GlobalMNC used SAP (an ERP package- hence, an application) to facilitate the data & information sharing across multi-functions [i.e. Finance (FI), Human Resources (HR) etc].

Three main themes were identified from inductively identifying instances that explained *how* sharing took place. Again, detailed documentation on this was scarce within the IS Literature. The three themes comprise: (1) the **structural arrangements** for sharing, (2) the **organizational boundary** within which the sharing occurs, and (3) **geographical dispersion** of sharing.

The analysis captured potential instances of **structural arrangements** of shared services – how the sharing was structured from an organizational design perspective. Few papers made any attempt to explain shared services centers as an organizational entity in its own right. Other than that, there is little discussion in the shared services IS literature about the structuring of shared services. Schulz et al. (2009a), present a shared services centre as a separate legal entity where contractual agreements are concerned. The relationship to other entities can be that of a preferred service provider (Borman, 2008a; Gericke, Rohner, & Winter, 2006; Heinrich & Winter, 2004; Schulz, et al., 2009a; Smyth, 2001; Weill & Vitale, 2002) or one that is mandated (Borman, 2008a; Weill & Vitale, 2002). Lacity and Fox (2008) discuss how shared services centers can be positioned as a centre of excellence. A few authors, Agarwal and Sambamurthy (2002), Lacity et al. (2003), Martin and Cheung (2005), and Schulz et al. (2009a), briefly mention models of service costing where a shared services centre may apply for separate cost recovery and revenue generation. Some others (e.g. Borman, 2008a; Lacity & Fox, 2008; Ulbrich, 2006) refer to how the shared services organization can decide to host some functions in-house or outsource them.

In terms of the **organizational boundary** within which the sharing occurs, the literature points to shared services that can occur, on the one hand, within a single organization (intra- organizational) or, on the other, across multiple organizations (Inter-organizational). “*While traditional shared services involves the sharing of services internally within an organization (Intra-Organizational), Inter-Organizational Shared Services (IOSS) involves the sharing of services across more than one organization*” (Yee, et al., 2009, p. 492). “*SSCs can be used to share services between departments within an organization or between organizations. The former kind of SSC type can be called an intra organizational SSC*” (Janssen & Joha, 2006b, p. 103).

In terms of the **geographical dispersion** of the sharing, the literature points to sharing that can occur at a **global** level, **regional** level or **country** level. These different geographical shared services units are centralized structures to achieve global/regional/country scale efficiencies, through the provision of standardized services and IT infrastructure (Sia, et al., 2008). For example, Sako et al (2010, p. 28) describe how Procter & Gamble created an internal global shared services unit which pulled all essential corporate functions - finance and accounting, human resources, and IT into a single Global Business Services operation. Borman (2008a, p. 2), provides the example of “*Bristol Myers Squibb’s global business service unit realizing annual savings of \$1.5billion*”. Regional shared services involve providing services across a given region (i.e. a state or a few cities). The country level shared services arrangements can be viewed as a part of regional shared services. For example, Sia et al. (2008, p. 7) describe how Microsoft, “*created regional shared services at Richmond (corporate headquarters), Dublin, and Singapore to manage the extension of IT services across the globe.*” and how Procter & Gamble’s IT shared services provided IT services with three shared services centers in San Jose, Costa Rica, in Newcastle, UK, and in Manila, Philippines. These different regional shared service units tap into the different time zones as well as the differential cost and competencies of each region.

Overall, a clear articulation of what is shared and how things are shared within shared services is yet to be developed. The candidate presented a first conceptualization of “what is being shared”. However, this is only a preliminary model based on inductive evidence from a limited pool of literature, which requires further development, re-specification and validation with empirical evidence. Hence, the candidate suggests investigating this further:

- 1) ‘What’ can be shared within shared services contexts? (- a further re-specification and validation of the a priori model presented here)

The detail and discussion on ‘how’ things are shared is also little systemized, with only very abstract brief mentioning of structural arrangements, with varying organizational

boundaries and geographical dispersions. A clear framework that identifies the different dimensions that distinguish different notions of sharing or a typology that describes the potential sharing options is needed, for the progression of the field in research and practice, but is yet to be derived. While some papers briefly describe specific shared services initiatives, there are no clear details of the overall business models that capture and describe how the sharing actually takes place. Thus, the candidate recommends the investigation on;

- 1) What are the different types of structural arrangements for shared services?
 - a. What dimensions characterise the different shared services structures?
 - b. What might be a typology that captures the organisational design of the various different shared services structural profiles?
 - c. What are the potential business models for the different shared services structural types?
 - d. How may they differ and to what contexts are they most or least suited?
 - e. What factors influence the success of these different structural arrangements?
 - f. How can organizations decide which options of organizational design to use when?

In revisiting the definitions of shared services, it can be observed that the notion of sharing is understood in different ways (e.g. within a single organization or across multiple organizations). What is being shared and how things are shared can also be influenced by the various contexts (more specifically the contingency factors affecting the notion of sharing) and the set objectives. Understanding this will enable better decision making towards shared services and support the overall design of sharing arrangements. We recommend the investigation of:

- 1) What characteristics [of the involved organisation(s)] influence the different types of things (what is) being shared?
 - a. What contingency factors influence the different types of things (what is) being shared? – are certain things better for sharing based on certain contingency variables?
 - b. How are the motives for sharing similar or different, based on the different things being shared?
 - c. How do the objectives of shared services influence what is being shared?
 - d. How does the role of the stakeholders differ, based on what is being shared?

5.5.5 Success and Failures Factors of Shared Services

Studies of success and failure are common in emerging fields, in providing guidance to practice on what to emphasize and what to avoid. In example, studies have identified a range of factors influencing the perceived success or failure of systems implementations, including social, organizational, cultural and political aspects (Bandara, et al., 2005; Gable, 1999; Love & Irani, 2004). While there are studies that report on success and failure factors of shared services (Borman, 2008a; Burns & Yeaton, 2008; Dollery & Akimov, 2007; Janssen & Wagenaar, 2004), these are typically highly contextual (i.e. based in details specific to a unique context). This study aims to address this lack, by consolidating and interrelating the shared services success and failure factors reported to date by IS researchers.

Success factors are herein defined as those ‘factors whose existence implies a benefit to the shared services initiative and/or factors that are critical to improve the level of success experienced’ adopted from Rockart (1979) and Sedera et al. (2001). Failure factors are defined as ‘factors that contribute towards failing to meet the intended objectives and/ or that may cause partial or total abandonment of the project’ (adopted from Grainger et al. (2009)).

Failure factors are not simply hindrances to the achievement of success factors; they are more complex phenomena. According to Grainger et al. (2009), failure factors can be viewed in 5 different ways (1) the total or partial abandonment of a project prior to the completion of the implementation, (2) failure to meet objectives and specifications (correspondence failure), (3) failure to implement in a timely, cost efficient way (process failure), (4) failure to use as anticipated, or engendering negative user attitudes (interaction failure), and (5) failure to meet stakeholders’ expectations (expectation failure). All of these aspects are important to be aware of and managed.

Understanding success and failure factors can form a strong foundation when deriving procedural guidelines on the design, implementation and sustainability of shared services (Borman, 2008a; Burns & Yeaton, 2008). Therefore, a structured approach was devised and applied to systematically review the success and failure factors of shared services as reported in the IS domain.

This section specifically aims to distil the success and failure factors of shared services as reported by IS academia. A better understanding of these factors is important for the progression and success of shared services in practice; for example, to support the design and deployment of shared service structures and governance (Firecone, 2007), and to help

better understand the nature of shared services organizations (A.T. Kearny, 2004). Such understanding will also help to promote further research needed in the area.

Table 5.4 presents the factors identified through this effort. While the details quantitatively depict the citations (e.g. coding references and the number of sources referring to a factor), the goal here was not to imply degree of importance of a factor, but mere identification. To ensure the list of factors was as complete as possible those that had only one citation were also included in the list.

Table 5.4: Summary results from the content analysis

Construct	Number of coding references	Number of sources	List of Sources
Success Factors			
1. Strong IT capabilities	17	11	Brown and Vessey (2003); Fonstad and Subramani (2009); Goh et al. (2007); Janssen and Joha (2006a); Lacity and Fox (2008); Ross (2003); Sedera and Dey (2007); Staehr et al. (2002); Ulbrich (2006); Yee et al. (2009).
2. Effective change management	34	9	Becker et al. (2009); Borman (2008a); Fonstad and Subramani (2009); Goh et al. (2007); Grant et al. (2007); Lacity and Fox (2008); Sedera and Dey (2007); Ulbrich (2006).
3. Effective communication	12	7	Goh et al. (2007); Janssen and Joha (2006a); Kemp and Low (2008); Lacity and Fox (2008); Sia et al. (2008); Ulbrich (2006); Weill (2004).
4. Implement standardization	7	6	Borman (2008a); Goh et al. (2007); Ross (2003); Sedera and Dey (2007); Staehr et al. (2002); Su et al. (2009).
5. Integration within-silos first	4	4	Becker et al. (2009); Lacity and Fox (2008); Sedera and Dey (2007); Su et al. (2009).
6. Knowing 'what' is to be shared	7	3	Borman (2008a); Goh et al. (2007); Lacity and Fox (2008).
7. Strong project management practices	5	3	Borman (2008a); Goh et al. (2007); Lacity and Fox (2008).
8. Top management support	6	3	Becker et al. (2009); Goh et al. (2007); Ulbrich (2006).
9. Adopt a green-field approach	1	1	Borman (2008a);
Failure Factors			
1. Mismanagement of potential staff retrenchment	9	7	Borman (2008a); Fonstad and Subramani (2009); Goh et al. (2007); Lacity et al. (2003); Lacity and Fox (2008); Staehr et al. (2002); Su et al. (2009).
2. Poor acceptance of high upfront investment	7	5	Borman (2008a); Fonstad and Subramani (2009); Lacity et al. (2003);

			Lacity and Fox (2008); Yee et al. (2009).
3. Inflexible staff arrangement	3	3	Borman (2008a); Sedera and Dey (2007); Su et al. (2009).
4. Lengthy implementations	4	3	Borman (2008a); Sedera and Dey (2007); Su et al. (2009).
5. Not mandating use	1	1	Borman (2008a);

5.5.5.1 Success factors of shared services

There are 9 success factors identified from this study. Following are briefly discussed each of the success factors identified in Table 5.4.

Strong IT capabilities: The most commonly cited success factor was the importance of strong IT capabilities. Several articles described how IT capabilities are critical for shared services; to facilitate and ease implementation (Fonstad & Subramani, 2009). Shared Services Centres (SSC) depend a lot on the internal assets (specially IT, but also others) and capabilities (Janssen & Joha, 2006a). Several authors state, for instance, how IT systems such as ERP are a critical success factor for shared services (Borman, 2008a; Brown & Vessey, 2003; Fonstad & Subramani, 2009; Janssen & Joha, 2006a; Lacity & Fox, 2008; Sedera & Dey, 2007; Yee, et al., 2009). Lacity and Fox (2008, p. 22) specifically conclude that shared services initiatives should “*Invest in enabling technology first*”. Fonstad and Subramani (2009, p. 1) state that “*Building the capabilities of the shared IT services group so it can provide infrastructure services more reliably and professionally*” is key to successful enterprise alignment. Borman (2008a) states that ensuring an effective working relationship with the IT provider is key – whether they were part of the SSC, located elsewhere within the business, or outsourced.

Effective change management: Creating shared services can require radical transformation of business processes and information technology (Lacity & Fox, 2008). Both the SSC and its client organizations must employ effective change management to cope (Lacity & Fox, 2008; Sedera & Dey, 2007). As stated by Borman (2008a, p. 9) “*It is necessary to carefully manage the change for the employees of the SSC and the rest of the organization*” (p. 9). Goh et al. (2007) highlights the need for managing three levels of change: (1) defining responsibilities, e.g. governance, accountability and measures to create accountability, (2) focusing on efficiency, e.g. processes, systems and economies of scale, and finally (3) focusing on effectiveness, e.g. skills, delivery system and organization. When employees are able to understand the requirements of change management, they can focus more on direction setting and strategic alignment in the stages of shared services implementation, which will positively influence the overall shared services initiative (Goh, et al., 2007; Grant, et al., 2007; Ulbrich, 2006). Becker (2009) describes how certain forms of

prior existing collaborations (or acquaintance with the involved parties) can support related change efforts and joint decision-making when initiating shared service arrangements.

Effective communication: When establishing shared services, new levels and kinds of communication are needed, as “*all members of the new shared services unit are expected to interact and be interactive*” as stated in Goh et al. (2007, p. 253). An organization should be able to address employee issues (such as staff retrenchment and issues with gaining staff support) by sending a clear message. This can be managed by helping employees to understand the business value of shared services implementations (Borman, 2008a; Fonstad & Subramani, 2009). Examples of effective communication mentioned include: early education on the change management process (Ulbrich, 2006), marketing the message with tools like brochures (Sia, et al., 2008), a regular review process to help business unit leaders see the value of Shared Services (Weill, 2004), and by listening and addressing adequately those issues raised by employees (Borman, 2008a; Goh, et al., 2007; Lacity & Fox, 2008). Communication between users and SSC is a key capability that affects the shared service process performance (Janssen & Joha, 2006a).

Implement standardization: Standardization is important in achieving economies of scale and related cost savings (Borman, 2008a). Su et al. (2009) state that standardization (i.e., standardizing processes and technology across business and geography), is a transformation step when implementing shared services. Having common business processes and common IT applications are important to justify the migration to a shared services model (Goh, et al., 2007). Several authors mention that standardization can be implemented by having common business processes and common IT applications (Goh, et al., 2007). Standardisation is important to justify the relocation and to ease the implementation of the shared services initiative (Ross, 2003; Sedera & Dey, 2007; Staehr, et al., 2002). A critical decision firms need to make is when and how to pursue standardisation (Su, et al., 2009).

Integration within silos first: Becker et al. (2009) and Su et al. (2009) describe how ‘intense’ collaboration and cooperation between functional areas is required for the establishment and success of shared services. Cost reductions can be mandated by creating shared services organizations across functional silos (Lacity & Fox, 2008). However, cross-silo integration can raise a variety of issues as stated by Lacity and Fox (2008, p. 31) “*Trying to coordinate the changes across functional silos would require agreeing on locations and addressing vastly different client needs, different types of work, and different types of capabilities*”. Lacity and Fox (2008, p. 31) also state that the “*amount of change management required within each functional silo is enormous*”. Complexity is reduced by first incrementally addressing within-silo integration, then cross-silo integration.

Knowing ‘what’ is to be shared: According to Borman (2008a, p. 5), there needs to be a “*systematic approach to appraising what should be included in SSCs, and what should not*”. The scope of shared services can be ‘fluid’ in nature; new activities periodically coming in, and some being passed back to the business as it’s discovered they couldn’t be effectively decoupled. Hence, it’s important to take an end-to-end process perspective on the services (Borman, 2008a) and identify processes for shared services by analyzing the costs, attributes, and readiness of process activities (Lacity & Fox, 2008). One should also be aware that not all activities can be shared (Goh, et al., 2007).

Strong project management practices: In addition to managing the transition to the shared services model, project management is also required for the ongoing conduct of the shared services initiative. Shared services require employees - at times specialists (Goh, et al., 2007), and at other times generalists with multi-skilling capabilities (Borman, 2008a). These role variations and their implications have to be managed throughout the project. Lacity and Fox (2008) emphasize the value in keeping ‘transition managers’ to project manage the initiative, until the new service model is fully stable.

Top management support: According to Becker et al. (2009, p. 2) “*management support and leadership are crucial success factors for the implementation of shared services...*” and “*the role of such key actors has to be taken into account when examining the emergence of shared services*”. In support of the shared services initiative it is important that top management understand requirements, proposed changes, and proper structuring of the shared services initiative (Goh, et al., 2007; Ulbrich, 2006). The personal commitment of individual key actors is necessary to promote the initiative, in order to improve service delivery (Becker, et al., 2009). Ulbrich (2006, p. 201) specifically council “*first, assure that management is committed to the suggested change project*”.

Adopt a green-field approach: Borman (2008a) suggests the value in having a ‘green-field approach’ for Shared Services initiatives. That is, to start the Shared Services initiative from the beginning, arranging the staffing from scratch. This enables the change to transition more smoothly, with the revised roles, responsibilities and expectations clear from the start.

5.5.5.2 *Failure factors of shared services*

5 failure factors were identified and this section discusses each of the failure factors identified in Table 5.4.

Mismanagement of potential staff retrenchment: In many instances, switching to a shared services model inadvertently involves layoffs and major workforce restructuring

(Goh, et al., 2007); staff redundancies should be anticipated with the move to centralized shared services (Lacity, et al., 2003; Staehr, et al., 2002). While cost savings achieved by reduced staffing requirements can be seen as an advantage (Borman, 2008a), mismanagement of potential staff retrenchment can lead to an unsuccessful shared services initiative. Lacity and Fox (2008, p. 30) specifically mention the “*difficulty to retain the cooperation of employees targeted for redundancy*” and the need to “*fairly treat employees who would be made redundant*”. They also discussed the need to inform staff facing redundancy in advance, and find ways to ensure that staff who were leaving, were accountable in some way for the success of the migration. Su et al. (2009) mentions the need to avoid unclear accountability, for remaining staff and groups.

Poor acceptance of high upfront investment: Shared services requires significant upfront investment (Borman, 2008a; Lacity & Fox, 2008) such as significant investment in facilities and web-based technologies (Lacity, et al., 2003). The initial start-up costs should be considered by every organisation before deciding on a particular arrangement (Yee, et al., 2009). It is important for the business to realise that benefits and success take time, and will not be immediately forthcoming (Borman, 2008a). Lack of this understanding can make people perceive shared services as a failure.

Inflexible staff arrangement: Managing change within and across organizations, in particular in relation to staff arrangements, is identified as a major obstacle with shared services (Borman, 2008a; Sedera & Dey, 2007). Getting union dispensation, the various employee frameworks that need to be abided by, and the tasks and role changes that are created with the transition to shared services are example reasons for this. As a result, shared services initiatives may experience intense resistance, lack of operational flexibility, and unbalanced power concentration (Sedera & Dey, 2007; Su, et al., 2009).

Lengthy implementations: Fonstad and Subramani (2009) propose to create mechanisms for business unit leaders and corporate leaders to be better informed about investment trade-offs and the business value of specific shared services. Yee et al. (2009) identify cases where incremental moves can be considered, and highlight the need for the arrangement to ultimately reduce costs in the long run without compromising efficiency and effectiveness.

Not mandating use: Shared services initiatives can be mandated to achieve desirable benefits or objectives (Borman, 2008a). Borman (2008a, p. 8) states that by mandating shared services, an organization is able to conduct reforms efficiently and deliver improved value for money “*you don’t want to weaken your economies of scale if you start picking and choosing*”.

In summary, shared services are deployed with the expectation of various benefits, a deeper review on how could organizations learn from the success and failure factors (especially in relation to IS), is an area requiring further investigation. Success and failure factors can influence each other, for example in a study of critical success factors in developing teleworking programs (Kellyann Berube & Swanson, 2005) they discuss how top management support and effective communication are interrelated, Rasmy et al. (2005) are other examples that depict such interactions within factors. Understanding these potential interrelationships within these factors can provide useful insights, such as how can the existence of one factor influence another. These points some potential research propositions for future research:

- 1) What are the success and failure factors for shared services across different contexts?
- 2) How do these factors interrelate to one another?
- 3) What is the relative importance of these factors?
- 4) How can these factors be achieved?
- 5) What contingency factors may influence the behaviour of these success and failure factors?

5.6 THE RESEARCH PERSPECTIVE ON SHARED SERVICES

The goal of this chapter is to explore how the concept of shared services is perceived within the IS literature and to propose a research agenda for IS researchers, pointing to the salient gaps worthy of investigation. The prior sections of this chapter present a synthesized overview of how shared services is understood by IS academia; this was done by presenting definitions, objectives and the range of stakeholders as discussed in the IS literature. The candidate also presented *what* is shared and *how* things are shared, as discussed in the IS literature. While this analysis shows the growing importance of the shared services phenomenon in IS, it also points to many gaps that yet need to be addressed. In order to support IS researchers in the future design and conduct of shared services research, the current shared services studies in IS are reviewed and reported here; where first a meta-analysis of the theories applied is provided, followed by a meta-analysis of the research methods used.

5.6.1 The Development and Application of Theory

The development and application of theory is important to improve a field's current status and future prospects, both as an intellectual and a professional discipline. A discipline is essentially based on an underlying body of theoretical knowledge as well as practical knowledge. Thus, in an attempt to describe the current status of a field (in this case shared services within the IS domain), it is important to try to reveal its theoretical perspectives. Such analysis can also assist and guide the expansion of a field's knowledge base. To this end, all the primary papers referred to earlier were searched for evidence of the development and application of reference discipline theories and indigenous theory.

A search for reference discipline theories in the primary papers resulted in the identification of 6 papers applying theory and 6 theories being applied. Additionally, all the secondary papers were also searched for the application of theory, specifically in relation to shared services. No additional papers or theories were identified. Table 5.5 depicts an overview of the results of this analysis. Overall one can state that the low number of papers applying a theoretical approach (6 out of 29 primary papers) is not surprising considering the dearth of literature on shared services in the IS discipline and its current state of maturity. As discussed earlier, most IS literature on shared services is seemingly very 'young', evidenced by specific papers on the topic only appearing since 2006 and most papers only reaching conferences and practitioner outlets to date. Shared services as a relatively new phenomenon may require more explorative and descriptive approaches at this stage. Next the candidate will describe and discuss the application of each reference discipline theory in more detail.

Table 5.5: Overview of the theories mentioned in shared services research within the IS domain

Theory	Application of theory	Source (all primary papers)	No. of papers
Resource-based View (RBV)	To understand, plan, source, organize, and deliver the IT shared services optimally in a shared services model	Goh et al. (2007)	2
	As a determinant for the type of IT governance necessary to share services in public administration	Janssen and Joha (2006a)	
Dynamic Capabilities Theory (DCT)	As a determinant for the type of IT governance necessary to share services in public administration	Janssen and Joha (2006a)	1
IT Governance Theory (ITG)	To understand the governance structure and mechanisms to share services and accomplish the objectives in public administration	Janssen and Joha (2006a)	2
	To position shared services as a structural element in global IT organizations, which needs to work with other structural elements	Sia et al. (2008)	
Resource	To understand the motivation for and the	Borman (2010b)	1

Dependency Theory (RDT)	composition of shared services partnerships in local government		
Real Options Theory (ROT)	To conceptualize service organizations and their shared services transformation in an uncertain business environment	Su et al. (2009)	1
Transaction Cost Economics (TCE)	To argue for or against the decisions to adopt shared services (versus outsourcing)	Yee et al. (2009)	1

The Resource-Based View (RBV) has been applied to shared services by Goh et al. (2007) and Janssen and Joha (2006a). The RBV has been widely used to analyse firm level attributes in the strategic management literature (Barney, Wright, & David J. Ketchen, 2001). The RBV describes how organizations can gain competitive advantage by differentiating themselves in their collection of resources and how they can sustain competitive advantage by virtue of the inability of other firms to obtain comparable resources (Barney, 1991; Wade & Hulland, 2004). More recently, RBV is also used to understand why the performance of processes may vary across a set of organizations (Ray, Muhanna, & Barney, 2005). Goh et. al (2007, p. 263) apply the RBV to describe a shared services model for the IT function in terms of IT services, IT capabilities and IT resources. They claim that *“the RBV approach had helped the IT unit to understand, plan, source, organize, and deliver the IT shared services optimally in a shared services model.”* Janssen and Joha (2006a, p. 2307) applied the RBV (in combination with DCT, discussed below) to better understand the IT governance necessary to share services in public administration, They argue that *“RBV explores shared services as a strategic decision often having a long-term impact. The RBV attracts the attention to achieving efficiency and customer-orientation objectives through managing an organization’s internal resources”* (Janssen & Joha, 2006a, p. 2308). In their analysis, they particularly focus on resources that are valuable, rare or hard to create (Barney, 1991), requiring organizations to look at the sharing of services. Janssen and Joha (2006a) conclude that the resource attributes account for differences providing commodity services to large number of users with centralized governance and providing customized services to a limited number of users with decentralized governance.

Janssen and Joha (2006a) applied Dynamic Capabilities Theory (DCT) (in combination with the RBV) to better understand the IT governance necessary to share services in public administration. Dynamic capability is defined as a *“firm’s ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments”* (Teece, Pisano, & Shuen, 1997, p. 516). According to Eisenhardt and Martin (2000), DCT is an extension of RBV theory, explaining how organizations can achieve new resource configurations in rapidly changing environments. Janssen and Joha (2006a) argue that establishing shared services can be viewed as a reaction to the changing environment, such as new legislation or new technology. Moreover, shared services needs to

develop the ability to identify new opportunities and respond to them instead of just matching current resources to opportunities in the marketplace. In their DCT analysis, they particularly focus on the organizational and managerial processes, the asset position and path dependency. Janssen and Joha (2006a) conclude that there is a need for users to have organizational and managerial capabilities to integrate shared services in their processes. The asset position impacts the urgency to adopt shared services and the way shared services are governed. Moreover, different paths result in different governance structures; a top-down approach results in centralized governance while a bottom-up approach results in decentralized governance.

IT Governance Theory (ITG) is used both by Janssen and Joha (2006a) and by Sia et al. (2008). IT Governance specifies the decision rights and accountabilities conducive to encouraging desirable behaviours in the use of IT (Weill, 2004). Desirable behaviours are viewed as those consistent with the organization's mission, strategy, values, norms, and culture. Weill argues that IT governance matters because the benefits received from IT investments depend on it. IT governance requires an understanding of what IT decisions must be made and determining who should make these decisions and who should be involved. Weill and Ross (2004) identify the following five IT governance decision areas: IT Principles, IT Architecture, IT Infrastructure, Business Application Needs, and Investment & Prioritization. They also distinguish between 6 IT governance archetypes: Business Monarchy, IT monarchy, Feudal, Federal, IT Duopoly, and Anarchy. Sambamurthy and Zmud (1999) discuss the multiple organizational contingencies related to corporate governance, economies of scope, and absorptive capacity, which act together in influencing the mode of IT governance. Janssen and Joha (2006a, p. 2307) argue that "*governance is necessary for creating, assembling and exploiting shared services in a network of public agencies, all having various resources and capabilities.*" The sharing of resources via centralized or decentralized structures requires the coordination of dependencies among public agencies and the service centre. Three kinds of governance mechanisms can be used for that: decision-making structures, alignment processes and formal communications (Weill & Ross, 2004). Janssen and Joha conclude that the governance structure and mechanisms largely determine the ability to share services and the accomplishment of objectives, and need to carefully balance customization and commoditization. Sia et al. (2008, p. 4) study global IT strategies from an ITG perspective, with a particular focus on global-local tensions. They position global/regional shared services within the structuring of global IT organizations as "*centralized structures to achieve global scale efficiencies through the provision of standardized services and IT infrastructure.*" In addition to global/regional shared services, Sia et al (2008, p. 5) also identify global/regional centres of excellence and

regional/local site IT support units. They stress that “*much of the inherent global-local tension in global IT plays out in the establishment of these structural elements and the interactions among them, and has to be carefully coordinated through a central planning unit.*” They also notice that different governance processes evolve when organizations move to global IT from different legacies of governance structures.

Shared services can also be understood from a Resource Dependency Theory (RDT) perspective. Borman (2010b) applies RDT to understand the motivation for and the composition of shared services partnerships in local government. RDT stresses the dependence of organizations on external sources of resources, the strategic choices organizations have in relation to external constraints, and the role of power (as opposed to, for example, rationality or efficiency) (Pfeffer & Salancik, 2003). According to Pfeffer and Salancik the survival of organizations is determined by their effectiveness, that is, its ability to create acceptable outcomes and actions. Organizational effectiveness “*derives from the management of demands, in particular the demands of interests groups upon which the organizations depend for resources and support*” (Pfeffer & Salancik, 2003, p. 2). Within RDT, organizations are viewed as coalitions, altering their structure and patterns of behaviour to acquire and maintain needed external resources thereby decreasing the organization's dependence on others and/or increasing others' dependence on it (Ulrich & Barney, 1984). Borman (2010b, p. 2) argues that “*the establishment of an effective shared services partnership at the local government level can help participants manage their dependencies on other levels of government*” and that “*the effectiveness of the shared services partnership is influenced by its composition, in terms of the resources it provides and the relationships established for its operation.*” Based on a case study, Borman states that RDT helps to understand *why* certain objectives are important for the establishment of a shared services partnership and provides insight into the effectiveness of the shared services partnership and dependency management for the composition of the shared services partnership in terms of the resources and relationships. With respect to dependency, Borman concludes that while shared services can be a means to manage dependency, it also introduces new dependencies between the participants.

Su et al. (2009) applied Real Options Theory (ROT) as a theoretical lens for conceptualizing service organizations and their shared services transformation in an uncertain business environment. Myers (1977) linked the investment strategy of the firm to real options, which are opportunities to purchase real assets on possibly favourable terms, similar to call options in financial markets. In this way organizational resource investments can be viewed in their ability to generate choices and gain preferential access, which is helpful for strategic decision making (Bowman & Hurry, 1993). Real options help to capture

the value of managerial flexibility by properly structuring the evaluation and management of investment opportunities when uncertainty and irreversibility are high (Fichman, Keil, & Tiwana, 2005). An attractive feature of the real options perspective is its seeming correspondence to the resource allocation process at many firms (Adner, 2007). According to Su et al. (2009) firms need to strategically decide whether and how to pursue various service transformation alternatives (e.g. simplification, standardization, consolidation, in-sourcing, or outsourcing) to implement shared services successfully. A service organization can be viewed as a bundle of options that give the firm preferential access to future transformation opportunities. Su et al. (2009) provide a decision methodology for valuing alternative shared services transformation approaches, supported by a taxonomy of transformation options: stage, defer, alter scale, abandon, switch and grow.

In distinguishing shared services from outsourcing, Yee et al. (2009) build on Transaction Cost Economics (TCE). TCE describes the firm and market as alternative modes of governance, the choice between which is decided by transaction cost differences (Williamson, 1999). According to Commons (1931) transactions are the ultimate units of economic activity. Transaction cost analysis examines the comparative costs of planning, adapting, and monitoring activity completion under alternative governance structures. Although the principal ideas were in place earlier (e.g. Coase, 1937), TCE became well known via the work of Williamson (e.g. 1979; 1981). According to Williamson a transaction occurs when a good or service is transferred across a technologically separable interface: one stage of activity terminates and another begins. Transactions can be described by three attributes: uncertainty, frequency and asset specificity. Depending on these attributes, transaction costs (in combination with production costs) will determine the most efficient boundaries of organizations because of bounded rationality and opportunism. TCE has been widely applied to information systems outsourcing (e.g. Dibbern, et al., 2004; Miranda & Kim, 2006). For example, Thouin et al. (2009) show that asset specificity can be used to guide outsourcing decisions and Bahli and Rivard (2003) use transaction costs in their conceptualisation of IT outsourcing risks. Yee et al. (2009) argue that a transaction cost approach could also be useful to argue for or against the decisions to adopt shared services (versus outsourcing). However, their application of TCE is very exploratory and their findings with respect to TCE and shared services are rather limited.

While only a few papers have applied a theoretical approach, multiple theories have been applied in different papers and one paper 'integrates' multiple theories (Janssen & Joha, 2006a). The reference discipline theories applied in IS literature on shared services mainly come from economics and strategy research. The early literature on outsourcing, which is an

area closely related to shared services, draws on similar reference discipline theories. In outsourcing literature there was initially a focus on the outsourcing decision with respect to competitive, costs and risk considerations (see literature reviews from Lacity and Willcocks (2009); Mahnke et al. (2005); and Dibbern et al.(2004)). Drawing on this similarity, one can, on the one hand, argue for a further development of theoretical perspectives from economics and strategy for the shared services decision and, on the other hand, for the addition of social and organizational theoretical perspectives addressing the process and outcomes of shared services. This further theoretical development can be guided by the themes addressed in the primary papers, such as business process redesign (Ulbrich, 2006), (out)sourcing (Sako, 2010; Yee & Chan, 2009), organizing visions (Huang & Zmud, 2010), alignment (Borman, 2008a; Fonstad & Subramani, 2009), service management (Ulbrich, et al., 2010), organizational structure (Becker, et al., 2009; Miskon, et al., 2011a), knowledge management (Hertlein, Smolnik, & Riempp, 2010), business architecture (Versteeg & Bouwman, 2006), and technology (ERP) (Sedera & Dey, 2007).

The application of multiple theories in IS research on shared services will also raise the question of whether this theoretical diversity is beneficial and desirable or not, as also discussed in IS research in general (e.g. Benbasat & Weber, 1996; Robey, 1996) and in IS research on outsourcing (Dibbern, et al., 2004; e.g. Lacity & Willcocks, 2009; Mahnke, et al., 2005). A multi-theoretical perspective on shared services can cater for the many different aspects of IS shared services. This means that different theories are perceived as complementary and research will evolve into integrated multi-theoretical approaches and frameworks. Alternatively, a multi-theoretical perspective on shared services acknowledges the early, pre-paradigmatic phase of shared services research. This means that different theories are perceived as competing and research will need to determine the most valid theory.

Moreover, while so far the emphasis has been on how reference discipline theories can contribute to understanding shared services, the contribution of shared services research to the reference discipline theories should also be recognized as an opportunity once shared services research has matured. This can be based on what is distinctive about the IS function in relation to shared services for management and organization theories and/or what is distinctive about shared services in relation to the IS function for IS theories; for example, what new insights on organizational design of the IS function can be drawn from the notion of ‘sharing’ as an alternative to a centralized or decentralized organization of the IS function, and how it is distinctive (or not) from other alternatives such as a federal organization of the IS function (e.g. Hodgkinson, 1996; Zmud, Boynton, & Jacobs, 1986).

In addition to the use of reference discipline theories, the candidate also set out to identify the development of indigenous shared services theory. As may be expected given the limited number of primary papers and the current maturity of shared services research in IS, none of the papers tried to develop indigenous shared services theory (see also the next section on research methods). Whether or not there is a need and opportunity to develop indigenous shared services theory, similar to an indigenous theory of IT outsourcing (Lacity, Khan, Yan, & Willcocks, 2010), could be an important topic in the future debate on shared services. It is also worth debating whether or not an indigenous theory of shared services could or should be IS specific.

Based on the analysis and discussion of the application of theory in IS literature on shared services, the candidate provides some potential questions for future research:

- 1) What reference discipline theories are valid for describing, explaining, predicting and/or prescribing shared services in information systems?
 - a. What theoretical perspectives, other than from economic and strategic perspectives, are valid for shared services, in particular organizational and social perspectives?
 - b. What theoretical perspectives go beyond a focus on the shared services decision, in particular a focus on the shared services process and outcome?
 - c. Should shared services research strive for diversity in theoretical perspectives or not? Should shared services research strive for multiple theories or not and should they be seen as complementary or competing?
 - d. What are the reference discipline theories shared services can apply? How are these theories related to reference discipline theories in information systems and to reference discipline theories in related areas such as outsourcing?
 - e. How can shared services research contribute to reference discipline theories?
- 2) What indigenous theories are valid for describing, explaining, predicting and/or prescribing shared services in information systems?
 - a. Is there a need for building indigenous shared services theory and would this be viable and feasible?
 - b. Should shared services be included in indigenous theories in related areas such as organizational design, sourcing, and/or IS?

- c. How would indigenous shared services theory relate to the reference disciplines theories used for shared services?
- d. What is the role of the IS discipline in building indigenous shared services theory?
- e. Can shared services research contribute to building indigenous IS theory?

5.6.2 Research Methods Applied

This section reports on an analysis of the extracted shared services papers, based on the different types of research methods that have been applied in the studies. The purpose was to ascertain the nature of the research by deriving a descriptive overview of the reported research approaches in the IS shared services literature, and also, to build a point of reference for future research on the topic when authors seek examples and justifications for their selected approaches and their design. Only those papers that focus on shared services (the primary set of 29 papers) were included in this analysis. The articles were first grouped into two broad categories, *empirical* and *non-empirical*. Following Chen and Hirschheim (2004), the candidate categorized as empirical papers those papers that obtained real data or observations (which could be gathered through quantitative, qualitative, or a mixed approach, including archival data) and the rest as non-empirical papers. Any practitioner oriented papers and those that were mere conceptual papers or argumentative notes were captured under the non-empirical category.

The empirical papers were classified into further sub categories – adopting the classification framework of Chen and Hirschheim (2004). In addition to the original sub categories of survey, case study, laboratory experiment, field experiment, and action research the candidate also included: archival analysis (following Bandara, et al., 2011; Boell & Cezec-Kecmanovic, 2011; Gable, 2010; Oates, 2011) and design science (Iivari, 2007; Kuechler & Vaishnavi, 2008). These were added as they have become popular and emerging approaches used within IS research.

The classification was done based on what the authors directly or implicitly stated as the approach used. The coding of the primary shared services papers only instantiated the case study (18), archival analysis (6), design science (2) and action research (1) categories. In addition to the type of research method used, the candidate also captured how well the method-design had been documented. Firstly, the candidate checked to see if there was a dedicated section in the paper that was specifically about the design of the method (see Column 11 of Table 5.6). The candidate also evaluated the quality of the description of the

method design (which sometimes may have been integrated with other parts of the study instead of being within a dedicated research method section- see Column 12 of Table 5.6). Here the candidate looked for documented details such as who the target respondents were, where they came from and why they were selected, what phases were involved and the associated time frames, and how the data was analysed. Table 5.6 provides a summary of this analysis. Two researchers coded and checked all the papers that were classified (using the above mentioned categories), until full agreement of the results was reached.

Table 5.6: Summary overview of the methods applied

		Non-empirical		EMPIRICAL RESEARCH							RESEARCH METHOD (Dedicated Section)	Quality Research Method Description
		PRACTICAL EXPERIENCES	CONCEPTUAL	Survey	Experiment	Case Study	Action Research	Archival Analysis	Design Science	Others		
	1	2	3	4	5	6	7	8	9	10	11	12
1	Bandara et al. (2011)	-	√	-	-	-	-	-	-	-	√	√
2	Becker et al. (2009)	-	-	-	-	√	-	-	-	-	√	√
3	Borman (2008a)	-	-	-	-	√	-	-	-	-	√	√
4	Borman (2010b)	-	-	-	-	√	-	-	-	-	√	√
5	Fonstad and Subramani (2009)	-	-	-	-	√	-	-	-	-	√	☑
6	Goh et al. (2007)	-	-	-	-	√	-	-	-	-	√	√
7	Hertlein et al. (2010)	-	-	-	-	-	-	-	√	-	√	√
8	Huang and Zmud (2010)	-	-	-	-	-	√	-	-	-	√	√
9	Janssen and Joha (2006a)	-	-	-	-	√	-	-	-	-	-	☑
10	Janssen and Joha (2006b)	-	-	-	-	√	-	-	-	-	√	√
11	Knol and Sol (2011)	-	-	-	-	√	-	-	-	-	√	√
12	Lacity and Fox (2008)	√	-	-	-	-	-	-	-	-	-	-
13	Miskon et al. (2011a)	-	-	-	-	-	-	√	-	-	√	√
14	Miskon et al. (2009)	-	-	-	-	-	-	√	-	-	√	√
15	Rehm (2009)	-	-	-	-	-	-	-	√	-	-	☑
16	Sako (2010)	-	√	-	-	-	-	-	-	-	-	-
17	Schulz et al. (2010)	-	-	-	-	√	-	-	-	√	√	√
18	Schulz et al. (2009b)	-	-	-	-	√	-	√	-	√	√	√
19	Schulz et al. (2009a)	-	-	-	-	√	-	√	-	√	√	√
20	Sedera and Dey (2007)	-	-	-	-	-	-	√	-	-	-	☑
21	Sia et al. (2008)	-	-	-	-	√	-	-	-	-	√	√
22	Stewart and Chakraborty (2011)	-	-	-	-	-	-	√	-	-	√	√
23	Su et al. (2009)	-	-	-	-	√	-	-	-	-	-	☑
24	Ulbrich (2006)	-	√	-	-	-	-	-	-	-	-	-
25	Ulbrich (2009)	-	-	-	-	√	-	-	-	-	√	√

26	Ulbrich et al. (2010)	-	-	-	-	√	-	-	-	-	√	√
27	Versteeg and Bouwman (2006)	-	-	-	-	√	-	-	-	-	√	√
28	Yee and Chan (2009)	-	-	-	-	√	-	-	-	-	√	√
29	Yee et al. (2009)	-	-	-	-	√	-	-	-	-	-	√
☑A weak mentioning of the research method												

Only 4 of the 29 papers were non-empirical papers. The paper by Bandara et al. (2011) dealt with how to conduct an archival analysis, using the domain of shared services as an example. The remaining 3 papers were very much practitioner oriented and were about lessons learnt with normative guidelines on what had worked and not worked in prior shared services contexts.

The majority of the empirical papers (20 out of 25) had a dedicated ‘Research Methods’ section, and most (22 out of 25) empirical papers had evidence of documenting the overall design of the research. The documentation of the research method is important for the progression of the field, as current and future researchers can judge the quality of existing work and build on this work when the approach used is communicated and well understood. A preliminary analysis of the overall domains covered indicates that most empirical work on shared services in Information Systems is focused on strategic issues in the public sector.

From the empirical work reported (25 papers in total), 18 papers (Column 6 of Table 5.6) used case studies as the main research methodology. Case studies are popular in IS research, being used to gather rich data (Chen & Hirschheim, 2004). They are also appropriate and popular for a new area (Yin, 2009). The fact that shared services is a ‘young’ and emerging phenomenon in IS, warranting the investigation of rich contextual data, explains the popularity of the case study method in these studies. 6 papers (Column 8 of Table 5.6) used archival analysis, drawing on readily available information about case sites which had implemented shared services. 2 studies (Column 9 of Table 5.6) used design science while 1 study (Column 7 of Table 5.6) used action research). An overview of the research approaches used can provide a preliminary impression on the maturity of the field of research. Case studies are most prominent in the very early phases of a field’s maturity, where qualitative, exploratory work is essential to derive a common understanding of the core concepts of the field; commonly, there is a tendency to proceed with more quantitative approaches, such as surveys and experiments, in later phases of maturity (Yin, 2009).

Papers that had used a case study approach (the most prominent approach) were analyzed in more depth. See Table 5.7 for the summary results of this. The papers were analyzed by capturing how they contributed towards knowledge accrual. Benbasat et al. (1987) suggest 3 categories of knowledge accrual phases: descriptive cases (for exploration), exploratory cases (for theory/ hypothesis generation) and explanatory cases (for theory/ hypothesis testing) (Column 2 of Table 5.7). The overall case study design was captured,

based on whether it was a single case study or a multiple case study design (and, if multiple cases, how many were included: see Column 3a of Table 5.7), and if the study depended solely on the case study method or used case studies with other methods (Column 3b and 3c of Table 5.7). Finally, this analysis reviewed the nature of the papers' data collection and analysis (Column 4 - 6 of Table 5.7). The different data collection methods were captured and classified as per the classification of Dube and Pare (2003, p. 614) (Column 4 of Table 5.7). Evidence of triangulated data sources (where more than one source of data was collected and used to validate the findings – following Barrat et al. (2011, p. 340) was also captured (Column 5 of Table 5.7), while the time period of the study was analyzed based on Orłowski and Baroudi's (1991, p. 4) classification (Column 6 of Table 5.7).

Table 5.7: Deeper analysis of papers that used the case study method

		Contributions to knowledge and theory			Overall case study design			Data collection and analysis											
		Descriptive	Exploration	Explanation	Number of cases: Single/Multiple(n)	Solely Case Study based	Case Study used with other methods	Data collection method						Data triangulation was evident	Time period of study				
								Interviews	Documentations	Observations	Questionnaires	Artefacts	Time series		Others	Cross-Sectional: single snapshot	Longitudinal	Cross Sectional: multiple snapshot	Process Traces
1	2			3			4						5	6					
	2a	2b	2c	3a	3b	3c													
1	Becker et al. (2009)	-	☑	-	M(3)	√	-	√	√	-	-	-	-	-	☑	√	-	-	-
2	Borman (2008a)	-	√	-	M(11)	√	-	√	-	-	-	-	-	-	-	√	-	-	-
3	Borman (2010b)	-	-	☑	S	√	-	√	√	-	-	-	-	-	☑	√	-	-	-
4	Fonstad and Subramani (2009)	√	-	-	S	√	-	√	√	-	√	-	-	-	-	√	-	-	-
5	Goh et al. (2007)	-	☑	☑	S	√	-	√	√	-	-	-	-	-	☑	√	-	-	-
6	Janssen and Joha (2006a)	-	☑	☑	M(2)	√	-	√	-	-	-	-	-	-	-	√	-	-	-
7	Janssen and Joha (2006b)	√	-	-	S	√	-	√	√	-	-	-	-	-	-	-	-	√	-
8	Knol and Sol (2011)	-	√	-	M(3)	√	-	√	√	-	-	-	-	-	-	√	-	-	-
9	Schulz et al. (2010)	√	-	-	M(8)	-	√	√	√	-	√	-	-	-	√	√	-	-	-
10	Schulz et al. (2009b)	√	-	-	M(7)	-	√	√	√	-	-	-	-	-	-	√	-	-	-
11	Schulz et al. (2009a)	√	-	-	M(7)	-	√	√	-	-	√	-	-	-	-	√	-	-	-

12	Sia et al. (2008)	-	☒	-	M(6)	√	-	√	√	-	-	-	-	-	-	√	-	-	-
13	Su et al. (2009)	-	☒	☒	S	√	-	-	-	√	-	-	-	-	-	√	-	-	-
14	Ulbrich (2009)	√	-	-	M(6)	√	-	√	√	√	-	-	-	-	-	√	-	-	-
15	Ulbrich et al. (2010)	√	-	-	M(20)	√	-	√	-	-	-	-	-	-	-	√	-	-	-
16	Versteeg and Bouwman (2006)	√	-	-	S	√	-	-	-	-	-	-	-	-	-	√	-	-	-
17	Yee and Chan (2009)	-	√	-	S	-	√	√	-	-	√	-	-	-	-	√	-	-	-
18	Yee et al. (2009)	-	√	-	S	-	-	√	-	-	√	-	-	-	-	√	-	-	-
☒ - A weak mentioning of the topic considered (i.e. degree of evidence of exploration; degree of evidence for data triangulation. ☒ - Application of reference discipline theories S - Single / M – Multiple																			

8 of the 18 papers used case studies for descriptive purposes. The rest used it for exploration and/ or explanation. As presented in the prior section [see Table 5.7 and those cells of Table 5.7 - Column 2 denoted by a ☒], 6 of these papers used one or more reference discipline theories to support the exploratory/ explanatory activities in their studies. None of these studies tested shared services theories that originated from the shared services domain. Those that did attempt to make novel theoretical contributions were only in the very early phases of theoretical exploration, where very early versions of frameworks and models were built and presented (none being empirically validated).

8 of the 18 case based studies used a single case study design, where the rest used multiple case designs, with the number of included cases ranging from 2 to 20 cases. A few (4) reported on the use of other methods such as expert interviews, archival/ literature analysis and focus groups to complement the case study findings.

Interviews and documentation (and the combination of these two) were the most common methods of data collection in the reported cases. The occasional use of questionnaires and observations (mostly in combination with interviews) was also reported. Even though the use of multiple data sources was not uncommon, reported evidence of actually triangulating the different data sources was very rare, Schulz et al. (2010) being one such exemplary example. All studies were cross-sectional-single-snapshots except for Jansen and Joha (2006b), who presented a single case study with evidence of cross-sectional, multiple- snapshots.

Overall, detailed analysis of the research methods from this pool of papers points to a need for more empirical research on shared services. The candidate call for IS researchers to conduct rigorous empirical work on shared services; suggested topics are presented in the form of the research questions proposed in the earlier sections. The candidate recommends that future research in shared services expand beyond this focus, following guidelines derived from this analysis:

- 1) Empirically validate practical observations (such as lessons learnt and documented guidelines) discussed in practitioner outlets
- 2) Pay more attention to the articulation of the research method – to make sure that all essential aspects in the selection, design and conduct of the research approach are made transparent
- 3) Better design and conduct case studies when this is chosen as the research approach:
 - a. Consider multiple case study designs that complement other methods
 - b. Show clear evidence of triangulation of data when there are multiple sources of data
 - c. Consider longitudinal case designs
- 4) Conduct further exploratory research, in particular in areas that have not been addressed to date
- 5) Build and test theories in areas where initial exploratory work has been conducted

5.7 DISCUSSION

This chapter examined the current understanding of shared services as reported in the IS literature. Though organizations are increasingly looking to the shared services approach, the results from this study shows that the current body of knowledge in the IS discipline is still very limited and sparse, and that there is strong need for a better understanding in terms of the *what* (what is meant by shared services), *why* (objectives of shared services), *who* (stakeholders involved) and *how* (what is being shared and how). Other researchers in the field (e.g. Borman, 2008a; Craike & Singh, 2006; Ulbrich, 2006) also argue that the IS literature on shared services is yet very ‘young’.

The study systematically identified relevant papers on shared services in IS literature, resulting in a primary set of 29 papers that focused on shared services, and a secondary set of 164 papers that mentioned shared services. This paper provides a descriptive overview of the status of shared services in the IS literature. As a basis for the subsequent analysis, the review examined diverse descriptions, analyses and discussions of shared services in the IS context. Deriving from a structured content analysis, the candidate presented and discussed salient definitions and objectives for shared services, ultimately defining shared services inclusively as *a collaboration strategy of multiple organizational units for providing and*

using services. Having identified a dearth of research into the perspectives of different stakeholders in a shared services context, the candidate sought to redress this shortcoming by presenting a preliminary conceptual model delineating stakeholders. The paper then presented an analysis of the overall notion of sharing, looking at what is being shared and how. The final part of the paper reports a meta-analysis, and analytical overview of theories and methods used in shared services research.

More empirical work on shared services from an IS perspective is a pre-requisite for this evolving research. Such future work should start from awareness of the open challenges and be guided by appropriate methodological procedures (Keen, 1980; Weber, 1997). Thus, beyond reviewing what the candidate knows about shared services, the candidate also address what further should be known, by identifying relevant research questions. Table 5.8 presents a high-level research agenda, providing a summary of these research questions. As part of this research agenda, the candidate also provide some theoretical considerations and methodological guidelines (as summarized in the last two rows of Table 5.8) to support better empirical research in this domain.

While this chapter presents a comprehensive analysis of the shared services literature in IS, the candidate acknowledge several, limitations. Constraining the analysis for feasibility reasons to shared services literature in the IS domain, resulted in relatively few primary papers focusing on the topic. To partially address this limitation, the study also included a larger number of secondary papers, resulting in a total of 193 papers (29 primary papers and 164 secondary papers). While this scope aligns with the targeted goal of this paper (which was to analyze how shared services are understood within the IS discipline), the candidate acknowledge that there are other papers in the broader shared services domain that relate to IS. Nonetheless, the candidate believes the sample analyzed is representative.

Table 5.8: A research agenda for understanding shared services in the IS discipline

<i>Conceptual Considerations</i>	What?	Definitions	<ol style="list-style-type: none"> 1. What is shared services in the IS context? 2. What are the similarities and differences with other forms of organizing and sourcing the IS function, applications and infrastructure?
	why?	Objectives	<ol style="list-style-type: none"> 1. What are the objectives for shared services as organizational arrangement for the IS function? 2. What is the role of IS in relation to the objectives for shared services as organizational arrangement in general? 3. How can the objectives for shared services as an organizational arrangement for the IS function be realized?
	Who?	Stakeholders	<ol style="list-style-type: none"> 1. How can a shared services centre manage and engage the stakeholders and their interests? 2. How can the stakeholders influence the shared

			<p>services centre decision, process and outcome?</p> <ol style="list-style-type: none"> 3. What are the roles and interests of stakeholders in relation to the shared services centre? 4. How can a shared services centre manage the relation with customers (i.e. the business units) and the parent organization?
	How?	Service offerings, arrangements, and structures	<ol style="list-style-type: none"> 1. 'What' can be shared within shared services contexts? 2. What are the different types of structural arrangements for shared services? 3. What characteristics [of the involved organization(s)] influence the different types of things (what is) being shared?
		Success and failure factors	<ol style="list-style-type: none"> 1. What are the success and failure factors for shared services across different contexts? 2. How do these factors interrelate to one another? 3. What is the relative importance of these factors? 4. How can these factors be achieved? 5. What contingency factors may influence the behaviour of these success and failure factors?
<i>Theoretical Considerations</i>	<ol style="list-style-type: none"> 1. What reference discipline theories are valid for describing, explaining, predicting and/or prescribing shared services in information systems? 2. What indigenous theories are valid for describing, explaining, predicting and/or prescribing shared services in information systems? 		
<i>Methodological Guidelines</i>	<ol style="list-style-type: none"> 1. Empirically validate practical observations 2. Pay more attention to the articulation of the research method – to make sure that all essential aspects in the selection, design and conduct of the research approach is made transparent 3. Better design and conduct case studies when chosen as the research approach: 4. Conduct further exploratory research, in particular in areas that have not been addressed to date 5. Build and test theories in areas where initial exploratory work has been conducted 		

Further, results presented here share limitations more generally associated with qualitative research (for example, researcher bias in source selection, coding and interpretations). While the candidate employed strategies to minimize these (such as the design and application of detailed protocols and coding procedures, maintenance of a trail of evidence, triangulation with other literature, and coding by multiple coders), further validation and testing of the outcomes presented here is warranted to confirm study findings. In spite of these acknowledged limitations, this chapter presents a thorough analysis of the current literature of shared services in IS and provides a firm foundation for future research in this domain. Practice will also benefit from the conceptualizations and status markers

presented in this chapter. Furthermore, the comprehensive research design presented and executed here can be applied when conducting similar literature analyses in other domains.

5.8 CHAPTER CONCLUSION

This chapter first discussed the need to investigate the status of shared services within the IS domain. Next, it introduced the research design applied within this part of the study, which followed recommendations by Levy and Ellis (2006), vom Brocke et al. (2009), and Webster and Watson (2002). The chapter continued with the discussion of the status of shared services literature in the IS domain and was followed by a section on the understanding of shared services in the IS discipline. In this section, the defining of shared services, objectives of shared services, identifying stakeholders, and understanding the notion of sharing, and success/failure factors of shared services are discussed. Next the research perspective of shared services was presented. In this section, the development and application of theory and research methods applied in the shared services were discussed. The final section of this chapter presented a research agenda with an overview on what shared services related themes warrant further investigation by IS researchers. The next section looks more deeply into the status of shared services in the HE sector.

Chapter 6: Shared Services in the HE Sector

6.1 CHAPTER INTRODUCTION

In Chapter 1, the candidate mentioned the need to embark on an exploratory phase aimed to address gaps pointed from the literature review and pilot case study, in particular to understand: (1) the basis of the ‘sharing boundary’ - that can exist within an organization or across organizations that are involved in the sharing arrangements, (2) the relationship between shared services and the outsourcing, in particular in HE sector), and (3) the different types of shared services arrangements in the HE sector – the stereotype and the alternative forms of shared services. Thus, the aim of this study was to contribute towards addressing this gap, in particular ‘*What are the different types of structural sharing arrangements for shared services?*’ (as stated in Chapter 5’s research agenda) by providing an initial conceptual framework of shared services types (a typology) in the HE sector.

This chapter will first describe the need to investigate the status of shared services in HE sector, which is followed by the discussion of prior work on structural arrangements of shared services. Next, it describes the research method applied in the study, and then reports of archival and content analysis of documented case studies of shared services; in particular the dimensions for shared services structural arrangements and shared services structural types. The chapter ends with a discussion and conclusion that summarises the content covered and the observed gaps from the current findings.

6.2 THE NEED TO INVESTIGATE THE STATUS OF SHARED SERVICES IN THE HE SECTOR

As discussed in previous chapters (i.e. Chapter 2, 4 and 5), IS has contributed to the growth of shared services, as a driver and enabler, by providing the necessary applications and infrastructure. As computer-based corporate information systems have become standardized, and the internet pervasive and increasingly the backbone of administrative systems, the technical impediments to sharing have come down dramatically (Hoffman, 2009; JISC, 2007; LeFevre, 2007; Ulbrich, et al., 2010). There is also a growing desire and willingness within universities to share information, solutions and skills amongst each other (Boyle & Brown, 2010; Hoffman, 2009; KPMG, 2006; Millet, et al., 2005).

There have been several industry reports on projects specifically targeting and implementing shared services in the HE sector. Shared services in HE is relatively new and novel, but attracting growing interest. This lack of research on shared services generally, and more specifically within the IS domain, and particularly within the HE sector, is the driving motivation to further investigate the shared services structure in the HE sector. An understanding of common types of sharing arrangements and what is commonly shared in the HE sector, are important for the progression and success of shared services in practice and academia (also refer to the identified gaps associated in these areas as discussed in Chapter 1 and discussed Chapter 2 in section 2.6. The concept of shared service itself needs clarification. A widely accepted, precise definition is lacking (see Chapter 2 in Section 2.2 and Chapter 5 in Section 5.5.1)

As shared services approach requires an organizational redesign (this has been discussed in previous chapters). Thus this study set out to identify and understand these alternative arrangements as reflected in practice; to identify the salient differentiating dimensions, and to arrive at some sort of meaningful typology. A valuable example of a typology in organizational design is Mintzberg's five structural configurations: Simple Structure, Machine Bureaucracy, Professional Bureaucracy, Divisionalized Form, and Adhocracy (Mintzberg, 1980). Typologies "*provide a parsimonious framework for describing complex organizational forms*" and help explain outcomes (Doty & Glick, 1994, p. 230). A typology of shared services can assist the field by providing a parsimonious framework to describe and position diverse shared services and to better understand the variety of shared services structures. This is valuable, especially when little is known about the phenomena; as classifying objects of interests in a taxonomy enables the identification of similar properties of a class of phenomena and provides a means to compare and contrast classes (Gregor, 2006). The typology can be served as a guideline for practitioners or organizations to map the type of sharing arrangement (Dollery, 2010) or project (Evaristo & van Fenema, 1999) they are engaged in. Furthermore, the organizations are able to use the typology as a tool to (1) determine which critical issues arise in different types of sharing arrangements/project to be manage and aware off (Dollery, 2010; Evaristo & van Fenema, 1999) and (2) identify the evolution of sharing arrangement from one to another type (e.g. Evaristo & van Fenema, 1999). To achieve progress toward a common understanding of shared services and the development of related theory; as with every relatively new research area, advancing from concepts to theory requires the ordering or classification of the objects within the research domain (Lambert, 2006).

63 PRIOR WORK ON STRUCTURAL ARRANGEMENTS OF SHARED SERVICES

The concept of shared services has evolved over more than three decades (see discussions in Chapter 2). Early efforts by divisionalized companies with combining/consolidating duplicate services were often referred to as commercial partnerships or internal markets (Ulrich, 1995). According to Alt and Smith (2007), some of the earliest shared services (seen in the 1970's) were in the banking sector, such as a core banking system developed by a software vendor and implemented by several Swiss banks. Various literature (e.g. Beard & Rupp, 2004; Walsh, et al., 2008) indicates that in the 1980's, most organizations implementing shared services, did so within the Finance and Accounting area, such as General Electric and Digital Equipment Corporation. In the 1990's, the scope of shared services evolved beyond individual functional areas, towards consolidation of the full back-office, including also HR and Procurement. Examples of such broader implementations of shared services are Proctor and Gamble (Sia, et al., 2008) and Solteria (Lee & Myers, 2004). Towards 2000, organizations began using shared services for managing and operating ERP systems, such as SAP (Leknes & Munkvold, 2006), PeopleSoft and Oracle (Sedera & Dey, 2007).

While the concept of shared services has been around more than three decades, there exists little consensus on its conceptualization (Miskon, Bandara, Fielt, & Gable, 2010; Schulz & Brenner, 2010; Singh & Craike, 2008). This may in part be due to the diversity of shared services arrangements that can be found in practice. Moreover, organizations tend to adapt the idea to their individual conditions rather than replicate exactly (Ulbrich, 2010). Based on a literature review and synthesis of 10 definitions, Schulz and Brenner (2010, pp. 215-216) define the shared services centre as *“an organizational concept with the following characteristics: consolidates processes within the group in order to reduce redundancies; delivers support processes as its core competency; has cost cutting as a major driver for implementation; has a clear focus on internal customers; is aligned with external competitors; is a separate organizational unit within the group; and is operated like a business.”* Singh and Craike (2008, p. 228) define shared services as *“the concentration and centralization of all transaction-based services (such as HR, IT and Accounting) and appropriate knowledge-based functions (such as Engineering and project management) with the intention of delivering these services in an economical and high quality manner to both internal and external customers.”* Both the terms ‘shared services’ (e.g. Singh & Craike, 2008) and ‘shared services center’ (e.g. Schulz & Brenner, 2010) are used, sometimes interchangeably. However, the latter more explicitly recognizing the establishment of a (semi-)autonomous organizational entity as service provider as is also often mentioned in

many definitions of shared services (e.g. Bergeron, 2003; Goh, et al., 2007, p. 252; Lacity & Fox, 2008; Su, et al., 2009; Yee, et al., 2009, p. 1).

The wide variety of shared services in practice is also evident from the different types and characteristics that have been identified by researchers so far. Ulrich (1995) differentiates between service centres that focus on transactional services, and centres of excellence that focus on transformational services. Quinn et al. (2000) differentiate between four types based upon the objectives: basic (reduce costs, standardize processes), marketplace (reduce costs, improve quality), advanced marketplace (provide choice of most effective supplier), and independent business (generate revenue and profits). Walsh et al. (2008) distinguish between five models of shared services arrangements in the non-profit sector: (1) the classic business model, (2) dedicated shared services centres, (3) peak body support model, (4) co-location model, and (5) amalgamation or merger model. Schulz et al. (2009b) identify seven classification criteria for shared services centres: (1) legal form, (2) coordination form, (3) services charges, (4) external market, (5) contractual form, (6) centre concept, and (7) product portfolio.

Current research into underlying dimensions and typologies of structural arrangements for shared services is limited. Notable exceptions are Niehaves and Krause (2010) and Janssen and Joha (2006b). Niehaves and Krause (2010) distinguish between shared service centre and shared service networks, with empirical evidence based from a case study of local administrations and other public organizations. They state that the shared services approach has been identified as a means to realize the efficiency of collaborative projects in the government sector. In order to investigate the shared services phenomenon in the context of government reforms, the notion of shared services centres (SSCs) and the shared services networks (SSNs) has been developed by the authors. The authors represent SSCs as the centralized organizational format, and SSNs as the decentralized format, as depicted in Figure 6.1.

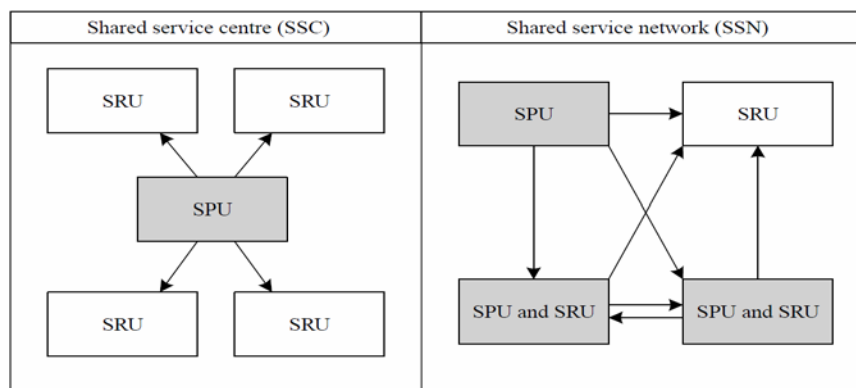


Figure 6.1: Structural types of shared services organization (extracted from Niehaves & Krause, 2010, p. 268)

Janssen and Joha (2006b), based on a study of a shared service centres (SSCs) for the public prosecutors and judges at country courts, high courts and other specialized courts, differentiate between intra- and inter-organizational shared services centres. In the study, the authors argue that an intra-organizational SSC is the commencing SSC formation, which can later on move to inter-organizational boundaries. Both studies were looking at the public administration as their study context.

While prior writings on structural arrangements for shared services have yielded valuable insights, the various classifications have tended to be vague about the specific criteria or dimensions that differentiate the classes or types and paid little attention to the overall notion of structural arrangements. These studies too have tended to be highly descriptive and broad, offering limited evidence in the form of empirical substantiation. Given shared services can entail substantive and highly consequential organizational redesign (Goold, Pettifer, & Young, 2001; Lacity & Fox, 2008; Wang & Wang, 2007), of particular interest are the different structural arrangements for shared services. The study focus thus is on these formal organizational arrangements, with particular emphasis on strategic design at the enterprise level and the composition and relationships among organizational units (Nadler, Tushman, & Nadler, 1997). Research to date on structural arrangements for shared services has been limited, addresses only a single structural dimension, and offers limited empirical substantiation. Therefore, this study aims to address these limitations by identifying explicit differentiating dimensions pertaining specifically to structural arrangements, as identified from published case studies of shared services in the HE sector. Some notable exceptions of related work will be discussed later, when the candidate discusses the dimensions of structural arrangements for shared services in more detail.

6.4 RESEARCH METHOD

This chapter reports an archival analysis of documented case studies of shared services. Such reliance on published secondary data is increasing due to improved accessibility (i.e. digitization of resources, better indexing, improved search engines and databases) (Almpanidis, Kotropoulos, & Pitas, 2007; Chua, et al., 2007) and growing acceptance in IS studies – e.g. (Srivastava & Teo, 2008). This study aim, through content analysis of the case study evidence, is to derive a typology of shared services structural arrangement types.

Figure 6.2 summarizes the study research design. Data collection was limited to the Higher Education (HE) sector. Following Levy and Ellis (2006), this study employed a

three-stage approach to extract, codify and interpret the evidence. Procedures for extraction of relevant documentation and preparation for analysis are detailed following. The subsequent section presents overall study findings.

6.4.1 Extraction of Relevant Documentation

A comprehensive search for published cases of shared services in the HE sector was commenced. An early pilot effort using internet and database searching quickly revealed that information on shared services case studies was not to be found in academic outlets, but rather was scattered across disparate sources and formats (e.g. reports, white papers, slide presentations and web site information etc.). These early information retrieval trials suggested the need to search for documented evidence via a structured internet search strategy, using an effective search engine. Analyzing cases drawn from publically accessible content available via internet searching has been practiced by other researchers in IS (e.g. Chua, et al., 2007; Shang & Seddon, 2002; Tomiuk & Pinsonneault, 2008). This approach has tended to be employed in similar circumstances; where the required information is scattered across multiple disciplines and not available from formal academic outlets.

Google was used as the search engine, it being recognized for its retrieval effectiveness and advanced search features, and having become the 'default' search engine for most (Garoufallou et al., 2008). The candidate adapted an approach based on procedures and lessons documented by past researchers, following guidelines for conducting effective literature-based studies in IS (e.g. Webster & Watson, 2002).

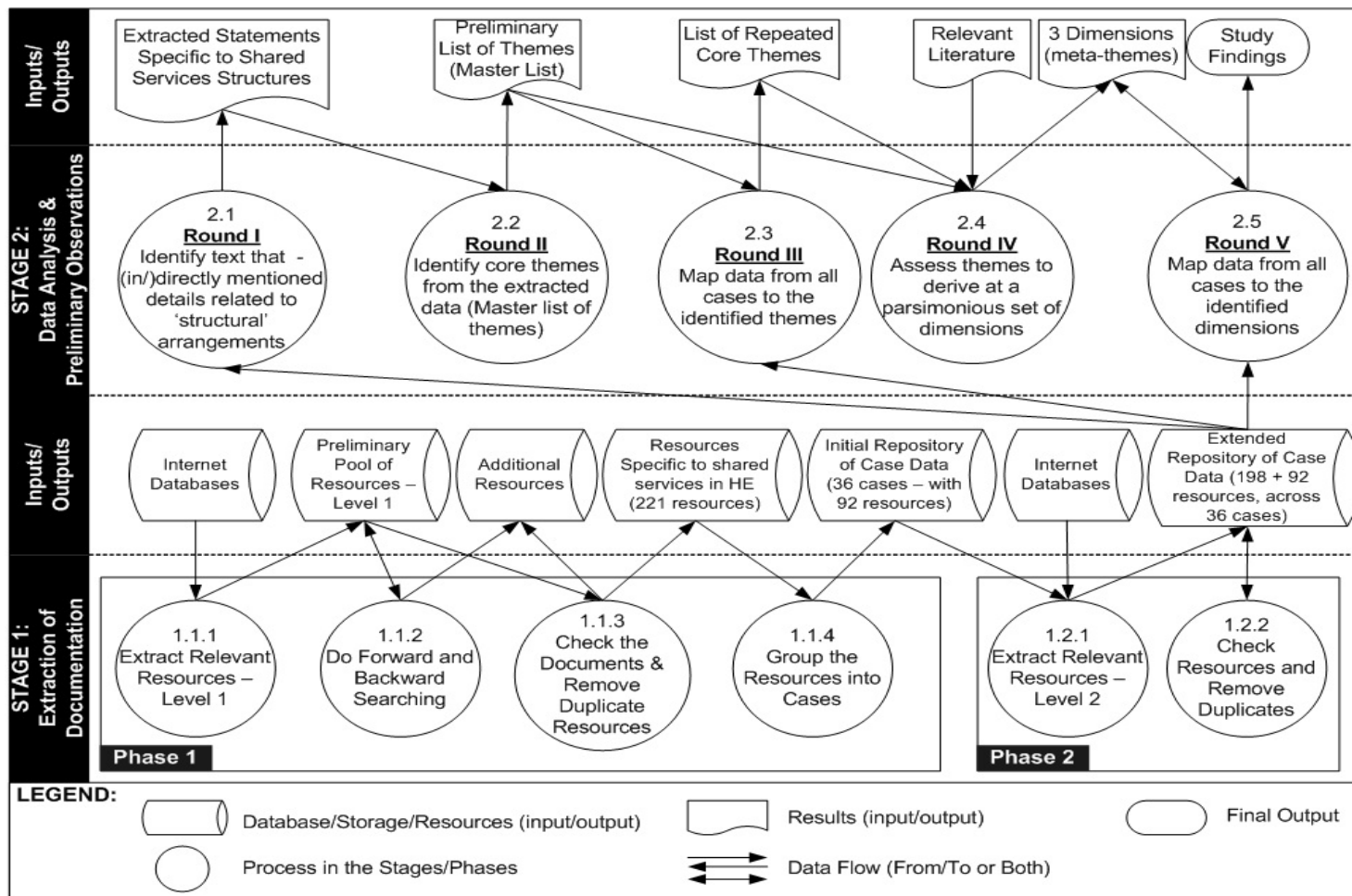


Figure 6.2: Overview of the data extraction and analysis approach applied in the study

The extraction of relevant documentation took place in 2 phases (see Figure 6.2). In Phase 1, the primary goal was to identify relevant instances of the phenomenon of interest; in this case, to identify those HE institutions (located anywhere in the world) which reported some form of shared services. The key phrases ‘shared service*’ AND (‘higher education’ OR ‘university’ OR ‘College’³⁰) were searched for through a Google advanced search. The candidate extracted a wide range of results, including reports, web pages, white papers and slide presentations as depicted in process 1.1.1 of Figure 6.2. In process 1.1.2, forward and backward searching (following Levy & Ellis, 2006; Webster & Watson, 2002) based on this initial set of resources, was also conducted in order to discover additional possibly relevant resources. These resources were systematically reviewed and prepared for analysis; then indexed and filtered. Identified resources were first checked to confirm if they were actually case details of shared services within the HE context. Those that were not (i.e. resources that had generic information about the benefits of shared services in the HE sector) were removed from this data set (or sometimes saved separately in an ‘additional resources’ repository to support the background and context of the study). Those that were within the scope of interest and context were saved in a digital repository that formed the preliminary data set used for this study’s analysis (see process 1.1.3). Those saved resources belonging to the same case, were then saved under a separate sub-folder; one for each case, and duplicate resources removed in process 1.1.4 as depicted in Figure 6.2. The overall search yielded 221 resources that discussed shared services in the HE sector. Ninety-two (92) of these resources contained information about specific shared services cases in the HE sector, these 92 resources pertaining to 36 different case studies as identified from this effort. Data saturation³¹ [as explained by Ritchie et al. (2003) and Rubin and Rubin (2005)] experienced later in the analysis phase, confirmed the representativeness and sufficiency of the data set (the 36 cases).

While Phase 1 focused on identifying HE institutions that had implemented and reported on shared services, Phase 2 sought to extract relevant information from the identified case studies, in order to achieve a maximally rich understanding of each case. Thus, we conducted a further internet search using the search terms ‘shared service*’ AND <‘*the specific university name*’>, also searching within the web pages of each institution to

³⁰ We also integrated other synonyms to ‘University’ to check for completeness of information collected and found that the search term used as above captured all of the relevant information.

³¹ – i.e. when it was observed that statements and content extracted were the same or similar, with no new findings emerging Ritchie et al. (2003); we stopped observing new concepts, and began observing replication across the cases. In other words, we reached “*saturation of information*” Glaser and Strauss (1967) from this data set, whereby we began “*to hear the same information reported*” Seidman (2006) and were no longer learning anything new.

identify further details specific to the shared services arrangement(s) identified from Phase 1 (see process 1.2.1 in Figure 6.2). In process 1.2.2, all resources were systematically checked for relevance, and were saved under the sub-folders created earlier for each case. 198 new resources (after removing duplicates with the first-stage search set) were found in this phase, the data pool thus having a total of 290 (198 + 92 from Phase 1) resources as we entered the analysis phase. The cases identified from this effort are listed in Table 6.1. Column 1 provides an ID that will be used to refer to the case later on in this chapter [and is labelled either by the name used for the initiative as per the documents extracted. Column 2 provides a name for the sharing arrangement (i.e. as in Ohio University (Administrative Support Functions) or as a pseudo-name derived from the main institution(s) involved in the shared services arrangement]. Column 3 lists the selected resources that describe the case (these are current as of the time of writing this chapter March 2012). Column 4-6 maps how the 36 case studies mapped against the three dimensions (D1, D2 and D3). In columns 4 and 6, where the existence or not of a dimension within the case data was directly mentioned.

6.4.2 Data Analysis and Preliminary Observations

The study unit of analysis of this study was the structural arrangements for shared services. The goal of this study was to identify and explicate the different structural arrangements – the composition of and relationships among organizational units in relation to shared services, as reflected in the pool of evidence gathered. The research was qualitative in nature. The text of the extracted documentation was analyzed employing a basic content analysis approach. Content analysis is extensively used as a textual data codification and synthesis technique (Chua, et al., 2007; Grazioli & Grazioli, 2003; Kohlbacher, 2006). Given the exploratory nature of the study, a conventional inductive content analysis approach was used, with coding categories derived directly from the textual data without theoretical perspectives or predetermined categories (Miles & Huberman, 1999). A detailed coding-protocol was devised by the researchers to confirm the coding plan and procedures. This protocol prescribed how the extracted content would be captured and stored in the repository, how the supporting information would be coded and analysed, and how the results would be captured and presented.

Table 6.1: Mapping the case studies to the core themes.

1	2	3	4	5	6
ID	[University/Inst. Name] (Project Name)	Selected Supporting Sources ³²	D1: Existence of a Separate Organizational Entity	D2: Sharing Boundary (Intra/ Inter- organizational)	D3: Existence of a 3rd Party involvement
1	Ohio University (Administrative Support Functions)	http://www.ohio.edu/outlook/08-09/October/100.cfm	Yes	Intra	No
2	Purdue University (Human Resource Services)	http://www.purdue.edu/business/payroll/Time_Management/Shared_Service_Center_Informat.html	Yes	Intra	No
3	University of New South Wales (IT Shared Services)	https://www.it.unsw.edu.au/index.html	Yes	Intra	No
4	University of Newcastle (IT Services and Administrative Services)	(Walters, 2009)	Yes	Intra	No
5	University of York (HR)	http://www.york.ac.uk/admin/hr/training/forums/administratorforum/Shared%20Services%20presentation%20Nov.06.pdf	Yes	Intra	No
6	Cornell University (Administrative Support, Financial Services)	http://dpb.cornell.edu/documents/1000405.pdf	Yes	Intra	No
7	UK Higher and Further Education (JISC Information Environment Service Registry)	http://iesr.ac.uk/	Yes	Inter	No
8	Minnesota State Colleges & Universities System (Student First)	http://www.nascio.org/awards/nominations/2008/2008MN10-MnSCU%20ITS%20PMO.pdf	Yes	Inter	No
9	Massachusetts Institute of Technology (MIT)/iCampus (Teaching & Learning)	http://web.mit.edu/annualreports/pres07/04.13.pdf	Yes	Inter	No
10	Inter-University Council of Ohio	http://www.iucpg.com/	Yes	Inter	No

³² Last accessed 15th March 2012

	(IUCPG)				
11	HE in South and Mid Wales (HEPCW)	http://hepcw.procureweb.ac.uk/2510.file.dld	Yes	Inter	No
12	Finnish Virtual University (Teaching & Learning)	http://www.tieke.fi/mp/db/file_library/x/IMG/12865/file/11_Peltola_KIECPresentation15102004.pdf	Yes	Inter	No
13	University of Melbourne (IT Services and Administrative Services)	http://www.unimelb.edu.au/publications/docs/budget2007.pdf	No	Intra	No
14	University of Buffalo (IT Shared Services Project)	http://www.cio.buffalo.edu/Annual_Report_2006-07.pdf	No	Intra	No
15	Macquarie University (Administrative Support)	http://www.mq.edu.au/provost/reports/docs/report_to_council.pdf	No	Intra	No
16	University of Maryland (OAIS)	(Knight & Hedges, 2007)	No	Inter	No
17	University of Maine System (Administrative Support Services)	www.maine.edu/pdf/SD7ITSecondReport.pdf	No	Inter	No
18	University of Limerick/NUI Galway (Resources Optimization)	http://www2.ul.ie/pdf/201509185.pdf	No	Inter	No
19	University College Cork (4C)/Abtran (Research Expertise)	http://techtransfer.ucc.ie/documents/4C_Abtran_25_Feb10.pdf	No	Inter	No
20	CAUDIT (AAF)	(CAUDIT 2010 Annual Report, 2010)	No	Inter	No
21	University of Auckland (IT Services)	http://www.caudit.edu.au/educauseaustralasia07/aut_hors_papers/Chaffe-80.pdf	Yes	Intra	Yes
22	University of Southern Queensland (Financial Services)	(University of Southern Queensland, 2010)	Yes	Intra	Yes
23	University of California, Davis (Administrative & Resource Management)	http://oe.ucdavis.edu/SSC/shared-services-in-action.html	Yes	Intra	Yes
24	University of California, Berkeley (Administrative Functions)	http://www.uh.edu/af/budget/UCB.pdf	Yes	Intra	Yes
25	Drexel University (IT Services)	(Albrecht, Goldstein, Pirani, & Spicer, 2004)	Yes	Intra	Yes
26	Monash University (IT Services)	http://www.adm.monash.edu.au/shared-services/ss-objectives.html	Yes	Intra	Yes
27	University System of Ohio	http://uso.edu/opportunities/efficiencies/administrat	Yes	Inter	Yes

	(Administrative Services)	ive.php			
28	University System of Georgia (Administrative Support Functions)	http://www.usg.edu/	Yes	Inter	Yes
29	UK Higher Education/British Library (UK Research Reserve)	http://www.ukrr.ac.uk/	Yes	Inter	Yes
30	The University of Texas System (SIS, Data Centre, Joint Purchasing)	http://www.utsystem.edu/systemcio/SharedServices.htm	Yes	Inter	Yes
31	The University of North Carolina System (HR/Payroll)	http://www2.universitybusiness.com/viewarticle.aspx?articleid=1224&p=3	Yes	Inter	Yes
32	The Texas A&M University (IT Services, Document Management, Data Centre)	http://www.utsystem.edu/news/features/shared_services_summer07.htm	Yes	Inter	Yes
33	University of Missouri System (MOREnet)	http://www.more.net/	Yes	Inter	Yes
34	University of Sydney (IT Services, Finance Services, Support Services)	http://sydney.edu.au/strategy/docs/strategic_directions_2006-10.pdf	No	Intra	Yes
35	University of Nebraska/Nebraska State College System (ERP)	http://www.educause.edu/Resources/ExtendingSharedServicesAcrossM/163304	No	Inter	Yes
36	University of Akron/Lorain County Community College (ERP)	http://campustechnology.com/articles/2011/04/28/beyond-asp-shared-services.aspx	No	Inter	Yes

The analysis took place in multiple rounds. As depicted in Figure 6.2, the first (Round I), available information about the shared services cases was searched to extract any direct or indirect mention of any ‘structural’ arrangements (see process 2.1). This included statements that described how the sharing arrangements were structured, who was involved and other relevant details. Round II of the analysis focused on distilling core themes based on the results of Round I that were repeated across multiple cases, see process 2.2. The quest for repeated themes as a means to identify and synthesise important aspects of a phenomena being investigated is a common approach with inductive content analysis techniques (Auerbach & Silverstein, 2003). A master list of themes was extracted from this round, which pointed to elements such as the geographic spread of the shared services, the different stakeholders involved in the different contexts, etc. In the third round (Round III), the case study data was again analysed searching for further evidence that mapped to the master list of themes identified in Round II; the intent being to capture as much relevant data in support of each theme from the dataset, see process 2.3. The candidate managed this process through a spreadsheet, where the themes identified were populated with evidence from the case studies. As a result of this mapping, the candidate began to notice differences in organizational boundaries; some being within a single organization and others that spanned organizations.

In terms of stakeholders involved, the candidate observed the case studies mentioned parties that were part of the main sharing arrangement (i.e. business units, hubs/centres etc and their related roles), as well as external suppliers and vendors that supported the different stages of the shared services lifecycle. In the next round (Round IV), the master list of themes and supporting data was assessed in search of a parsimonious set of dimensions (based on themes distilled from the early phases) that could best describe the different structural arrangements for shared services – as evident from the data, see process 2.4. At this phase, relevant literature from the generic shared services, Business and IT domains were referenced as supporting input to this analysis. This literature assisted to: (1) further understand the themes as they were synthesised, (2) to derive a more parsimonious list of meta-themes (dimensions), (3) to better rationalise the observations made through triangulation, and also (4) to provide content validity to the resulting dimensions. This helped the candidate to distil and justify three key dimensions (meta-themes) deriving from the prior rounds, namely; (D1) separate organizational entity, (D2) sharing boundary, and (D3) third party involvement; that appeared to capture well the structural variations of shared services. All the themes identified in Rounds II and III mapped (strongly or weakly) to these three dimensions.

Finally in process 2.5, these are explained further in the next section when the study findings are presented. In the next round (Round V), the case study data was revisited in search of information about the dimensions (identified in Round IV) within all the cases, capturing the directly mentioned or indirectly implied existence (or not) of the elements identified in the meta-themes (i.e. did the case study data show; whether a separate organizational entity was involved? if the sharing was internal or external? whether a third party vendor was involved?). All unsure cases were coded by 2 coders till confirmation was reached. When the information in prior collected case dataset was not sufficient to make a confirmed decision, new (some times more recent) details of case studies were searched via extended searches to gather further details to get insights of the cases. The results of this round showed that all dimensions were instantiated across the case study data (see Table 6.1 and Table 6.2). The 8 possible combinations of the 3 dichotomous dimensions (each dimension having 2 possibilities) yielded the final result of this study- a typology of 8 shared services structural arrangements. All 8 types were instantiated by the case data. The overall research findings are presented in detail in the next section.

6.5 STUDY FINDINGS

As described earlier, case study documentation on shared services in the higher education sector were sought for (resulting with data from 36 cases), which were then analyzed to identify the core dimensions that were important in the context of shared services structural arrangements. Once these core dimensions were distilled, the candidate reviewed all cases to instantiate and confirms these three structural dimensions. Once the dimensions were instantiated via the cases, the cases that were grouped with similar characteristics (across the three dimensions) were analyzed further to derive the different types of sharing arrangement structures. The following section first presents the dimensions and then proceeds with the presentation of the resulting typology and its 8 types.

6.5.1 Important Dimensions for Shared Services Structural Arrangements

Based on the inductive analysis of shared services in the HE sector and influenced by the shared services literature, three dimensions of structural arrangements for shared services were identified: (D1) separate organizational entity, (D2) sharing boundary, and (D3) third party involvement. The three have face validity in that they cover important organizational design issues at the enterprise level (e.g. Nadler, et al., 1997).

Dimension 1 (D1) Separate organizational entity: This dimension relates to the existence (or not) of a dedicated, semi-autonomous unit that is responsible for providing the shared services. Often, such a separate unit is referred to as a shared services centre (SSC). This dimension was easy to identify and capture when the cases specifically mentioned the existence of a semi-autonomous unit. However, when this was not specified explicitly, it was more difficult to know if a separate organizational entity exists. In some cases the case data hinted at the non-existence of a separate entity, for example by emphasizing the need for internal units to cooperate and collaborate. For other cases we judged ‘implied’ existence or not, based on additional information that was matched against the literature that characterized shared services centre. Schulz et al. (2009a) describe seven criteria that represent the various forms of shared services centre. This was used here to identify the ‘implied’ existence of a SSC in the case data.

The existence of a separate entity is also seen in the definitions where some explicitly define a shared services center (e.g. Schulz & Brenner, 2010) and include a reference to a (semi-)autonomous organizational entity in the definition (e.g. Bergeron, 2003). Niehaves and Krause (2010) distinguish between the shared services centre and the shared services network, based upon degree of (de)centrality and its constellation of service providing units and service receiving units.

Dimension 2 (D2) Sharing Boundary: This dimension relates to the formal organizational periphery of the sharing arrangement and defines whether the sharing is within the boundary of a single organization or if the sharing is between multiple organizations. This dimension was easy to identify and capture as the information was clearly documented across all the case studies.

The sharing boundary is also discussed in literature as *intra*-organizational shared services centres within an organization and *inter*-organizational shared services centres between organizations (Janssen & Joha, 2006b). Intra-organizational shared services involves a single organization consolidating and centralizing a business service where the sharing activities occur within the organization (Yee, et al., 2009). Inter-organizational shared services involve two or more organizations sharing common services (Borman, 2010b; Wang & Wang, 2007; Yee, 2009).

Dimension 3 (D3) Third Party Involvement: This dimension relates to the involvement of a third party (external to the sharing organizations) in the shared services. Like dimension 2, this was easy to identify and capture from the case study data; if third parties were involved, the data tended to clearly describe who they were and what their role

was, varying from involvement in the planning, the implementation and the operation of the shared services.

The norm in the cases and the literature when referring to third party involvement in this context is to refer to ‘outsourcing.’ (e.g. Janssen & Joha, 2006b; Lacity & Fox, 2008). McIvor et al. (2011) explain how a shared services centre can be owned and operated by the organization, or outsourced to independent vendors, and how organizations are increasingly turning to vendors to implement and manage shared services, as they lack the necessary internal skills and experience. Arya (2011, p. 291) also notes that shared services might be developed as internal services or be contracted out to an external provider and argues that “*it is important to differentiate between ‘internal’ shared services and ‘outsourced’ shared services, as considerations for these two types of shared services arrangements are quite different.*”

6.5.2 Shared Services Structural Types

Given the three dichotomous dimensions, there are by definition 8 possible combinations. These are listed in Table 6.1, which also includes (see Column 1) a meaningful name assigned to each of the 8 possible shared services structural arrangements. In example, Type 1 – Intra-organizational Shared Services Center - refers to a semi-autonomous organizational unit that provides internal services through a sharing arrangement with multiple organizational units within the same organization; there is no 3rd party involvement in this example. Column 4 of Table 6.2 refers to specific case examples. Table 6.2 briefly presents these shared services types; illustrating; how they mapped to the combinations of the identified Dimensions (D1-D3) and pointing to evidence from the cases. Figure 6.3 depicts a summary view of how the 8 types of shared services are positioned within the three dimensional framework. The 8 different types are next discussed in further detail.

Table 6.2: The types of shared services and supporting case based evidence: a summary

1 Types of Sharing Arrangement	2 Description	3 Dimensions			4 Case Study Evidence	
		D1: Has a Separate Organizational Entity	D2: Sharing boundary (Intra/ Inter-organizational)	D3: 3rd Party Involvement Exists	Supporting sample cases (ID)	Total number of cases
Type 1: Internal Shared Services Centre	A semi-autonomous organizational unit provides internal services through sharing arrangement to multiple organizational units within the organization.	Yes	Intra	No	1-6	6

Type 2: Shared Services Centre – Alliances/ Consortium	Two or more universities or related organizations share common services. They are voluntarily members of a particular group (e.g. Higher Education System, Consortium) to achieve common or particular mission. The single group coordinates the provision of various services to the individual universities/ organizations involved in the alliances or consortium. This group is formed and governed internally by the partner organizations.	Yes	Inter	No	7-12	6
Type 3: Intra-organizational Shared Services	Individual academic departments, business units and campuses within a single university share common services such as enrolment and administrative functions, there is no separate shared services entity.	No	Intra	No	13-15	3
Type 4: Inter-organizational Shared Services	Two or more universities or related organizations share common services. In this type of shared services, there is no separate shared services entity. A single university might share common services with others.	No	Inter	No	16-20	5
Type 5: Internal Shared Services Centre (with third party)	Similar to Type 1 with respect to the boundary and entity. The difference is that this type of shared services has substantial involvement of a third party provider.	Yes	Intra	Yes	21-26	6
Type 6: Shared Services Centre – Alliances/ Consortium (with third party)	Similar to Type 2 with respect to the boundary and entity. The difference is that this type of shared services has substantial involvement of a third party provider.	Yes	Inter	Yes	27-33	7
Type 7: Intra-organizational Shared Services (with third party)	Similar to Type 3 with respect to the boundary and entity. The difference is that this type of shared services has substantial involvement of a third party provider.	No	Intra	Yes	34	1
Type 8: Inter-organizational Shared Services (with third party)	Similar to Type 4 with respect to the boundary and entity. The difference is that this type of shared services has substantial involvement of a third party provider. .	No	Inter	Yes	35-36	2

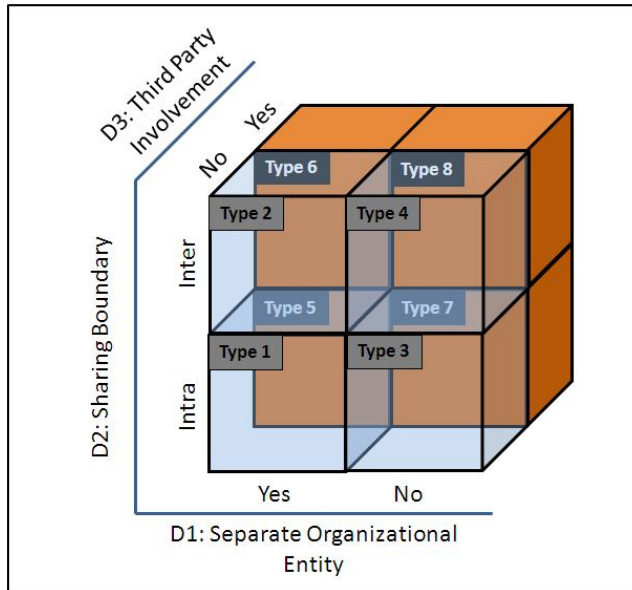


Figure 6.3: Positioning the types of shared services within the 3 dimensions

6.5.2.1 Type 1: Internal shared services centre

Internal shared services centre is a typical type of shared services arrangement where there is a semi-autonomous organizational unit that provides internal services through a sharing arrangement to multiple organizational units within the organization without any involvement from external third party vendors or service providers (see Figure 6.4). Cases with IDs 1-6 as depicted in Table 6.2 are examples of this type of shared services.

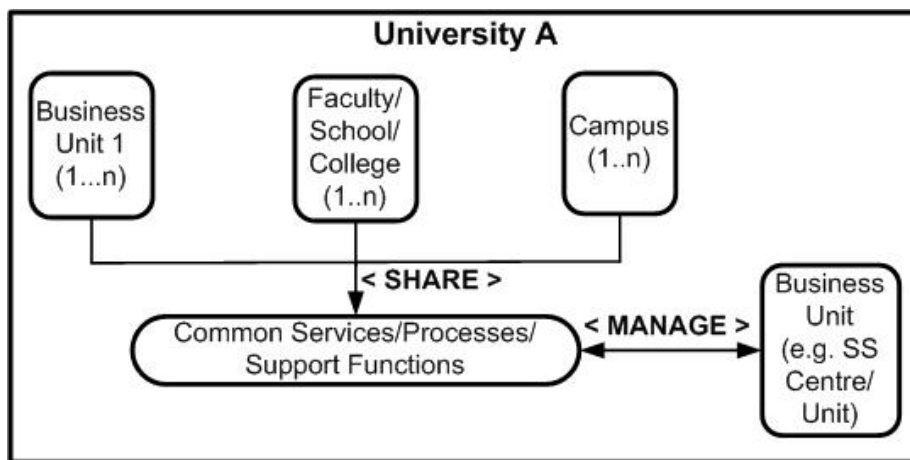


Figure 6.4: Type 1 – Internal Shared Service Centre

In example, Ohio University aims to strengthen university operations and support the vision through shared services. The shared services initiative was aimed to streamline

administrative functions, to improve services and allow units to focus on their core missions. The main areas of focus included strategic procurement, pay and classification planning, support for academic programs and related reviews, strategic enrolment management and sustainability planning. Special attention was also later paid towards improving efficiencies in Information Technology and communications and marketing within the institution.

A *semi-autonomous entity* existed (which was referred to as the ‘University Business Unit’ in the available documentation), which was responsible to manage the multiple involved departments (as mentioned earlier). This unit focused on consolidating the business functions, standardizing processes and delivering efficiencies through business process re-engineering, and also provided the support services and guidance necessary to implement the shared services; which became an integral part of the Ohio University culture. The *sharing boundary* for shared services within Ohio University was within the institution itself involving the following departments: Procurement, Accounts Payable, Payroll, Travel, Expense Reimbursement and the Business Service Centre. There were no *third parties* involved in this case.

6.5.2.2 Type 2: Shared services centre – alliances/consortium

In this type, two or more universities (or two or more different organizations), share common services through an alliance relationship and there exists a single group that coordinates the provisioning of the various services to the individual universities/organizations involved. This group is formed and governed internally by the partner organizations (see Figure 6.5). Cases with ID 7-12 as depicted in Table 6.2 are examples of this type of shared services. Using the case study of the Minnesota State Colleges and Universities System (Case ID-8), we illustrate how the dimensions of the typology are manifest in this type of shared services.

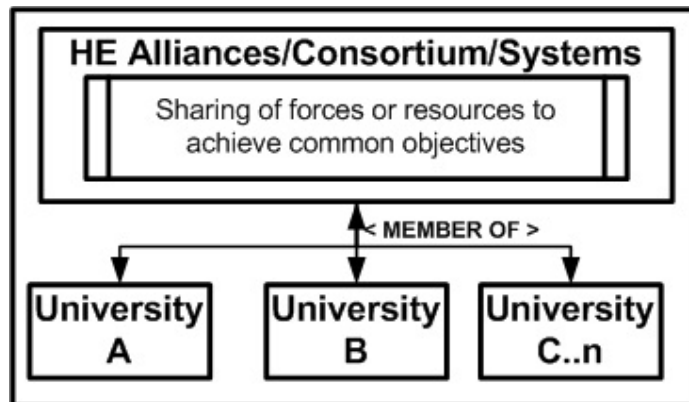


Figure 6.5: Type 2 - Shared Services Centre – Alliances/Consortium

The main goal of the Minnesota State Colleges and Universities was to; offer higher education that meets the personal and career goals of a wide range of individual learners, enhance the quality of life for all Minnesotans, and sustains vibrant economies throughout the state. Hence, the first step towards this goal was to facilitate delivery of selected student-related services by consolidating processing from distributed locations to a real or virtual shared services environment via the ‘Students First’ project. The ‘Students First’ project is an initiative that allowed students to benefit fully from the breadth and depth of the Minnesota State Colleges and Universities system with its diverse offerings and campuses. Specifically, this system wide initiative redesigned online systems to better meet students’ needs when it comes to searching for a college or university, program or course, as well as applying for admission, registering for courses, planning for graduation and viewing or paying tuition fees.

The *sharing boundary* was the Minnesota State Colleges and Universities System itself, which was an organizational body that included 31 institutions, including 24 colleges and seven state universities. The Minnesota State Colleges and Universities system is the largest single provider of higher education in the state of Minnesota. They did have a *separate organizational entity*, which was the Minnesota State Colleges and Universities System Information Technology Services (MnSCU ITS). MnSCU ITS is organized as a shared services centre for 32 colleges and universities. In conjunction with these institutions and across four centralized business units, MnSCU ITS developed and launched an enterprise governance process and Portfolio Management Office. There were no *third parties* involved in this case.

6.5.2.3 Type 3: Intra-organizational shared services

In this type, individual academic departments, business units and campuses within a single university share common services. There is no separate shared services centre or entity that overlooks the sharing arrangements in this type of shared services (see **Figure 6.6**). Cases 13-15, as listed in Table 6.2 are examples of this type of shared services. The candidate will use the case study of the University of Buffalo (Case ID -14), to illustrate how the three dimensions manifest in this type of shared services.

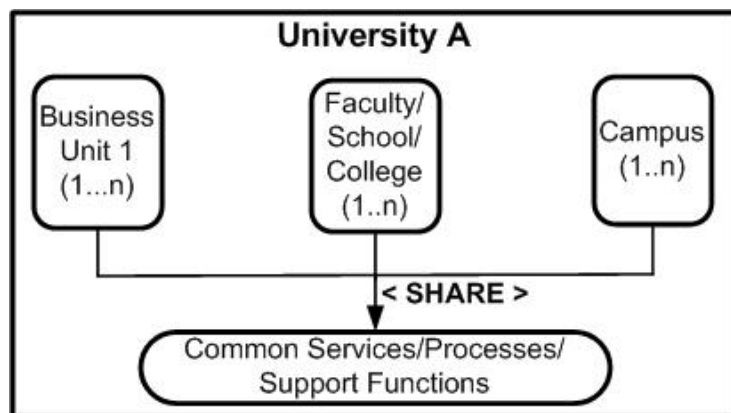


Figure 6.6: Type 3 - Intra-organizational Shared Services

By the year 2020, the University of Buffalo aims to become one of USA’s premier public research universities. The transformation of academic support operations to realize efficiencies and improve quality is one means by which they hope to achieve this. The university invested in IT as a shared infrastructure to minimize redundant expenditures. An IT shared service desk was one of the initiatives that integrated IT resources from across the campuses to provided unified service delivery via a single point of contact regardless of the location or organizational management of the IT resources involved. The case data makes no mention of any *separate organizational unit*; instead the IT shared service desk project was led by the Information Technology Strategic Transformation subcommittee. The *sharing boundary* was within the University of Buffalo, where several campuses are involved in the shared services initiative. There were no *third parties* involved in this case.

6.5.2.4 Type 4: Inter-organizational shared services

In this type, two or more universities or related organizations share common services, without a separate shared services centre or separate entity to manage the sharing arrangements. A single university (or organization) that has stronger skills and experience in a given area, might offer these common services to others in a partnership/sharing arrangement (see Figure 6.7). Cases 16-20 (see Table 6.1) are examples of this type. The candidate further describe this type, taking the Open Archival Information System (OAIS) project (Case ID-16) (Knight & Hedges, 2007; Smorul, JaJa, Wang, & McCall, 2004) as an example.

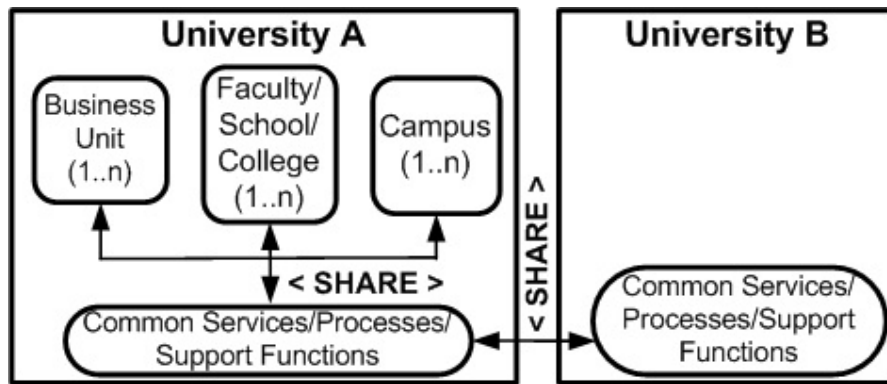


Figure 6.7: Type 4 - Inter-organizational Shared Services

In this case example, the San Diego Super Computer Centre (SDSC), University of Maryland, and the National Archives and Records Administration (NARA) collaborated (across organizational *boundaries*) to build a persistent digital archive, located at the three sites, each running different database management software connected through the Storage Resource Broker (SRB) middleware. The notion of several different institutions co-operating or collaborating to deliver shared services is not a new concept. OAIS is one of the examples of sharing initiatives that involve this kind of multi-institution configurations (Knight & Hedges, 2007; Smorul, et al., 2004). There were no *third parties* involved in the OAIS project and they did not have a *separate entity* overlooking the sharing arrangement, instead all participating institutions collaborated together to achieve the goals of this sharing arrangement.

6.5.2.5 Type 5: Internal shared services centre (with third party)

Internal shared services centre (with third party) is similar to Type 1 with respect to the boundary and entity; the sharing is within a single organizational boundary and the sharing arrangements are looked after by a semi-autonomous entity. The difference is that this type of shared services has substantial involvement of a third party provider (see **Figure 6.8**). Examples of this type from the data set included cases 21-26. Below, we further illustrate this type with the University of Auckland, New Zealand (Case ID-21) example.

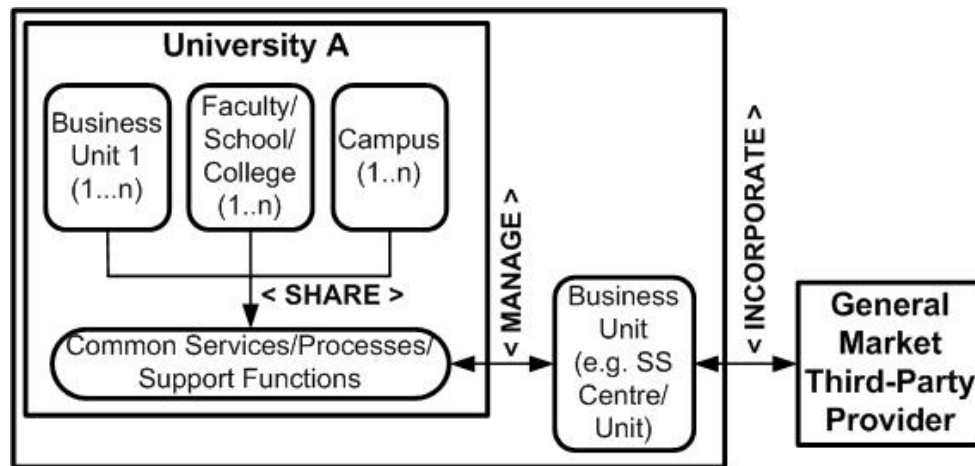


Figure 6.8: Type 5 - Internal Shared Services Centre (with third party)

By the early 2000's, Information Technology Services (ITS) at University of Auckland had a myriad of problems such as rapidly increasing demand for servers, storage and technical support time. Thus, a goal at the time was to consolidate and improve its ability to offer services to the entire University using a shared services approach; to share the infrastructure resources (i.e. the manpower and the data centre). The *sharing boundary* in this case example is within the University of Auckland, which spans all faculties and service divisions. ITS; a *semi- autonomous entity* with the University of Auckland, is the service provider. The case documents describe how in 2008, ITS collaborated with a *third party*; Microsoft, to design and roll out Google Applications for Education to its 50,000 students, staff and alumni (Keall, 2009).

6.5.2.6 Type 6: Shared services centre – alliances/consortium (with third party)

In this type, two or more universities or related organizations share common services and there exists a single group that coordinates the provisioning of the various services to the individual universities/organizations involved in the alliances or consortium. This group is formed and governed internally by the partner organizations. This type of shared services has substantial involvement of a third party provider (see Figure 6.9). Cases with IDs 27-33 are examples of this type. Below, the candidate describes this type of shared services taking the case study of the University System of Ohio (case ID-27) as the illustrative example.

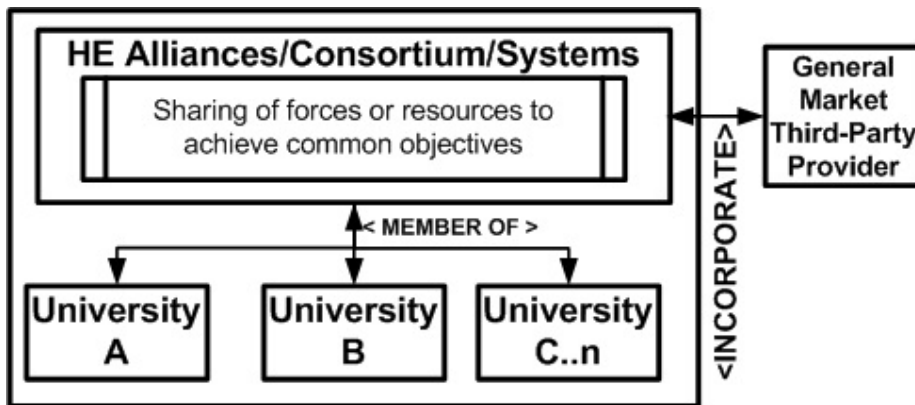


Figure 6.9: Type 6 - Shared Services Centre – Alliances/Consortium (with third party)

The Ohio Board of Regents was the *separate organizational entity* in this arrangement that governed matters at the state level, and was responsible to coordinate the higher education institutions involved. The *sharing boundary* of this shared services example comprised all of Ohio's public institutions of higher education which functioned under the University System of Ohio, including 13 state universities, 24 branch and regional campuses, 23 community colleges and technical colleges, one public medical college, as well as Adult Workforce Education (AWE) and Adult Basic and Literacy Education (ABLE) programs. This sharing arrangement at the University System of Ohio, had *Third Party Involvement*, in particular the consulting firm 'Navigator Management Partners' which provided expertise in the higher education industry (in general), process design and reengineering, and large scale IT system implementations that took place across the institutions; including PeopleSoft, SciQuest, and Quali. The consulting firm (Navigator Management Partners) was responsible for the overall project management and the transformation to the shared services arrangement. They were accountable for an efficient and effective delivery of the shared services on time, on budget and as per the initial plans. The overall initiative was sponsored by the Lumina Foundation for Education (Barber & Schoettmer, 2010); a private, independent foundation (established in Indianapolis in August 2000) that strives to help people achieve their potential by expanding access to and success in education beyond high school³³.

6.5.2.7 Type 7: Intra-organizational shared services (with third party)

This type is similar to Type 3 with respect to the boundary and entity. The difference is that this type of shared services has substantial involvement of a third party provider (see

³³ Refer to http://www.luminafoundation.org/about_us/. Last accessed September, 2011.

Figure 6.10). Case ID-34 is an example of this type of shared services. Below, the candidate further illustrates this type taking the details of the University of Sydney (Case ID-34) as an example.

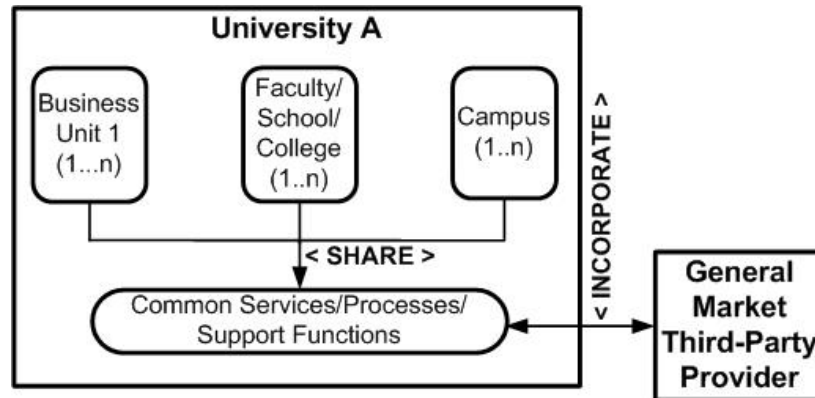


Figure 6.10: Type 7: Intra-organizational Shared Services (with third party)

In 2007 Monash University embarked on a shared services model to help deliver the vision of a transformed IT environment which provides high quality, cost effective and responsive university-wide services, releasing resources to focus on supporting excellence in education and research. Hence, the ICT Shared Services Program had been set up to implement a shared services model across Monash University's Information Technology Services - Information Communication Technologies (ICT). This shared services model took the common activities and processes across the organization and looked to standardize, consolidate and simplify them in order to save money and improve services.

There was no *separate organizational entity* that was mentioned in the case documentation; instead the Monash University's Information Technology Services division lead the tasks associated with the ICT Shared Services Program. The overall program consists of nine key projects which involved 9 disparate service management environments³⁴. The *boundary* of this sharing arrangement was Monash University itself, where the IT Service Directors and Managers, and related Faculty/Divisional Representatives played a critical role. *Third party* vendors were involved in this case. For example, in late 2009, to support the shared services vision, BMC's (see <http://www.bmc.com/en-AU>) Remedy suite was selected as the new university-wide IT Service Management tool. BMC Remedy IT Service Management Suite delivers University-wide ICT supports processes and systems³⁵. Monash University worked with BMC to bring

³⁴Refer to <http://www.adm.monash.edu.au/shared-services/ss-proejcts.html>. Last accessed 7 February 2011.

disparate service management environments onto a single shared platform within this example.

6.5.2.8 Type 8: Inter-organizational shared services (with third party)

This is similar to Type 4 with respect to the boundary and entity. The difference is that this type of shared services has substantial involvement of a third party provider (see **Figure 6.11**). University of Nebraska/Nebraska State College System [Case ID-35] and University of Akron/Lorain County Community College [Case ID-36] are examples of this type of shared services. The candidate further illustrate below, how the different dimensions of the typology manifest in this type, taking the University of Nebraska (<http://nebraska.edu/>) and Nebraska State College System (<http://www.nscs.edu/>) – SAP ERP System Project (Case ID 35) as an example.

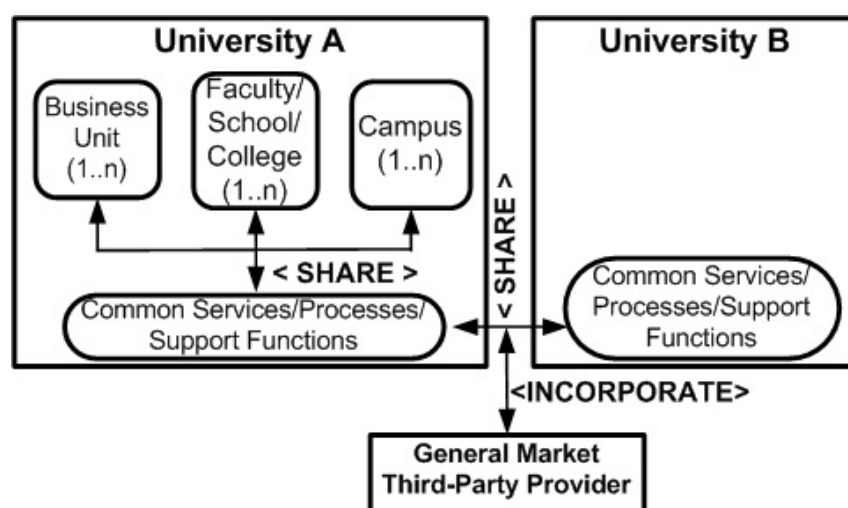


Figure 6.11: Type 8 - Inter-organizational Shared Services (with third party)

The sharing boundary of this case is between University of Nebraska System and Nebraska State College System (NSCS). The collaboration involved 4 main campuses in the University of Nebraska and 3 main campuses in the Nebraska State College System, together with their geographically diverse campuses throughout the state. The objective of the partnership was to implement a common ERP solution across the state to support the higher education institutions. The University of Nebraska System had already implemented its ERP solution successfully and the goal of this initiative was to roll out this same product across the Nebraska State College System (NSCS), leveraging the knowledge and experiences from

³⁵See <http://www.vu.edu.au/sites/default/files/SPUSC-Delivering%20University-wide%20ICT%20support%20processors%20at%20Monash%20University%20-%20Andrew%20Talbot.pdf>. Last accessed September, 2011.

the University of Nebraska System implementations; to better support common business functions. The intended objectives for this initiative were to save cost, time and effort³⁶. The case study material does not provide any information about a separate organizational entity. They do report on third party involvements, and report about for example the collaborations with SAP, as they implemented ERP for finance, materials management, asset management, human resources and payroll (Amos & Mihulka, 2008).

6.6 DISCUSSION

In this section the candidate further discuss the different dimensions and make a first attempt to explain the existence of different types of shared services arrangements. Figure 6.12 provides a summary overview of the different types identified and discussed above. The candidate first discusses the stereotypical structural arrangement for shared services: the Internal Shared Services Centre (Type 1). The candidate then discuss how the other structural arrangements for shared services (Types 2-8) became more common, in particular due to general organizational developments such as collaborating and outsourcing and the wider application of shared services for different kinds of services, functional areas, and sectors (such as Higher Education).

The Internal Shared Services Centre (Type 1) is the traditional stereotype, it closely aligns with early reports of shared services in the literature; shared services provided by a semi-autonomous organizational unit as an internal service to multiple organizational units within the same organization. The early establishment of shared services was often based on the consolidation of support functions in large, multidivisional organizations, for example General Electric Co. (Hoffman, 2002; Quinn, et al., 2000), Digital Equipment Corporation (Lacity & Fox, 2008), and Procter & Gamble (Sia, et al., 2008). This arrangement is also reflected in most definitions of shared services (Schulz & Brenner, 2010) - e.g. “*the combining or consolidating of services within a corporation*” (Ulrich, 1995, p. 14), and “*The concentration of company resources performing like activities, typically spread across the organization, in order to service multiple internal partners at lower cost and with higher service levels, with the common goal of delighting external customers and enhancing corporate value*” (Schulman, et al., 1999, p. 9). The Internal Shared Services Centre (Type 1) closely matched with the characteristics of shared services as discussed in prior studies such as (Borman, 2010a; Miskon, et al., 2010; Schulz & Brenner, 2010; Ulbrich, 2008).

³⁶Refer to the University of Nebraska Agency Efficiency Plan Summary at <http://www.ciclt.net/ul/ungr/Agency%20Efficiency%20Plan%20Summary.pdf>. Last accessed September, 2011.

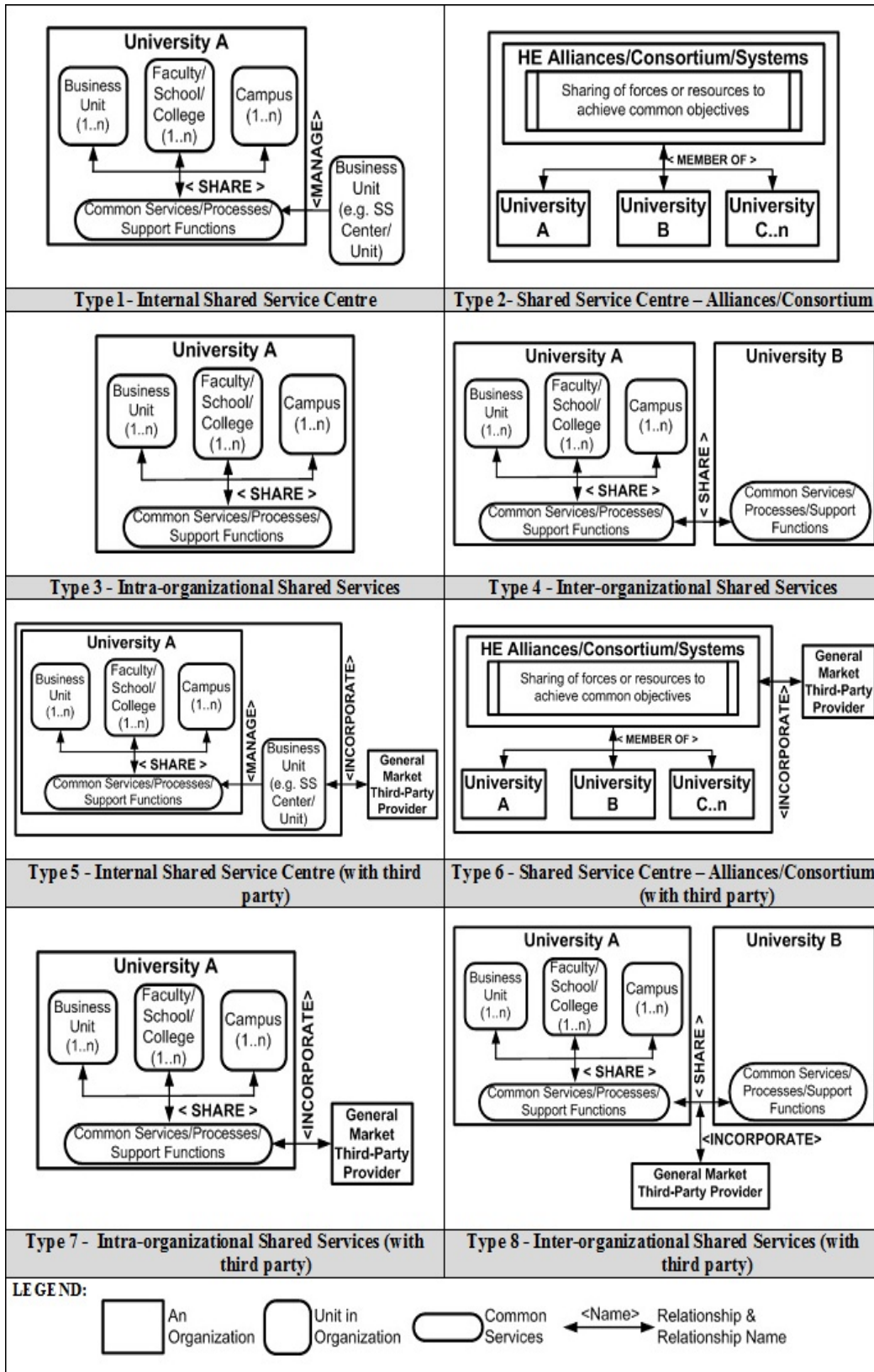


Figure 6.12: Graphical representation of the different types of shared services arrangements as observed in the Higher Education sector

More recently, the candidate see broader conceptions of the notion of shared services, with other structural arrangements for shared services (Types 2-8) become more common. In particular, the notion of shared services is being used to refer to organizational units sharing or collaborating with each other and using cooperative coordination mechanisms, even when there is no consolidation within a multidivisional setting. This expansion of the notion of shared services begins to overlap with collaborative ways of organizing, such as the network form of governance (e.g. Jones, Hesterly, & Borgatti, 1997) and inter-organizational cooperation (Dyer & Singh, 1998). For example, Borman and Ulbrich (2011) refer to shared services as multi-organizational arrangements.

As organizations become increasingly based on collaboration and networking, different types of sharing arrangements are becoming more prominent, such as shared services networks; arrangements in which there exists no separate organizational entity (Dimension 1, Types 3, 4, 7 and 8). Niehaves and Krause (2010) distinguish between the “shared services centre” and the “shared services network” based upon the degree of (de)centrality and its constellation of service providing units and service receiving units, and provide case evidence from a local government. They conclude that prior collaboration is essential for the emergence of shared services, and that a shared services centre emerges when the prior collaboration was central; while shared services networks emerge when the prior collaboration was not central. Collaboration and networking may even lead to new structural arrangements such as “service-oriented enterprises” (Janssen & Joha, 2008). Janssen and Joha speculate that shared service centre may become service-oriented enterprises, which are organized around modular shared services centre that can be integrated and disintegrated effectively and efficiently (Baldwin & Clark, 1997).

Another organizational development that has influenced the structural arrangements of shared services, in particular third party involvement (related to Types 5-8), is outsourcing. The candidate sees two possible scenarios here. In the first scenario, the shared services provider itself decides on the outsourcing options, whereas in the second scenario, shared services is only an intermediary toward a predetermined outsourced solution. Though the approach is different, the end result in both cases is the same; the involvement of third party service providers. Examples of the first scenario are the shared services of Reuters and Xerox. Lacity and Fox (2008) describe how Reuters’ shared services centre outsourced specialized financial services to third-party suppliers. Su et al. (2009) describe how single service delivery units are created and at times outsourced, and provide the case example of Xerox’s data centre. In the second scenario, the primary goal is to outsource, but shared services is used as an intermediate step to first internally consolidate their functions and then outsource the consolidated function (Kagelmann, 2000, p. 79-81, cited in Ulbrich, 2006).

The different structural arrangements for shared services may also be influenced by the wider application of shared services for different kinds of functional areas and services and in different types of organizations, industries and countries. Shared services are applied to different functions, beyond the traditional areas of finance, HR, and IT; for example to procurement, sales and customer service. Shared services are also used for a wider variety of services; for example, in addition to transactional services dealing with meeting administrative requirements (examples in HR include benefits, payment and education), also for transformational services dealing with transforming the organization (examples in HR include staffing, development, employee relations and organizational effectiveness) (Ulrich, 1995). The wider application of shared services can also be seen in its application beyond the large, multidivisional organizations, for example to local municipalities (Niehaves & Krause, 2010).

The candidate also sees shared services being applied both by public and private organizations and in more and more different industries and sectors. The HE sector, as studied in this paper, is an excellent illustration of this. The HE sector is prone to collaboration between different universities: universities have a long history of collaborating through consortia and exchange agreements, shared resources, coordinated curricula, athletic conferences, and joint research (Eckel & Hartley, 2008). It is, therefore, not surprising that the application of shared services in the HE sector is often in the form of joint initiatives, resulting in inter-organizational structural arrangements (Dimension 2, Types 2, 4, 6 and 8). As Niehaves and Krause (2010) argue, prior collaboration may influence the structural arrangement for shared services. Shared services have also been implemented in more and more countries. According to Borman and Ulbrich (2011) local initiatives prevail and the modus operandi of shared services varies from country to country.

6.7 CHAPTER CONCLUSION

This chapter first discussed on the need to investigate the status of shared services in the HE sector. This was followed by discussion on the structural arrangements of shared services. The chapter continued with the description of research approach applied in the study. Through inductive attention to the shared services literature, and content analysis of 36 secondary case studies of shared services in the higher education sector, three salient dimensions emerged: (1) the existence or not of a separate organizational entity, (2) an intra- or inter-organizational sharing boundary, and (3) involvement or not of a third party. Next, the findings were presented based on three dimensions identified. Each dimension being

dichotomous yields 2^3 combinations, or 8 shared services structural arrangement types. Each of the 8 structural arrangement types was defined and demonstrated through case examples.

To the best of the candidate knowledge, this is the first study on shared services that - specifically addresses the identification of structural arrangements for shared services, identifies multiple dimensions of such structural arrangements, and is based on extensive and broad empirical data. The candidate acknowledges the potential limitations (and potential bias) of the search outcomes can be due to uncertainty regarding the authenticity and accuracy of the information extracted; and missing details. For examples, one could assume that those cases that were failures are most likely not reported in public, and hence not included in this study (due to the limitations of using only secondary data). However, the identification of robust, high-level dimensions (meta-themes) lessens our concern with subjectivity, as does the outcomes of back-mapping the cases to dimensions/types. Yet, it is not without its limitations. Chapter 11 Section 11.4.4 provides further details of the potential limitations of this work and Chapter 11 Section 11.5 presents how the findings presented in this chapter can be extended further.

Chapter 7: Exploratory Case Study Design

7.1 CHAPTER INTRODUCTION

As stated in the outset of the thesis (in Chapter 1 and 3), the primary focus of this study was to understand the potential of shared services in the Malaysian HE sector in particular ICT related shared services. Hence, the multiple case study phases had been the core phase of the study. This chapter and the proceeding chapters (8-10) present the design and results of multiple case studies which were already briefly introduced in Chapter 3.

The case study method emphasizes qualitative analysis. It is a scientific and recommended way to research an emerging area in which few previous studies have been conducted (Yin, 2009). This method can be used to accomplish various aims: to provide description, test theory, or generate theory (Eisenhardt, 1989). Furthermore *“multiple-case designs are desirable when the intent of the research is description, theory building, or theory testing”* (Benbasat, et al., 1987, p. 373). The case study method is suited for this research, as the context of this study; shared services, is not well researched, is complex in nature, and warrants to be studied in its rich and natural context.

The literature also describes in detail the single versus multiple case design paradigms (Darke, Shanks, & Broadbent, 1998; Lee, 1989). Yin (2009) states the relevance of a single case study, when the candidate wants to identify new and previously un-researched issues. It is often used to confirm or challenge a theory, or to represent a unique or extreme case. Yin (2009) and Benbasat et al. (1987) suggest that single cases are useful if a situation previously inaccessible to scientific investigation; represents a critical case for testing a well-formed theory; or it is an extreme or unique case. However, single case studies are often criticized for their lack of generalizability (Tellis, 1997). Multiple case designs are desirable, when the candidate’s intention is to understand shared services in the HEI in Malaysia in the holistic view (Gable, 1994; Yin, 2009).

The purpose of this chapter is to provide a detailed description of how the exploratory case study phase was designed and the procedures followed for its execution. The remainder of the chapter is structured as follows:

- **Overall Exploratory Case Study Design:** This section presents the overall exploratory case study design of the study and to describe the unit of analysis.
- **Data Collection Procedures:** This section presents the high level details of the data collected for this case study phase including the characteristics and

classification of the interviewees, issues in interview conduct and how these were addressed. A detailed interview protocol was designed and applied here (as presented in Appendix D).

- **Overview of the Case Participants:** The case studies took place in the Malaysian HE sector, hence this section provides an introduction to the participating case sites, those individuals who were interviewed, and also provides some details of the sample sharing arrangements that were identified during the case study conduct.
- **Data Analysis Procedures:** This section discusses how the NVivo software was used as a research management tool, how the data collected was codified, and used to derive and document the research findings (which are presented in Chapter 8-10)
- **Reliability and Validity:** This section discusses the requirements of reliability and validity in a case study and how these were achieved.
- **Chapter Summary:** This section summaries this chapter, recapping how the case study phase was designed and executed. The overall exploratory case study *design* is presented in detail in the next sections of this Chapter. Chapter 8-10 presents the primary outcomes of this multiple case study effort.

7.2 OVERALL EXPLORATORY CASE STUDY DESIGN

This section describes the exploratory case study first introduced in Chapter 3. The exploratory case study is conducted to explore the research topic in a holistic view. There are 5 major processes involved in this main task: (1) Design multiple case study (including detailed protocol), (2) Conduct multiple case study protocol, (3) Translate and transcribe interviews, (4) Prepare for case study analysis and (5) Case study analysis and write-up of findings as depicted in Figure 3.4 in Section 3.2.3 of Chapter 3. The case study is intended to serve an exploratory function: to understand the notion of shared services.

The exploratory case study phase is conducted to explore the research topic in the holistic view. Yin (2009), states that a case study protocol is an essential element of a carefully designed research project. The case study protocol for the exploratory case study is developed primarily to understand the context of shared services in the HE institution (exploratory case phase). The purpose to develop the case study protocol is to provide the procedures and rules to be followed in the conduct of the case studies. Appendix D (refer to D.2) presented a copy of the protocol that was developed to guide the conduct of the

exploratory case studies. It also provides some pre-planned thoughts and a de-brief of the expected data to be collected from the field, which was documented and planned in detailed (see Appendix D, Sections D.1, D.3 – D.14).

The main objectives of conducting the case studies include: to understand ‘shared services for ICT’, as perceived in the Malaysian HE sector; to identify types of shared services initiatives in the university sector (in general); and to better understand benefits, success factors and the issues or failure factors related to shared services in HE – in particular the Malaysian HE sector. The data collection at the HE institutions in Malaysia was conducted for 8 weeks from June to August in 2010.

7.2.1 Unit of Analysis and Case Selection

As mentioned in Section 3.4.2.1 (Chapter 3), the unit analysis and case selection is very important in a case study research. In this exploratory multiple case study, the primary unit analysis is the organization. The shared services notion is studied at a whole-of-organization perspective. Thus, department heads (i.e. ICT Director and Deputy ICT Director) and ICT Project Leader who are responsible to provide and manage IT in the organization were sought as candidate case study participants as described in Chapter 3, Section 3.2.1.2.

Cases must be carefully selected to maximize what can be learnt in the period of time available for the study (Tellis, 1997). A literal replication approach (Yin, 2009) was employed, where similar organizational settings are considered; public universities in Malaysia. Like universities elsewhere, Malaysian universities were experiencing many environmental drivers encouraging a shared services approach (e.g. increased competition, reduced funding, pressures for operational efficiency improvements). The HE sector in Malaysia was already actively considering shared services as a nationwide strategic imperative, as evident in the “Knowledge, Information Communication Technology Strategic Plan (KICTSP) for Malaysian Public Higher Education”³⁷.

The following criteria were sought for when selecting case sites:

- 1) The university had been implementing ICT projects that are similar with sharing arrangement or are shared services initiatives.

³⁷ This is an unpublished Malaysian Government report. This has been cited by other studies as well (e.g. Ismail, 2008; Ismail et al., 2008)

- 2) There was an overall interest from the organization over the study results and a willingness to participate.
- 3) The main stakeholder(s) were willing available for interviews. The target stakeholders were those leaders in departments that are responsible for providing and managing IT in the organization or ICT projects that similar with sharing arrangement or shared services initiatives. Example roles included; ICT Director, Deputy ICT Director and ICT Project Leader
- 4) They were Malaysian Public Universities based within geographical proximity to the candidate's work place in Malaysia, to support the feasibility of the data collection phase.

73 DATA COLLECTION PROCEDURES

This section is dedicated to describe the data collection procedures employed in this exploratory case study phase. The primary data collection approached applied here were interviews. This was augmented with other sources of evidence for case studies. Yin (2009) identifies several possible sources of evidence for case studies: (1) Interviews, (2) Documentation - including annual reports, letters, memoranda, administrative documents, newsletters, bulletins and meeting agendas, (3) Archival Records – such as organizational charts, (4) Direct Observation, and (5) Case Participant Observation. A candidate can utilize some or all the sources of evidence listed above. Yin (2009) also argues that for case study findings to be reliable, a candidate must have multiple sources of evidence.

Effective and efficient data collection for case study research requires careful planning and rational use of both the case participants' and the candidate's time. Collecting case study data from case participants can be difficult and time consuming. Hence, the candidate should prepare herself with sufficient background information about case study site prior to commencing data collection. A well-organized set of case data will facilitate the task of analyzing the case study evidence in order to address the research goals effectively. The case study data must be documented and organized as it is collected.

The case study protocol presented in Section D.2 in Appendix D summarizes how different data collection options were identified upfront in the case study protocol for each of the main themes and levels of the case study. Interviews were the most significant data collection approach employed in this study. All other evidence was used only to augment and corroborate interview data, which was the main input to data analysis. The following

sections will first describe and justify the use of interviews it will then present the case study protocol, in summary.

7.3.1 Interviews as an Approach

Interviews are a common source of case study information (Yin, 2009) and they can be open ended, semi-structured, structured or survey type. Interviewing was considered appropriate for the goal of the study, which was exploratory and qualitative (McCracken, 1988). Interviews as a technique to qualitative research are descriptive as they reveal the nature of certain situations, settings, processes, relationships, systems, or people. Interviews are a process of coordination: information is obtained by the candidate through eliciting questions; and provided by the case site's participants through the provision of answers. Interviews have various advantages: self-generated responses may be more effective in complex issues and lead to more thoughtful responses.

This study is an exploratory case study with the main concerned of understanding of shared services for ICT, the issues or failure factors, success factors and benefits related to shared services initiatives or related sharing arrangements in the ICT Centre(s) in public universities in Malaysia. Hence, this study used a primarily semi-structured interview approach as described in Chapter 3 (see Section 3.4.2.2). The interviews yielded information from several approaches undertaken during the interview sessions. These included open-ended questions in a semi-structured format (pre-planned through a detailed case protocol), seeking understanding and interpretation through conversational techniques. The candidate audio recorded all responses, and recorded observations and related reflections (in pre-designed field note templates). The following section describes some of the core elements of a successful interviewing process, which was employed in this study.

7.3.1.1 Interview Content

All interviews followed the same structure and format as pre-specified by the case protocol (see Section D.2 in Appendix D), commencing with an open discussion on the goals of the study and how the university fit in the bigger picture. Subsequently, the shared services topic were introduced (for the first time), and the respondents' opinions on the overall relevance and importance of identified themes were sought. This approach enabled the candidates to obtain more information for the study context (see Section D.3 in Appendix D for further details).

The ability of the interviewer to: (1) put the interviewee at ease, (2) be alert and sensitive to any ‘new insights’ that may arise during the interview, and (3) probe further when required, or to take a different angle, all can influence the quality of data gathered from an interview significantly. The candidate has not had training or experience in interviewing prior to this study. Hence action was taken to increase her interviewing skills with: (1) a comprehensive review of relevant literature, (2) very detailed interview protocols designed, (3) interview-test rounds conducted with colleagues and her principal supervisor of this study, and (4) the pilot case study phase provided an excellent sand-pit for hands-on exposure to the method.

As mentioned above, it is very important to put the interviewee at ease. Hence, all interviews completed in Malaysia were conducted in the national language – Malay Language almost at all the time of the interview session (as described in 3.4.2.2), as the respective case participants felt more comfortable using the language. The audio recordings of these were transcribed, translated to English³⁸, and analyzed within the qualitative data analysis tool; NVivo as discussed in Chapter 3 (see Section 3.5.3).

7.3.2 Interview Protocol

Whenever possible, interviews were conducted with multiple stakeholders in the ICT Centre of the Malaysian University, specifically the ICT Director, Deputy ICT Director and ICT Project Leader. The candidate had a key contact person or gatekeeper (as described under ‘Access Strategy’ section 3.4.2.2.2 in Chapter 3), at each ICT Centre, who assisted with the identification of the candidate case studies (shared services initiative or ICT projects that are similar with sharing arrangements in the university) and interviewees. A ‘contact list’ (see Section D.4.1, Appendix D) was designed and maintained between the candidate and the key contact person. Interviewees were selected on the basis of the primary role they played within the selected shared services initiatives and their assumed capacity to provide relevant details.

When an individual was nominated, she/he was initially contacted by the candidate by email and the email copied to the key contact person, introducing the purpose of the case study and seeking for the cooperation of the individual (see Section D.4 in Appendix D for further details). Arrangements were made to interview the selected people with the assistance of the key contact person, who organized the logistics (i.e. time and venue) of the interview,

³⁸ All recorded interviews were first transcribed word to word (written text of the interviews) in Malay Language (national language). Later these interview transcriptions were translated to English for the purposes of analysis, write-up, and (external) dissemination.

liaising with the candidate and the interviewee(s). The time requested for each interview was within the range 60-90 minutes. The candidate ensured that the time limit was not exceeded and arrangements of each interview were at the convenience of the interviewee, which was intended to maximize cooperation.

The goal of the interview is to deeply explore the respondent's point of view, feelings and perspectives. In this sense, the interviews yield information. The *data collection*; (how the interviews were conducted) in this study was always inductive, which means that the candidate did not refer to any prior framework in the data collection process. As stated in Chapter 1, prior research on shared services (in particular within IS) is very scarce (see Chapter 5 for further details), hence the inductive approach was chosen in designing the interview questions as *“If there is not enough former knowledge about the phenomenon or if this knowledge is fragmented, the inductive approach is recommended”* (Elo & Kyngäs, 2008, p. 109). Several approaches were taken during the interview sessions. The questions were designed and worded as open-ended questions so that case participants cannot simply answer yes or no, but must give further details about the topic (see case study protocol in Section D.2 for the examples of open-ended questions used in the study). Although there were some pre-planned questions to ask during the interview, the candidate tried to allow questions to flow naturally, based on information provided by the case participants. Hence, the candidate used semi-structured format in designing the questionnaires. The candidate did not insist upon asking specific questions in a specific order. In fact, the flow of the conversation determined the questions asked and those omitted, as well as the order of the questions (see case study protocol in Section D.2 for the examples).

Furthermore, the candidate tried to interpret what is heard, as well as sought clarity and a deeper understanding from the respondent throughout the interview. The candidate tried to be conversational during the interview conduct. This allowed smooth transitions from one topic to the next during the interview sessions. The responses were recorded, typically with audiotape and written notes (i.e. field notes – see Section D.6 in Appendix D). Besides all non-verbal behaviours, further thoughts that were observed and the related reflections were recorded on the field notes as they occur. These additional observations helped the candidate to further denote important information related to the study.

A semi-structured interview was chosen where questions were carefully designed to provide adequate coverage for the purpose of the study. Major questions were developed in the form of general statements which was then followed by a sequence of sub-questions for further probing as discussed in Chapter 3 (see Section 3.4.2.2). These questions were designed to achieve the identified objectives for each case level in this exploratory case study (please refer Appendix D in Section D.3 for further details). These questions were

posed to help the candidate to understand the ‘shared services for ICT’ in the Malaysian HE sector and to better understand the issues, success factors and failure factors related to shared services in HE.

Field notes were used during the overall interview conduct. These consisted of self notes by the candidate, on any impressions that occurred during field visits and data collection (see sample field note templates used – as presented in ‘field notes’ of case study protocol presented in Section D.6, Appendix D). These were primarily used to keep track of ‘ideas’ that were generated and as a list of ‘to-do items’, for the subsequent data collection efforts. For example, these field notes were often used to adjust the questions/ wordings in the protocols of the interviews that were to follow (i.e. by probing interviewees on specific aspects that were identified within these notes).

Sometimes the information of these field notes were extracted and entered as memos in the case database. However, the candidate was aware that they were impressions which were prone to candidate bias. Hence, while they were used as input to fine tune data collection procedures and augment the understanding of the data collected, they were not included in the final analysis of the case data.

All interviews were electronically recorded and transcribed, with the prior informed consent of the participants (see Section D.11 in Appendix D). Permission was also sought from the University’s ethics committee (see Section D.10 in Appendix D for details). This equipped the candidate with a complete and accurate account of the interview for subsequent analysis.

7.3.3 Target Respondents

The study would entail mainly qualitative evidence from documents and interviews. Though the evidence collection is expected to be evolutionary, and thus not entirely predictable, every effort was made to minimize demands on university staff- specifically in the IT Department/Centre. Agreement on a small number of meetings/interviews was sought well in advance; these meetings were professionally organized. Below is the list of universities targeted:

- 1) UTM (Universiti Teknologi Malaysia)
- 2) UMP (Universiti Malaysia Pahang)
- 3) UiTM (Universiti Teknologi Mara)
- 4) UTeM (Universiti Teknologi Melaka)

5) UKM (Universiti Kebangsaan Malaysia)

The interviews were sought the participation of stakeholders (the major decision maker or key contact person – see Section D.4.1 in Appendix D for contact details for each university) who influence, or are influenced by, existing and potential sharing arrangements in ICT projects. Then, the major decision maker was contacted. A high level interview protocol (including intended questions) was circulated to agreed participants well in advance (please refer to the attachment the exploratory questions). If there is not enough data from the above universities OR there is an interesting sharing arrangement between the above universities with other organization, these organizations outside these universities were contacted/ approached in this study and the same protocol will be followed.

After contacting all universities as listed above with a short briefing and making a series of follow-up calls through electronic mails and telephones for around two months, feedback from only 3 universities were received: UTM, UTeM and UMP. As shown in Table 7.1, the access given and the time constraints caused the number of interviews to vary between sites. Some universities allowed many of their staffs to be interviewed while others limited the access to only a few designated persons. For instance, the interview with the UMP was conducted solely with the Deputy ICT Director as the access was limited and the position of ICT Director was currently in the state of Acting Director. In another example, the interview with UTeM was lowest due to the time constraints in collecting data within the expected timeframe. In addition, the scheduled times were changed at least twice for the interview with the ICT Director due to the nature of their work. This affected the actual time schedule and planned data collection. Nevertheless, the completed interviews did bring along some useful insights. As more data was collected from the UTM, as opposed to the other sites, this became the primary site within the multiple case studies.

Table 7.1: Summary overview of the interviews conducted in Malaysia HE Institutions

Respondent Position		Malaysian HE			Total
		UTM	UTeM	UMP	
Top Management	ICT Director	1	1	-	2
	Deputy ICT Director	1	1	1	3
Project Leader		4	-	-	4
Total		6	2	1	9

7.4 PARTICIPATING ORGANIZATIONS AND PARTICIPANTS

Case studies were conducted in three public universities in Malaysia, namely:

- 1) Universiti Teknologi Malaysia (UTM),
- 2) Universiti Teknologi Melaka (UTeM), and
- 3) Universiti Malaysia Pahang (UMP).

Several criteria were sought for when selecting these case sites for this study as presented in Section 7.2.3 earlier. First the case sites (organizations) are briefly introduced, followed by an introduction on the case sites' participants that were included in this study. In this study, UTM was chosen as the primary site for the following reasons:

- 1) they had been implementing the different services and applications, with sharing arrangements for a while
- 2) UTM ICT Project Leaders holds leading roles in relevant inter-organizational sharing initiatives at national level. Hence are recognized to be in the leading-edge for ICT solutions for public universities in Malaysia and they were willing to take part in the study
- 3) their geographical proximity to the candidate's study place, which assisted in the feasibility of the data collection phase.

7.4.1 Case Site 1: Universiti Teknologi Malaysia (UTM)

Universiti Teknologi Malaysia is the oldest public engineering and technological university in Malaysia and is known by the abbreviation **UTM**. Universiti Teknologi Malaysia (UTM) specializing in Engineering and Technology ever since its inception in 1904. UTM has two campuses. The main campus in Skudai, was the first university in the state of Johor. It has an area of 1.222 km², the second largest public university after Universiti Putra Malaysia (UPM). The branch campus, Jalan Semarak, in Kuala Lumpur with an area of 0.18 km² accommodates Diploma students.

UTM is an innovation-led and graduate-focused Research University. The student population consists of more than 15,000 full-time undergraduate students, more than 6,000 enrolled on distance learning programmes as part-time students and more than 8,000 postgraduate students in various fields of specialization. Out of this, more than 2,000 are foreign students.

With a strength of more than 2,000 academic staff, of which more than 200 are foreign graduate faculty members, UTM continuously strives to develop and enhance quality academic and professional programmes of international standard and global recognition. UTM consists of 23 faculties, 28 Centre of Excellence, and 23 administrative and strategic units.

The Centre of Information and Communication Technology (CICT) is one of the UTM’s administrative and strategic units which provide the administrative infrastructure to support the work of the university. The CICT is responsible for ensuring that staff and students have access to teaching, learning and research resources by: providing the University’s IT infrastructure; acquiring, developing and supporting new and emerging technologies and systems; and providing access to millions of digital resources across the University’s campuses. CICT is continually developing and delivering new initiatives by extending access to the University’s network, CICT services and support digital resources, and by developing and supporting the delivery of e-learning.

As a primary contributor in supporting UTM’s IT Infrastructure, CICT provides many IT services which enable UTM to achieve its mission to be a leader in the development of human capital and innovative technologies that will contribute to the nation’s wealth creation. Hence, the CICT is responsible for the ICT infrastructure, including the voice and data network, network security, and the University’s e-mail and desktop systems. Dedicated teams provide support to faculties and central support services. It is responsible for the University’s portal strategy and provides faculties and departments with web development services and support for developing e-learning courses and modules. The centre has the largest computer hall in the country and also supports more than 2,000 internet-connected computers available to all students in open-access computer laboratories throughout UTM, in the library and in residential colleges. As the custodian of all IT matters at UTM, CICT offers a wide range of services, from contributing to developing quality student-centered learning support system to providing opportunities for research collaborations to ensuring the success delivery of critical day-to-day administrative operations namely: (1) Teaching and Learning Support System, (2) Research Support System, and (3) Management Support System. Table 7.2 below list the main services offered by CICT.

Table 7.2: Services offered by CICT, UTM

	ADMINISTRATIVE OPERATIONS	LIST OF APPLICATIONS/SERVICES
1	Teaching and Learning Support System	<ul style="list-style-type: none"> • Institutional Repository (UTM-IR) • e-Learning Management System (Main Campus) (International Campus) • Learning Portfolio Support System (e-Portfolio) • Academic Portal

		<ul style="list-style-type: none"> • Students Email • Academic Information Management System (AIMS) • Online Lecturer Appraisal • UTMotion (Video and Podcasts Sharing System) • UTMShare (Online Documents Collaboration and Files Sharing System) • UTM Press Portal • Student ICT Service Centre
2	Research Support System	<ul style="list-style-type: none"> • Malaysian Research Networks System(MYREN) • High Performance Research Computing Grid System • Open Source Software Initiatives • Virtualization Servers (Servers for Software Development Works)
3	Management Support System	<ul style="list-style-type: none"> • Email System (Staff) • Staff Information System • Staff Directory System • Attendance System • Leave System • Security Unit Information System • Student Financial System • Student Activity System • Student Disciplinary System • Residential Registration System • Students Examination Results Slip System (eSLIP) • Students Subjects Registration System • Student ID System • Medical Clinics System • Alumni System • PC Security (Antivirus and Malwares) • PC Software (Downloads)

7.4.2 Case Site 2: Universiti Teknikal Malaysia Melaka (UTeM)

Universiti Teknikal Malaysia Melaka is the pioneer in the use of the ‘Practice and Application Oriented’ teaching and learning method for tertiary level technical education in Malaysia and is known by the abbreviation **UTeM**. UTeM is the 14th public university in Malaysia. UTeM was established on December 1, 2000. It was formerly known as Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM) before being rebranded to university status on February 2, 2007.

The university currently operates from three campuses, the Main Campus in Durian Tunggal; Industry Campus in Ayer Keroh; and City Campus within Melaka. Currently, two faculties, Electrical Engineering and Electronics, and Computer Engineering are in full operation at the main campus. At present, most of the university’s activities take place at the Industry Campus. The third campus, the City Campus is in the heart of Melaka City. The student population consists of more than 8,000 full-time undergraduate students and more

than 550 postgraduate students in various fields of specialization. Out of this, more than 100 are foreign students.

UTeM has 754 staff that consists of local and international academic staff. With these numbers of academic staffs, UTeM boasts strengths in technical fields – namely Engineering, IT, and Management Technology. UTeM has cemented a reputation of being a source of high-quality engineering graduates with the capability of meeting the requirements of high-tech industries. UTeM also has research competencies in areas that it has identified as being key to enhancing the University’s unique proposition and also contributes to the nation such as Green Technology, Systems Engineering, Human-Technology Interaction, and Emerging Technology. UTeM consists of 6 faculties, 2 Centre of Excellence, and 13 administrative units.

The Computer Center is one of the administration units in UTeM. UTeM Computer Centre is responsible to provide an IT environment to contribute to academic excellence and efficient management. Updated and adequate IT facilities such as campus-wide network is very important to upgrade the quality of learning processes and to produce quality graduates, increase the quality of research & development, increase the efficiency of administration in order to make UTeM community becomes knowledgeable in doing their work effectively and efficiently.

The main objective of UTeM Computer Center is to create an IT environment which can contribute to excellent academic environment and efficient management. In order to create a connected learning environment, UTeM recently implemented a 20Gbps (gigabit-per-second) network infrastructure powered by Cisco in its Durian Tunggal campus. Hence, UTeM is the first university in Malaysia to roll out such a robust campus-wide network, UTeM aims to be a model for other universities in the country in the planning and implementation of ICT.

“This move is consistent with the Malaysian government's education policy, as announced by the Ministry of Education, which called on educational institutions to embrace ICT as the main tool for teaching and to ensure that the education ICT practices in Malaysian schools meet international standards.”

(ICT Director, Mohd. Isa Md Dom, Computerworld Singapore, March 7, 2011)

UTeM Computer Centre provides a wide range of services or application which are: (1) Administration and (2) Management Information Systems. These services enable the UTeM Computer Centre to manage all computerized planning at department/faculty/centre/unit in line with the vision and mission of UTeM. Table 7.3 below list the main services offered by CICT.

Table 7.3: Services/applications offered by Computer Centre, UTeM

	ADMINISTRATIVE OPERATIONS	LIST OF APPLICATIONS/SERVICES
1	Administration	<ul style="list-style-type: none"> • Managing office administration <ul style="list-style-type: none"> ○ Filing System ○ Letter ○ Circular ○ Leave • Financial <ul style="list-style-type: none"> ○ Financial budget ○ Position budget • Human Resource Management <ul style="list-style-type: none"> ○ Training ○ Discipline • Staf performance appraisal • Staf posting • Property declaration • Meeting/training/workshop secretariat • Office security • Staff examination • Annual report • Office supply
2	Management Information System	<ul style="list-style-type: none"> • Acknowledging, setting up, managing, implementing and maintaining information system for UTeM. <ul style="list-style-type: none"> ○ System development planning ○ Requirement Analysis ○ System Design ○ Database design ○ System Development ○ System Testing ○ Module integration ○ System Demonstration ○ System Documentation ○ User training ○ System Implementation ○ Information system operation & maintenance ○ Student intake ○ Student registration ○ Subject registration ○ Examination ○ Report and statistic ○ Staff annual salary statement generation ○ Monitoring staff/student attendance ○ Staff information submission to Jabatan Perkhidmatan Awam (JPA) ○ System supply cooperation ○ Data entry ○ Database management (backup, restore, recover, tune and reorganize) • MIS <ul style="list-style-type: none"> ○ Student Information System ○ Finance Information System ○ Human Resource Information System

7.4.3 Case Site 3: Universiti Malaysia Pahang (UMP)

Universiti Malaysia Pahang is a Malaysian government university and is known by the abbreviation **UMP**. It was formerly known as Kolej Universiti Kejuruteraan dan Teknologi Malaysia (KUKTEM). UMP was established as a public technical university by the Malaysian government on 16 February 2002. Incorporated under the Universities and University Colleges Act 1971 by the Royal Decree of His Majesty the Yang DiPertuan Agong, Kolej Universiti Kejuruteraan & Teknologi Malaysia (KUKTEM) was set up as a competency-based technical university, specializing in engineering and technology.

The UMP currently operates on a temporary campus in Gambang, Pahang. The temporary campus was formerly an industrial complex owned by Malaysia Electronic Corporation (MEC). The university's permanent campus is located in Pekan, which is currently still under construction. On 8 October, 2006, the Malaysian government has agreed to rename KUKTEM to Universiti Malaysia Pahang. UMP is relatively a new university and it has been categorised as a focused university, among 19 other public universities in Malaysia.

UMP is currently operating in two campuses. The Faculty of Mechanical Engineering and the Faculty of Electric and Electronics Engineering are located in a resort-like campus of Pekan. The rest of the faculties, academic centers and Centers of Excellence are operating in Gambang, a town strategically situated in the rapidly growing petrochemical and biotechnology hub. The two campuses are about 40 km apart. UMP consists of 8 faculties, 11 departments, 11 centers, 2 centre of excellence and 15 administrative units. UMP has 1324 staffs that consist of top management staffs (6), academic staffs (530) and non-academic staffs (788)³⁹. The student population consists of more than 7,000 full-time undergraduate students and more than 299 postgraduate students in various fields of specialization.

Center for Information and Communication Technology (PTMK) is one of the central responsibilities of the UMP. PTKM is known as Information Technology (IT Centre) at its inception in 2003. In line with the objectives and role as a centre of support to all ICT-related work activities in the UMP, the name was changed to the ICT Centre of Information & Communication Technology Centre (CICT) in 2006. CICT is responsible for providing ICT infrastructure, network, telecommunications, equipment and instruments conducive to the entire university community.

³⁹ Based on UMP Annual Report 2009.

As an ICT provider, PTMK should take a proactive initiative that serves as a major service centre in developing, supporting and maintaining information systems and applications that support the main operations centre electronically. Hence, the PTMK offers wide ranges of applications/services to UMP used for the needs of administrators, lecturers, students and candidates to facilitate business, academic and research on the UMP in line with the increasing number of users. Table 7.4 below list the main services offered by PTMK.

Table 7.4: Services/applications offered by PTMK, UMP

ADMINISTRATIVE OPERATIONS		LIST OF APPLICATIONS/SERVICES
1	Student Information System Management Unit	<ul style="list-style-type: none"> Information Management System (IMS) Student E-Community Student (Student, Parent) E-Community
2	Academic Information System Management Unit	<ul style="list-style-type: none"> Information Management System (IMS) Academic E-Learning (Student, Lecturer) E-Community Student (Student, Parent)
3	Staff Information System Management Unit	<ul style="list-style-type: none"> Information Management System (IMS) Human Resource and Administration E-Community (Staff) E-Learning (Lecturer)
4	Financial Information System Management Unit	<ul style="list-style-type: none"> Information Management System (IMS) Financial E-Community (Staff)
5	Research Information System Management Unit	<ul style="list-style-type: none"> Information Management System (IMS) Research

7.4.4 Case Sites' Participants

The three case sites were conducted in three ICT Centre/ Computer Centre in three different universities. As mentioned earlier, these three ICT Centers/ Computer Centers had been selected as case sites due to their accessibility and because they had been implementing ICT projects that are similar with sharing arrangement or have been implementing shared services initiatives for some time. Table 7.5 below presents the summary of case site's participants for the three universities.

Table 7.5: Case site's participants

	University	University Name	Role	Year of Experience (in current role)
1	UTM	Universiti Teknologi Malaysia	ICT Director	3 – 5 years
2	UTM	Universiti Teknologi Malaysia	Deputy ICT Director	5 – 10 years
3	UTeM	Universiti Teknikal Malaysia	ICT Director	More than 10 years
4	UTeM	Universiti Teknikal Malaysia	Deputy ICT Director	3 - 5 years
5	UMP	Universiti Malaysia	Deputy ICT Director	5 – 10 years

		Pahang		
6	UTM	Universiti Teknologi Malaysia	ICT Project Leader	5 – 10 years
7	UTM	Universiti Teknologi Malaysia	ICT Project Leader	5 – 10 years
8	UTM	Universiti Teknologi Malaysia	ICT Project Leader	5 – 10 years
9	UTM	Universiti Teknologi Malaysia	ICT Project Leader	5 – 10 years

The case site’s participant as presented in the table above were chosen based on the study’s research theme and objective (Benbasat, et al., 1987). For example, to understand shared services in the ICT environment in the Malaysian HE sector, the candidate need to chose the top management of ICT unit or centre. This refers to the role of the case participants as the leader of the unit or department. To examine the success or failure factors or issues related to the shared services initiative in the universities, the candidate need to choose the case participants that have at least more than a year will allow the candidate to capture and interpret the case participant’s insight and the underlying issues being faced by the case participants through their experience.

7.4.5 Overview of Sharing Arrangements as Observed from the Case Study Data

This section describes the sharing arrangement as observed from the case study data. Table 7.6 briefly presents these shared services types; illustrating; how they mapped to the combinations of the identified Dimensions (D1-D3) as presented in Chapter 6, and pointing to evidence from the cases (see Chapter 6 for further details on the dimensions used in this section). This positioning helped with identifying and positioning the different kinds of sharing arrangements. 5 different sharing initiatives are next discussed in further detail, as illustrative examples of the nature of sharing that took place within the case sites.

Table 7.6: Summary findings of sharing initiative from the multiple case studies.

ID	Sharing initiative	Involved Participants	What was shared	Arrangement Type			
				Type	D1: Has a Separate Organization al Entity	D2: Sharing boundary (Intra/ Inter- organizational)	D3: 3rd Party Involveme nt Exists
1.	MyLine	MOHE, UTM MyLine Taskforce, and all Malaysian public universities.	Resources (e.g. text-based and audio-visual learning materials), related processes, IT infrastructure, application, and knowledge & skills.	Type 2	Yes	Inter	No
2.	HRFin [UTM]	CICT, Registrar’s Office (Human Capital Management Division, Human Capital Development Division, and Organizational Management & Administration Division), and all faculties/units within UTM.	Data, Process, IT infrastructure, Application, and Knowledge & Skills.	Type 5	Yes	Intra	Yes
3.				Type 1	Yes	Intra	No
4.	SMSM – Human Resource Information System [UTeM]	CICT, Registrar’s Office (Human Resource Management Division and Human Resource Development Division), and all faculties/units within UTeM.	Data, Process, IT infrastructure, Application, and Knowledge & Skills.	Type 1	Yes	Intra	No
5.	IMS HR and Administration [UMP]	CICT, Registrar’s Office (Human Resource Management Division and Human Resource Development Division), and all faculties/units within UMP.	Data, Process, IT infrastructure, Application, and Knowledge & Skills.	Type 1	Yes	Intra	No
6	HRMIS (MOHE)	PSD, MOHE, and all public universities in Malaysia.	Data and process.	Type 2	Yes	Inter	No
7	IFMS - Integrated Financial Management	CICT and Bursary’s Office, and all faculties/units within UTM.	Data, Process, IT infrastructure, and Application.	Type 5	Yes	Intra	Yes

	System [UTM]						
8	Integrated Financial Information System – SMKB [UTeM]	CICT, Bursary’s Office, and all faculties/units within UTeM.	Data, Process, IT infrastructure, Application, and Knowledge & Skills.	Type 1	Yes	Intra	No
9	IMS Finance [UMP]	CICT, Bursary’s Office, and all faculties/units within UMP.	Data, Process, IT infrastructure, Application, and Knowledge & Skills.	Type 1	Yes	Intra	No
10	SAGA (MOHE)	MOHE, all Malaysian public universities, and Accountant General’s Department.	Data, Process, IT infrastructure, and Application.	Type 6	Yes	Inter	Yes
11	Public HEI’s Announcement Admission Information System	MOHE (in particular UPU), all Malaysian public universities (ICT Director of CICT and representatives from the Academic Management Division)	Data, IT infrastructure and Application.	Type 4	No	Inter	No
12	UTM Grid	CICT, UTM and all faculties/units within UTM.	IT Infrastructure and Knowledge & Skills.	Type 1	Yes	Inter	No
13	MyREN	MOHE, MDeC, and all public universities in Malaysia.	IT Infrastructure	Type 6	Yes	Inter	Yes

7.4.5.1 *Sample Sharing Initiative 1: MyLine*

One of the examples of sharing initiatives in Malaysian HE sector is MyLine⁴⁰ (see row 1 of Table 7.6). MyLine is a system, or more specifically an online resource centre for self-access learning⁴¹ for the tertiary students in the Malaysian public Higher Education. This self-access learning resource is developed and maintained by Universiti Teknologi Malaysia (UTM). The project is a collaborative initiative between the Centre for Teaching and Learning (CTL) and Centre for Information and Communication Technology (CICT) within UTM. The goal is to facilitate students in improving their English language communication skills. This initiative aimed to encourage students develops their independent learning skills and be responsible for their self development in the pursuit of excellence through the provision of self-access learning.

MyLinE offers a variety of activities and learning resources to improve language proficiency for academic and professional purposes. The activities and resources cover academic reading, writing, speaking and listening, study skills, grammar, forum, and information related to various fields of study and profession. MyLinE offers a vast collection of resources for text-based and audio-visual self-access language learning (i.e. ‘English for business and study skills’, and ‘rest & relax with English’). The materials are continuously upgraded and updated to ensure continuous interest in the programme and to meet the variety and growing needs of the users in learning English language.

MyLinE, which began at UTM’s online resources for learning English, and was first introduced to UTM students in 2006. MyLinE captured the interest of the Ministry of Higher Education (MOHE) and was later expanded into a shared resource among all the public universities in Malaysia⁴² where the sharing took place across public universities in Malaysia and MOHE. UTM launched MyLinE, at the national level in September 2008.

With a grant of RM 4.5 million from the ministry itself, work began with the leadership of a *task force* set for this project which comprised of several entities namely MOHE, UTM MyLine Taskforce and the representatives from all public universities in Malaysia. The UTM MyLine Taskforce involved staff from the CTL (comprised of the English Language Unit, the Department of Modern Languages, and the Multimedia Department) and staff from the CICT within UTM. Each of the public universities also has

⁴⁰ Further details on MyLine can be refer in <http://myline.utm.my/> and <http://www.teslmalaysia.com/online-resources-for-learning-in-english>

⁴¹ Self-access learning resource allows your students to do extra work on their own in order to develop their skills, to revise aspects of their work, and to undertake remedial work when faced with problems in their language development.

⁴² See MyLine in the Malaysia national news (in national language - Malay language) - http://www.utusan.com.my/utusan/info.asp?y=2008&dt=0917&pub=utusan_malaysia&sec=kampus&pg=ka_04.htm&arc=hive

their own MyLine committee and this committee acts as the representatives at national level (see MyLine Organization Chart⁴³ in Figure 7.1⁴⁴). The role of CICT in MyLine, was to provide support in terms of infrastructure. CTL was also responsible in defining and maintaining standards for MyLine. Each university that collaborated with UTM and MOHE needed to maintain their own users in terms of addressing problem in using the system.

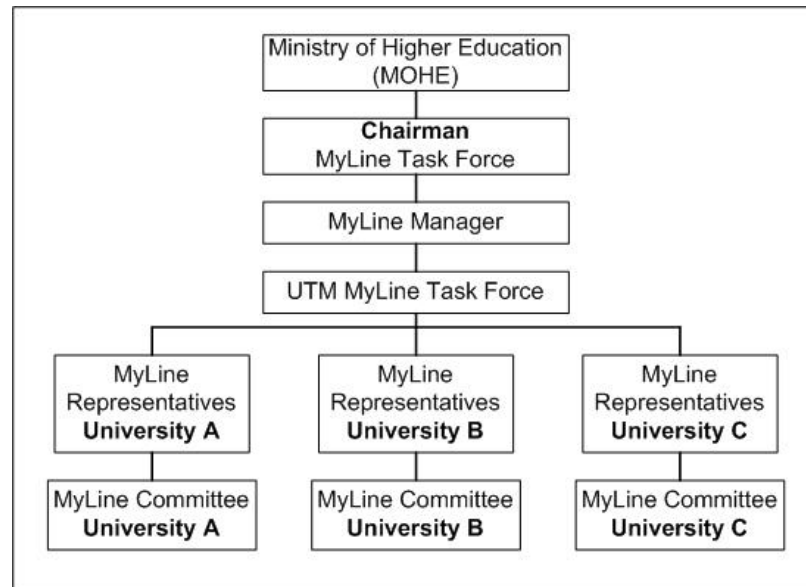


Figure 7.1: MyLine Organization Chart

MyLine’s achievement has attracted the interest of a number of International universities (e.g. Taibah University, Madinah International University and Bandung) and organizations other than public universities (e.g. the Malaysian Examinations Council, Department of Polytechnic, KPT) who seek consulting services from the MyLine Taskforce to develop the learning portal as MyLine.

This sharing initiative started as a **Type 1** (Internal Shared Service Centre), where there was a separate entity (which is CICT) responsible to provide the sharing initiatives, the sharing boundary was within CICT, CTL, and all faculties/units within UTM and there was no third party involved. It later evolved to a **Type 2** (shared service centre – alliances/consortium), where there was a separate entity - which is MyLine Taskforce responsible to provide the sharing initiatives, the sharing boundary was between MOHE, UTM MyLine Taskforce, and all Malaysian public universities. There was still no third party involved.

⁴³ Further detail see <http://myline.utm.my/myline/mod/resource/view.php?inpopup=true&id=4014>

⁴⁴ Extracted and translated from <http://myline.utm.my/myline/mod/resource/view.php?inpopup=true&id=4014>

7.4.5.2 Sample Sharing Initiative 2: Human Resource Information Systems (HRMIS)

Human Resource Information Systems (HRMIS) (see row 2-5 of Table 7.7) is an example of sharing arrangement initiative first implemented within a single university and then later also across public universities. HRMIS is an application or online solution for the data entry, data tracking, and data information needs of the Human Resource department/unit, such as recruiting, payroll, time and attendance, appraisal performance, and performance record within a university.

Findings from the multiple case studies show that the each case site had implemented their own Human Resource Management Information Systems (HRMIS) in their university respectively. Table 7.7 depicts some examples of HRMISs implemented in each case site. Each of the HRMISs implemented in the different case sites had different capabilities, which meant that different modules had been developed to facilitate the university in managing the processes related with the human resources department respectively. Basically there are two types of staff groups that need to be considered when designing the HRMIS for the university; (1) academic staff and (2) non-academic staff. The requirements for the two types of staff are different particularly when it comes to formal evaluation processes (e.g. appraisal performance).

Table 7.7: HRMIS implemented in the case sites

ID	Case Site/ Institutions [HR system's name]	Description
1	UTM (HRFin)	<p>There are two version of human resource information systems implemented in the UTM: (1) HR Information System and (2) HRFin.</p> <p>1.1) HR Information System HR Information System is a web-based application which has been developed by CICT with the collaboration of the Registrar's Office. The role of CICT in this sharing initiative is to provide the infrastructure and maintenance of the system, while the Registrar's Office is responsible to provide the flow of the process and make sure the requirements provided meets the university's procedures. This sharing initiative had third party involvement; where the system has been outsourced to the third party vendor. There are so many issues raised related with the implementation of this sharing initiative and the top management decided to enhance the system. The top management decided to expand the collaboration with the Bursary's Office and develop the system internally.</p> <p>1.2) HRFin This system is an enhancement system of HR Information System described earlier. HRFin is a web-based application which has been developed by CICT with the collaboration of the Registrar's Office (particularly division from Human Capital Management Unit, Human Capital Development, and Organizational Management &</p>

		<p>Administration Division), Bursary's Office, and all faculties/units within UTM. The role of CICT in this sharing initiative is to provide the infrastructure, system development and maintenance, while the Registrar's Office is responsible to provide the flow of the process and make sure the requirements provided meets the university's procedures. This system is a platform for the university's staffs to obtain, apply, manage, and update any information or processes or activities related with human resource which consist of three main modules⁴⁵. There were no third parties involved in this case.</p> <p>This sharing initiative started as a Type 5 (Internal Shared Service Centre with third party), where there was a separate entity (CICT) involved in managing the sharing initiatives, the sharing boundary was internal which involved units within the university, and there was a third party involved. It later evolved to a Type 1 (Internal Shared Service Centre where), where there was a separate entity (CICT) involved in managing the sharing initiatives, the sharing boundary was internal which involved units within the university, and there was no third party involved.</p>
2	UTeM (Human Resource Information System - SMSM)	<p>SMSM is a web-based application which has been developed by Computer Centre with the collaboration of the Registrar's Office (particularly division from the Human Resource Management and Human Resource Development) and all faculties/units within UTeM. The role of Computer Centre in this sharing initiative is to provide the infrastructure, system development and maintenance. While the Registrar's Office is responsible to provide the flow of the process and make sure the requirements provided meets the university's procedures. The main goal of this system is to automate all activities related with human resource processes and therefore the SMSM consist of 17 modules in realizing the main goal. There were no third parties involved in this case.</p> <p>This example can be classified as a Type 1- Internal Shared Service Centre where there was a separate entity (Computer Centre) involved in managing the sharing initiatives, the sharing boundary was internal which involved units within the university, and there was no third party involved.</p>
3	UMP (IMS HR and Administration)	<p>IMS HR and Administration is a web-based application which has been developed by PTMK (IT Centre) with the collaboration of the Registrar's Office (particularly division from the Human Resource Management and Human Resource Development). The role of PTMK in this sharing initiative is to provide the infrastructure, system development and maintenance. While the Registrar's Office responsible to provide the flow of the process and make sure the requirements provided meets the university's procedures. The main goal of this system is to automate all activities related with human resource processes and therefore the IMS HR and Administration consist of 41 modules in realizing the main goal. There were no third parties involved in this case.</p> <p>This example can be classified as a Type 1- Internal Shared Service Centre where there was a separate entity (PTMK) involved in managing the sharing initiatives, the sharing boundary was internal which involved units within the university, and there was no third party involved.</p>

⁴⁵ The three main modules have sub-modules within them.

Most of the case sites used the IT⁴⁶ internally (i.e. HRMIS) with the collaboration of the HR department/unit and the CICT/Computer Centre/IT Centre within the university, building intranets to improve business processes. However, in 2010, the Public Service Department of Malaysia (PSD) has captured the interest of using IT to work more closely with others in particularly the public universities. Hence, the public universities were mandated to use the HRMIS provided by the Public Service Department of Malaysia (PSD).

HRMIS is a system provided by Public Service Department of Malaysia (PSD) with collaboration of the State Secretariat Offices (SUK) and Ministries of Malaysia (including MOHE). This system provides a single interface for government employees to perform HRD functions effectively and efficiently in an integrated environment. This system has been implemented in all Ministries and SUK, in Malaysia (Kaliannan, Raman, & Dorasamy, 2009; McPherson & Ramli, 2004; Mohd Ariffin, 2011). In 2010, all public universities had been mandated to use the HRMIS by PSD for managing the process of retirement and pension payments to retirees from August 1, 2010. The purpose of the mandated use of HRMIS across public universities was to provide specific data required by PSD based within a specific standard format. Several issues were raised in the implementation of this;

“We found out that the existing HRMIS (provided by PSD) does not cover range of academic staff requirements in staffing processes”
(Deputy ICT Director, CICT- UTM)

“Human Resource Information System, HRMIS <provided by PSD> – we are not using this system but we just provide the data <personal records>.”
(Deputy ICT Director, Computer Centre - UTeM)

This example of sharing initiative for **Type 2** (shared service centre – alliances/consortium), where there was a separate entity; which is PSD, responsible to provide the sharing initiatives, the sharing boundary was between PSD, MOHE, and all Malaysian public universities, and there was no third party involved.

7.4.5.3 Sample Sharing Initiative 3: Integrated Financial Information Systems (IFIS)

Integrated Financial Information System (IFIS) is an example of a sharing initiative implemented within the <which one> university and also across public universities. IFIS is a shared application or software, used to input and track financial and accounting data. Using

⁴⁶ For instance, publishing e-forms and accompanying workflow processes in the system.

the system, the user can generate a wide range of reports such as lists of transactions, internal organizational documents, account statements, receivables analysis, payables analysis, etc.

Findings from the multiple case studies show that all case sites had implemented their own version of an IFIS in each university respectively. Table 7.8 [ID 1-3] depicts examples of such Financial Information System implemented in each case site.

Table 7.8: Integrated Financial Information Systems (IFIS) implemented in the case sites

ID	Case Site/ Institutions [IFIS system's name]	Description
1	UTM (Integrated Financial Management System - IFMS)	<p>IFMS is a web-based application which has been provided by CICT with the collaboration of the Bursary's Office. The role of CICT in this sharing initiative is to provide the infrastructure and maintenance of the system, while the Bursary is responsible to provide the flow of the process and make sure the requirements provided meets the university's procedures. This sharing initiative had third party involvement; where the system has been outsourced to the third party vendor.</p> <p>This sharing initiative is an example of Type 5 (Internal Shared Service Centre with third party), where there was a separate entity (CICT) involved in managing the sharing initiatives, the sharing boundary was internal which involved units within the university, and there was third party involved.</p>
2	UTeM (Integrated Financial Information System - SMKB)	<p>SMKB is an application which has been developed by Computer Centre, in collaboration with the Bursary's Office. The role of Computer Centre in this sharing initiative is to provide the infrastructure, system development and maintenance, while the Bursary's Office is responsible to provide the flow of the processes and make sure the requirements provided meets the university's procedures. The main goal of this system is to facilitate the management of university's finance. There were no third parties involved in this case.</p> <p>This example can be classified as a Type 1- Internal Shared Service Centre where there was a separate entity (Computer Centre) involved in managing the sharing initiatives, the sharing boundary was internal which involved units within the university, and there was no third party involved.</p>
3	UMP (IMS Finance)	<p>IMS Finance is a web-based application which has been developed by PTMK with the collaboration of the Bursary's Office. The role of PTMK in this sharing initiative is to provide the infrastructure, system development and maintenance. While the Bursary's Office is responsible to provide the flow of the process and make sure the requirements provided meets the university's procedures. The main goal of this system is to facilitate the management of university's finance. There were no third parties involved in this case.</p> <p>This example can be classified as a Type 1- Internal Shared Service Centre where there was a separate entity (PTMK) involved in managing the sharing initiatives, the sharing boundary was internal which involved units within the university, and there was no third party involved.</p>

In 2005, the Accountant General's Department of Malaysia embarked Standard Accounting System for Government Agencies (SAGA) Expansion Project, to encourage all federal statutory bodies which included the Malaysian public higher education institutions, to implement SAGA. SAGA is a computerized accounting package designed to fulfill the needs of all financial organizational requirements. The main goal of this initiative is to assist government in making effective decisions, for instance in the Malaysian public universities case, the implementation of SAGA will assist MOHE to produce a report (standard format) according to the required format (meets the SAGA standard) which can be further audited.

SAGA is a system provided by the Accountant General's Department Malaysia in collaboration with the State Secretariat Offices (SUK) and Ministries of Malaysia (including MOHE). This system has been implemented in all local government, statutory bodies and Islamic councils. This sharing initiative had involvement of third party vendor, Century Software (M) Sdn. Bhd⁴⁷ - provider of the SAGA initiative. However, only several public universities implemented the SAGA system, as SAGA was unable to meet the requirements of certain public universities in managing their financial information systems.

This is an example of **Type 6** [shared service centre – alliances/consortium (with third party)], where there was a separate entity which is PSD responsible to provide the sharing initiatives, the sharing boundary was between PSD, MOHE, and all Malaysian public universities, and there was a third party involved.

7.4.5.4 Sample Sharing Initiative 4: Public HEI's Announcement Admission Information System

Public HEI's Announcement Admission Information System is an example of sharing initiative that involved the collaboration between MOHE and all public universities in Malaysia. This sharing initiative is for the MOHE [in particular a unit called Unit Pusat Unit (UPU) within MOHE] to announce the result of student admission to the public HEI in Malaysia. This system is developed and maintained by Universiti Teknologi Malaysia (UTM). Initially the project was a collaborative initiative between the CTL and Academic Management Division at UTM. The system was developed to assist UTM to announce the result of admission to the UTM.

This system captured the interest of the MOHE, especially since the Malaysian government decides that the intake of students to the universities should be implemented in a

⁴⁷ See <http://www.censoft.com/cshb/about/csm/> for further details on provider of the SAGA Initiative.

centralized manner throughout Malaysia via UPU⁴⁸. Therefore the system was later expanded into a shared application among all the public universities in Malaysia for the announcement purposes.

The implementation of this sharing initiative involved the collaboration between the MOHE, ICT Directors of each public university and also the representatives from Academic Management Division from each university. This system is maintained and managed by MOHE, Universiti Utara Malaysia (UUM), and UTM. Besides that MOHE provides all data and information related to applications for admission to the university.

This sharing initiative started as a **Type 1** (Internal Shared Service Centre), where there was a separate entity (which is CICT) responsible to provide the sharing initiatives, the sharing boundary was within CICT and Academic Management Division within UTM and there was no third party involved. It later evolved to a **Type 4** (Inter-organizational shared services) shared services type. The sharing boundary was between MOHE, and all Malaysian public universities. There were no third parties involved in this case and they did not have a separate entity overlooking the sharing arrangement, instead the system provided is maintained by UTM, UUM and MOHE.

7.4.5.5 Sample Sharing Initiative 5: UTM Grid

Grid computing is an example of a sharing initiative which involved collaboration between CICT, UTM with all existing project clusters within UTM. The purpose of this sharing initiative is to combine all these clusters to form a massive repository of computing power to be tapped wherever it is needed most for UTM's researchers. The sharing initiative aimed to share resources to facilitate researchers to perform their job more quickly and to optimize the use of resources that are not fully utilized.

In this initiative, the necessary equipment for this sharing initiative has been provided by CICT, UTM. The future plan (in progress) for this initiative has additional storage for High Performance Computing (HPC) with a minimum of 15 TB, connecting the UTM Grid with other clusters/HPC in UTM and connected with MyREN⁴⁹ (Malaysian Research & Education Network) as depicted in Figure 7.2.

This example can be classified as a **Type 1**- Internal Shared Service Centre, where there was a separate entity (CICT) involved in managing the sharing initiatives. The sharing boundary was internal which involved units within the university. There were no third

⁴⁸ Starting this point, all applications that have been made will be processed by the UPU with collaboration from all public universities.

⁴⁹ For further details please see <http://www.myren.net.my/>

parties involved in this case. However, in later years, this sharing arrangement evolved to **Type 2** (Shared Service Centre – Alliances/Consortium) where there was a separate entity which is the MyREN responsible to provide the sharing initiatives, the sharing boundary was between MOHE, Multimedia Development Corporation (MDeC) and all Malaysian public universities, and there was a third party involved.

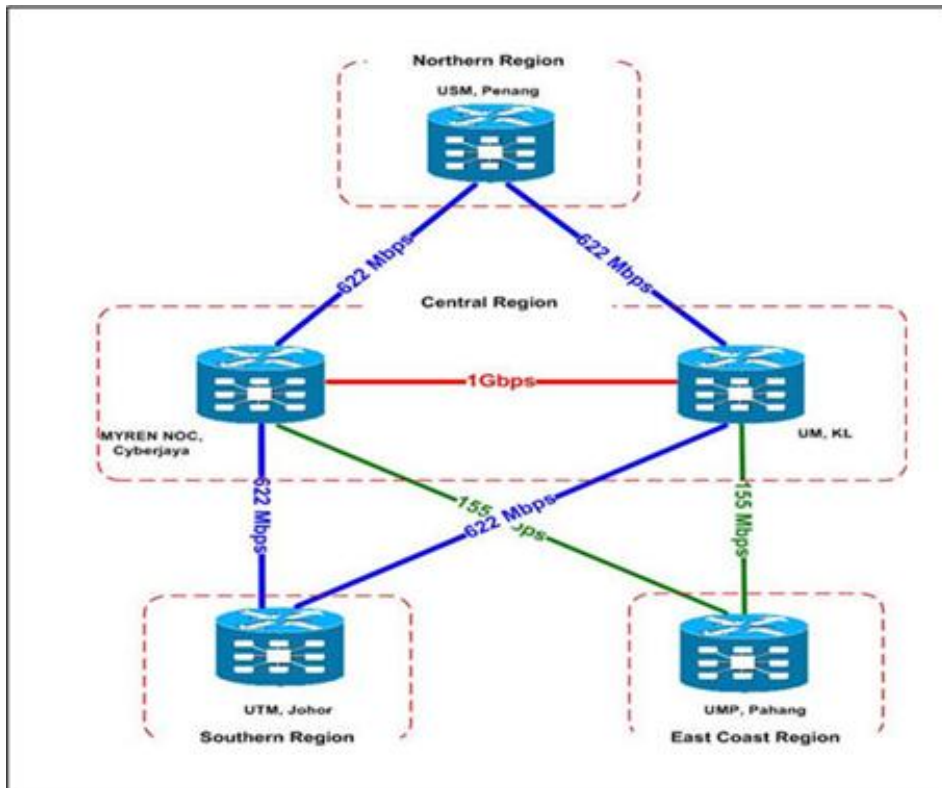


Figure 7.2: Grid connection with MyREN⁵⁰

75 DATA ANALYSIS PROCEDURES

“The analysis of Case Study evidence is one of the least developed and most difficult aspects of doing case studies” (Yin, 2009). The analytical aspects of the case study method is considered the least developed and hence the most difficult case study phase (Tellis, 1997). Eisenhardt (1989) comments *“a huge chasm often separates the data from conclusions”*. This section aims to avoid this gap by clearly demonstrating the procedures used to derive the conclusions.

A comprehensive literature review on case study methodological publications was conducted by the candidate in the quest for addressing this issue within this study. Advocates

⁵⁰ Extracted from <http://www.myren.net.my/network/domestic-network>

of case study research recommend analysing data as they are collected. Hence there is a frequent overlap between data collection and data analysis (Eisenhardt, 1989).

This section presents how the qualitative data analysis tool NVivo has been employed in the multi-phase case study as initially introduced in Chapter 3 (Section 3.5.1). The main purpose of this section is to provide the reader an introductory overview on how the tool will be set up to analyze the data to support the intended goals. The data *collection* of this study was inductive in nature which means the candidate used open ended questions and probed the interviewees to elicit further details (see the interview questions in Section 7.3.2). However, in the data *analysis* phase, the candidate used a mix approach; which combined both inductive and deductive approaches. The data was first analyzed inductively to derive preliminary themes from within the case data alone, and the findings were then subject to frameworks base on literature and earlier phases of the study (i.e. Chapters 2, 5 and 6) - hence a deductive influence, to further fine tune and justify the themes identified. This is further described within the ‘Approach’ sections of Chapters 6B-D, as each of the different core outcomes is presented.

Chapter 3 Section 3.5 described the use of NVivo across the thesis phases and also introduced specifically how NVivo was used as a tool to support the data analysis of the case study phase. This chapter will expand on this. The next sections discusses the approach and techniques used within Nvivo to analyze the interviews conducted and closes with a description of nodes and the pre-codification scheme that was used in analyzing the case data.

7.5.1 Getting Ready to Use NVivo for the Case Data Analysis

As presented earlier in Chapter 3, NVivo was chosen as software to assist in analyzing the open ended qualitative data analysis. An existing NVivo database⁵¹ was used and extended for this analysis, where the data of each new case site was incorporated to the database. The input for the case data analysis is the interview transcripts. The interview transcripts were saved in text format and imported into NVivo directly. All the interview transcripts were maintained within NVivo’s Document view. The documents were saved by interviewers’ name- to make the later referencing and tracing back the data to its origin easy.

Attributes are properties assigned to nodes or documents. Once attributes are defined, each document or node will have specific values for each attribute. These attribute values

⁵¹ The existing database refers to the database that had been used in the exploratory study phase (i.e. task 4.0) phase, particularly in Chapter 5.

can be numeric, string, Boolean or date-time type. These attributes can be usefully applied for better data management and effective searches. The NVivo 'Query' functions can be used to search for strings, coding patterns or attribute values in the project database. These features enable the user to search for patterns across their data.

Pre-determining what is important to capture and report is a critical aspect in producing the case study report. As depicted in Figure 3.6, a set of empty nodes were already created, to assist with the analysis targeted at addressing the goals of this phase. These empty nodes reflected the structure of the interview questions developed⁵² in the exploratory case study. Those nodes are listed and briefly described below:

1) **Understanding of Shared Services**

A parent node to capture the understanding of shared services and what are different types of sharing arrangements observed in the Malaysian HE context. This was mostly for contextualizing purposes (and was used to derive the descriptions of the illustrative examples of the shared services projects presented in Section 7.4.5 above)

2) **Benefits of Sharing**

A parent node to capture any benefits of these ICT projects in relation to shared services (or sharing arrangements).

3) **Success Factors of Sharing**

A parent node to capture any success factors associated with such ICT projects in relation to shared services (or sharing arrangements).

4) **Issues/challenges Factors**

A parent node to capture any factors related with issues or failures or challenges associated with such ICT projects in relation to shared services (or sharing arrangements).

As the interviews were conducted in an open ended semi structured way, the answers were mentioned all over the interview transcription. Hence, the data were captured as they were mentioned in the analysis (not necessary following the answers to each question).

As stated in Chapter 1, the candidate commenced her studies with the *primary goal* of answering three research questions⁵³. Hence, in order to answer these questions, the

⁵² Appendix D presented a copy of this protocol that was developed to guide the conduct of the exploratory case study.

candidate documents the research findings which are presented in the following subsequent chapters:

- Chapter 8: Benefits for ICT related shared services: insights from the HE sector (in relation to RQ1)
- Chapter 9: Shared services success model (in relation to RQ2)
- Chapter 10: Issues with shared services in the HE sector (in relation to RQ3)

7.5.2 Codifying the Data

Miles and Huberman (1999) discuss two methods of code creation: (1) inductive approach and (2) deductive approach as discussed in Chapter 3 (see Section 3.4.3.2.1). The first method, which is preferred by inductive researchers, involves coding the data without a priori knowledge and this is often called in-vivo coding, in NVivo Parlane. The second method uses an established list of codes. These usually come from the data collection instrument, based on prior literature or observations. As discussed in Section 7.5 (Data Analysis Procedures) above, a mixed approach was used at most times in the data coding applied in this study. The coding procedures followed for each of the main research outcomes of this study are presented in ‘Approach’ Sections of chapters 8-10 (sections 8.2, 9.2 and 10.2 respectively).

The coding took place in multiple rounds across multiple levels. First, all the main themes of interest were set up as Level 1 tree nodes (see Figure 3.6). Any content within the interviews that related to any of these topics were coded under these level 1 nodes. Coding took place by capturing relevant statements. This phase coded any direct or implied existence of the themes within the data [whenever the construct was mentioned or hinted at, it was coded with the relevant node(s)]. The same statement, if appropriate and related to more than one topic area, was captured in multiple places/ nodes. The candidate coded all the content to level 1 nodes. 3 interviews were coded by a second coder (her principal supervisor) to confirm the coding, *“To enhance the interrater reliability of the categories, independent coders should identify categories separately and then come to an agreement about the final categories and subcategories with the research team”* (Schilling, 2006, p. 33). The coding consistency needs to be checked after the sample is coded. If the level of agreement is low, the coding rules must be revised. Most of the time, the candidate discussed

⁵³ **P-RQ1:** *What are the benefits of ICT shared services in the Higher Education Context?*, **P-RQ2:** *What are ICT shared services critical Success factors, in particular in the Higher Education Context?*, and **P-RQ3:** *What are issues that can hinder ICT shared services, in particular in the Higher Education Context?*

and resolved the issues related to any doubts or problems concerning the definitions of categories, coding rules, or categorization of specific cases with the second coder (her principal supervisor).

The content coded under each node was then reviewed and analyzed in depth to derive the reported findings. The data coded under each node was re-analyzed, to make sure that they did belong to the coded node/ theme. Furthermore in this phase of codification, these extracted details were analyzed deeper to derive the intended findings. This second level analysis was conducted fully by two researchers, to maintaining inter-coder reliability. If the inter-coder reliability did not meet the set standard(s), the coding was redone- discussing areas of doubt till consensus was derived

The interpretations were based on the content coded (i.e. the observed meaning from the quotes), the number of sources (i.e. in how many interviews the coded content was mentioned in) and the actual number of coding-references (i.e. how many separate instances of this concept was mentioned across the sources)

Each transcript took approximately four hours to analyze initially (for Phase 1), and was double checked with another detailed analysis round (end to end) to ensure the data was correctly coded and no further validation points could be extracted. Two coders independently coded the content until agreement was reached. Inter-coder reliability was maintained in the findings reported herein. NVivo calculates percentage agreement individually for each combination of node and source. Percentage agreement is the percentage of the source's content where the two users agree on whether the content may be coded at the node. The percentage agreement was more than 90% across all coded content (all Kappas were over .85). In general, an agreement percentage of 80% or more is considered acceptable in most situations, as are kappa coefficients of .80 or greater (Lombard, Snyder-Duch, & Bracken, 2010).

7.5.3 Analyzing the Data

Case study data tends to be qualitative in nature, and thus qualitative data analysis methods should be applied. As mentioned earlier, the case study is intended to serve an exploratory function to understand the notion of shared services. Analyzing qualitative data is an iterative process, where one will find oneself adding, deleting and moving nodes around the project as the understanding of the data changes. Analysis then proceeds from an interpretation of these codes and what they mean for the larger for the purpose of this exploratory case study. By the end of the coding phase as described earlier, the data gathered were organized in individual 'folders' (nodes) within the NVivo database at multiple levels.

As mentioned earlier, a mix approach was employed to analyze the case study data (see Section 7.5) and the research findings are presented in the next three subsequent Chapters 8-10, (see Section 8.3, 9.3 and 10.3). Table 7.9 provides an overview of the mixed; (deductive and inductive) approaches employed in those chapters.

Table 7.9: Applied approach in analyzing the case study data

Thesis Chapter	Data Analysis Approach	Findings
Chapter 8 Benefits for ICT related shared services: insights form the HE sector.	The Interview data were analyzed within NVIVO 9.0 in a deductive manner. This chapter used prior shared services frameworks to support the coding and analysis of benefits identified from the case data. This was essentially a further validated and extended version of the shared services benefits framework presented by Janssen and Joha (2006b).	This chapter presents shared services benefits categories and also presents their interrelationships through a Benefits- Chain. This forms an important and useful foundation for practice and academia, which enables a clearer understanding of benefits and supports the better realization of benefits from shared services.
Chapter 9 Shared services success model.	The interview data were analyzed within NVIVO 9.0 in an inductive manner. Themes were captured via in-vivo inductive coding (coding with the key words identified within the text), at times supported and influenced by prior literature (hence a mixed approach). In this chapter, inductive and deductive approach was used to yield the study findings.	This chapter identifies important antecedents of shared services success. The study goes further, through combined a) inductive matrix intersection searching and b) deductive reference to relevant literature, inter-relating the antecedents in a preliminary theory of shared services success, all of which suggests important guidance for practice and valuable future research.
Chapter 10 Issues with shared services in the HE sector.	The approach used in this chapter is similar with Chapter 6C where a mixed approach was used to yield the study findings.	This chapter provides an evidence based overview of the issues pertaining to ICT shared services in the HE sector, as observed from the Malaysian HE sector. 8 important issues categories, namely; 1) Technological issues, (2) People issues, (3) Strategic issues, (4) Communication issues, (5) Costing and pricing concerns, (6) Poor project management, (7) Partnership issues, (8) Low adoption of sharing arrangement were identified together with their interrelationships. They form an empirically based awareness on the common issues of ICT related shared services in the He sector.

As discussed in Section 7.5.1, NVivo’s query facilities as depicted in Figure 7.3, in particular matrix intersection and proximity queries were used to analyze the data further.

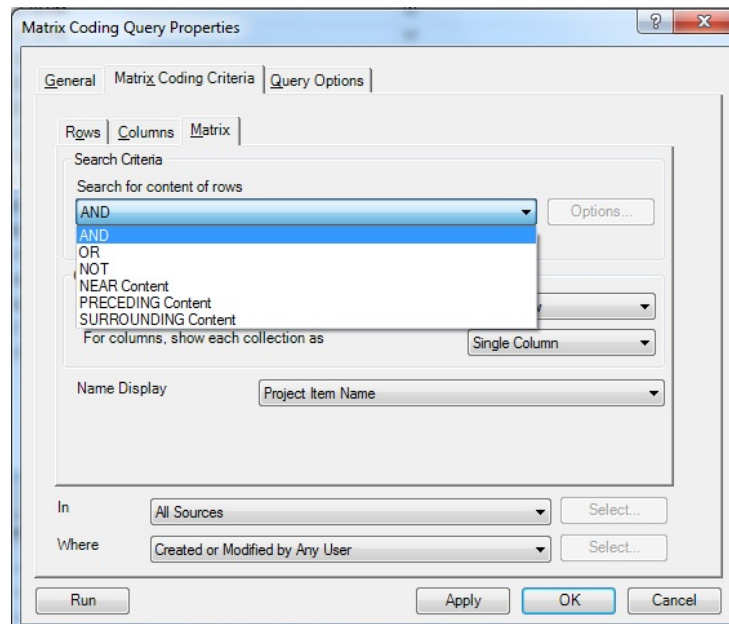


Figure 7.3: NVivo query functions

They were used to:

- 1) Confirm the constructs derived were somewhat unique to each other (or had a ‘part-of’ type relationship)
 - a. Identify areas of potential overlap between nodes. A basic ‘AND’ matrix intersection search was first conducted. When an overlap was identified, the content that was coded under both nodes was extracted and analyzed, simply by clicking on the cell(s) of the resulting Matrix Intersection search as depicted in Figure 7.4.
 - b. Identify if these constructs were actually different to each other, a basic matrix difference search (‘NOT’) was done with the two constructs identified.
- 2) Identify potential interrelationships within the constructs.
 - a. Matrix Intersection results (‘AND’) between hypothesized nodes that captured the constructs, can indicated possible overlap of the content coded (as above) or – depending on the nature of the coded content (i.e. evident by the quotes etc) can indicate a possible interrelationship between the coded content. It is very important that the case evidence is (i.e. quotes) are carefully reviewed to analyze such.

- b. Different proximity searches (as presented in Table 3.5, Chapter 3) can be conducted to complement the information gathered in the above step. The information extracted from these proximity tests sometimes supported the candidate to provide a more synthesized explanation to support the reasoning of the analysis process. In other words, to facilitate the candidate to seek potential relationship between the nodes (e.g. relationship (positive or negative) or a reciprocal-relationship).

Case Analysis - Benefits Interactio					
	A: 1. Strategic and Organisati...	B: 2. Political Motiv...	C: 3. Technical ...	D: 4. Economic M...	E: 5. (new) Pr...
1: 1. Strategic and Organisational ...	8	1	4	4	6
2: 2. Political Motives	1	3	0	0	0
3: 3. Technical Motives	4	0	9	7	7
4: 4. Economic Motives	4	0	7	9	7
5: 5. (new) Process Improvement ...	6	0	7	7	9

Figure 7.4: Resulted Matrix Intersection search

7.6 RELIABILITY AND VALIDITY

This section describes how reliability and validity were maintained within the exploratory case study approach.

Construct validity relates to the establishment of appropriate themes for the concepts being studied. It is often an area of case study criticism, mainly due to potential investigator subjectivity (Tellis, 1997). Construct validity was strengthened within this study through the use of multiple sources of evidence (multiple interviewee groups, and cross-checking interviews and documentary material), establishing a chain of evidence with a well-structured case database.

External validity refers to the extent to which the findings of the investigation can be generalized. In other words, the objective of this study has been to generalize the results of each individual case site to a broad understanding on shared services. External validity has been improved through the conduct of, three different case sites.

Reliability relates to the extent to which the investigation would achieve the same results if it were repeated. Reliability was enhanced through the use of a detailed case protocol and a structured case database. The articulation of the case study protocol is intended to provide sufficient detail about the concepts studied and the methods used that the research could be repeated. A record was kept of the specific processes followed in the

conduct of the case studies. Appendix D consists of a detailed case study protocol that was used for this study, and which can be adopted to replicate the study.

All relevant data (interview transcripts, research memos, university and project details, annual report, etc) were maintained in a 'case database' (Miles & Huberman, 1999; Yin, 2009), and close linkages between the research questions, evidence, interpretations and conclusions were maintained throughout the analysis. The qualitative data analysis tool NVivo 9.0 was utilized during this phase to capture, code, and report the findings of the case study.

7.7 CHAPTER SUMMARY

This concludes this chapter which was focused on presenting the design of the exploratory case study. The case has been described, as have the data collection methods, presented selecting cases and data collection procedures. Data analysis procedures have also been presented including the use of NVivo software as a research management tool, codification of the data and data analysis procedures. The next chapter, 8 to 10 presents the actual case study findings.

Chapter 8: Benefits for ICT Related Shared Services: Insights from the HE Sector

8.1 CHAPTER INTRODUCTION

Chapters 1- 6 of this thesis illustrated how shared services are proliferating, how organizations are adopting shared services, and how shared services are emerging as a domain of research. While such research has yielded valuable insights for both academe and practice, there is yet need to better understand those contingencies that should influence organizations' to move to shared services; to understand the underlying motives and anticipated benefits behind these decisions (adopted from Baldwin, et al., 2001 - who makes a similar argument for the outsourcing domain). An understanding of anticipated benefits of shared services and managing these, help organizations to better achieve target goals of implementing shared services, ultimately contributes to better exploitation of the arrangement (adopted from Braun, Ahlemann, & Mohan, 2010). As warned by Braun et al. (2005), many IS/IT projects fail to deliver the desired benefits, as a result of most organizations focusing on the implementation of technology rather than on the realization of anticipated benefits.

While shared services is deployed with the expectation of various benefits, a deeper review of what the actual intensions or objectives or motives of shared services are (especially in relation to IS), is an area requiring further investigation. Specifying organizational objectives/motives is known to be valuable, as specific objectives give direction, and focus attention and resources. The introduction of shared services is a highly consequential, strategic decision requiring long-term commitment and entailing substantial complexity and risk (Janssen & Joha, 2006b). Industry analysts stress the importance of understanding the objectives of shared services, e.g. Gartner (2008, p. 1) stating "*Make sure you know why you're implementing shared services*". A thorough understanding of its objectives/motives is vital for the progression of the field and will be the foundation for its advancement in practice and research. For example, shared services objectives/motives form the key input when designing a shared services decision support framework or for benefits-realization and evaluation of shared services initiatives.

The anticipated benefits are often in alignment with the actual objectives/ goals. If thought of from a project lifecycle view, objectives/ motives are the reasons an organization may consider shared services (which is at the start of the lifecycle), where as the benefits are

the outcomes (hence, are towards the end of the lifecycle) of such an initiative. Hence, while the focus of this work was to gain insights to the benefits of shared services, prior work that discussed motives/ goals of shared services were also integrated, as these highly aligned to anticipated benefits. It is also acknowledged that anticipated benefits are not the same as actual achieved benefits, [Janssen and Joha (2006b) also state so through empirical evidence]. Yet, any evidence of anticipated benefits were considered in this exploratory study that attempted to understand benefits of shared services (differentiation of anticipated and actual benefits is proposed as future work).

The implementation of a shared service can be viewed as “*a particular kind of sourcing arrangement with long term and strategic impact*” (Janssen & Joha, 2006b, p. 102). It is often driven by a series of complex, interrelated motives that should be well understood (Janssen & Joha, 2006b). Managing the benefits for shared services can be complex and challenging. First “*the promise of the SSC comes from a hybridization of traditional models aimed at capturing the benefits of both centralized and decentralized arrangements*” (Bergeron, 2003 cited in Janssen & Joha, 2006b, p. 104). Shared services should ideally combine the advantages of both centralization and decentralization, and this can create conflicts. Best practices associated with one motive can be in conflict with the best practices prescribed for other motives (Hirschheim & Lacity, 2000). Furthermore, “*the perceived expectations of SSCs are often high and go beyond realism as it is difficult to accomplish all motives*” (Janssen & Joha, 2006b, p. 104).

Prior studies that have looked at shared services benefits and or motives are limited. One such study is the work by Jansen and Joha (2006b), where they look at the motives of introducing a shared services centre in public administration. Using a motives framework from the outsourcing domain Baldwin (2001) as their a priori framework, they compare initial motives with those actually accomplished. This study has used their results (as described in the next section) as the a priori model for the investigation of shared services benefits in the HE sector. A study of shared services benefits specific to the HE sector is warranted as a means to further test and re-specify the framework, while also assessing its validity and generalizability to this new context. Studies that extend a model/framework, by altering the context, contribute to cumulative knowledge by reconfirming existing findings (Brown, Kelley, & Schwarz, 2006). Such “*studies contribute to an associated stream of literature via confirmation of existing knowledge and expanding cumulative knowledge*” (Brown, et al., 2006, p. 11)

Lorence and Spink (2004) argue that motives affecting outsourcing decisions are influenced by the contextual elements of the domain, and Yang and Huang (2000) conclude that different organizations will have different motives for outsourcing. Given that shared

services and outsourcing have many similarities (Janssen & Joha, 2006b, 2008; Ulbrich, 2006), the candidate infer that the HE sector, with its unique features (Burke, 2005), will have HE specific motives and thus warrants separate in-depth investigation.

Thus, the goal in this chapter is to address the primary research question (see Chapter 1, Section 1.3):

P-RQ1: *What are the benefits of ICT shared services in the Higher Education context?*

The remainder of the chapter first presents the approach employed in attention to this question, followed by presentation of findings. This chapter concludes with a summary discussion, acknowledgement of limitations, and several pointers to future work (work beyond the intended scope of this thesis).

8.2 APPLIED APPROACH

As stated earlier (see Chapter 1 and Chapter 7), one of the primary goals of the multiple case studies was to understand the related (anticipated) benefits of shared services in particular ICT related shared services in the HE sector. Chapter 7 presented how the case sites and case participants were identified, how the interviews took place and also discussed at a higher level how the analysis took place, in particular how the NVivo tool was used for coding the data and how it supported with the more advanced analysis (i.e. the validation of the success factors identified and their interrelationships). As Chapter 7 presented all the data collection, coding and analysis was conducted following a detailed protocol that was designed based on best practice guidelines observed from case study methodological literature. The primary input to the outcomes reported herein were the interview data (as introduced in Chapter 7), and the analysis was augmented and supported by insights obtained from other supporting resources (like the documentations extracted – as depicted in Appendix D, in D.1).

All relevant data (interview transcripts, research memos, documents about the sharing arrangement, etc.) were maintained in a ‘case database’ (Miles & Huberman, 1999; Yin, 2009), see Section 7.5.1.1 in Chapter 7 for further details. Throughout the analysis close linkages between the research questions, evidence, interpretations and conclusions were maintained supported by the qualitative data analysis tool NVivo 9.0.

A deductive approach was used when analyzing the shared service benefits (note that the interviews were however collected in an open ended, inductive manner). The candidate

sought to use prior shared services frameworks to support coding and analysis of benefits identified from the case data. In the early literature review phases of this study, a shared services benefits framework presented by Janssen and Joha (2006b) was identified. This had 4 categories of shared services motives namely; (1) strategic and organizational, (2) political, (3) technical, and (4) economic. Janssen and Joha's benefits framework was derived based on a single case study, and was primarily aimed at; identifying the motives of introducing the shared services centre investigated, and comparing the anticipated motives with those that were actually achieved. Janssen and Joha had used the results of Baldwin et al. (2001) which looked at motives for outsourcing, and they used this as a means to compare shared services and outsourcing motives. During the IS based archival analysis of shared services studies (see Chapter 5), the Janssen and Joha (2006) framework was used as a basis to map all directly and indirectly mentioned motives of shared services as observed from IS literature. This task resulted in some modifications and extensions to the Janssen and Joha's (2006) benefit framework in particular the introduction of 'Process Objectives' related motives. This revised framework resulting from the IS literature archival analysis effort (as presented in Chapter 5 - Section 5.5.2) was used in this phase/ chapter as the primary analysis framework (i.e. coding classification for the interview data).

Coding and analysis took place in multiple rounds. The main categories of the shared services benefits framework (as introduced above) was used as the primary classification categories in the detailed coding- enabling any new categories to also emerge – if supported with case evidence. Thus, the content captured under the 'Benefits' high level node (see section 7.5.2 which introduces these high level nodes), were mapped (coded) against the categories of the a-priori framework. This was done by two coders, maintaining inter-coder reliability of >85%. No new categories emerged. While coding at this level, re-occurring sub-themes that supported the observations were also grouped together (which were later discussed and confirmed by both coders - with an agreement percentage of 90%). The following section presents the findings of this phase.

8.3 STUDY FINDINGS

This section presents the findings from case study analysis, reporting on the observed benefits of ICT shared services in the HE sector. It first presents the different (anticipated) benefits for shared services, and then discusses how these different benefits are inter-related.

8.3.1 Anticipated Benefits for Shared Services as Observed in the HE Sector

Overall, five main categories of benefits were identified from the case study data, as graphically summarized in Figure 8.1.

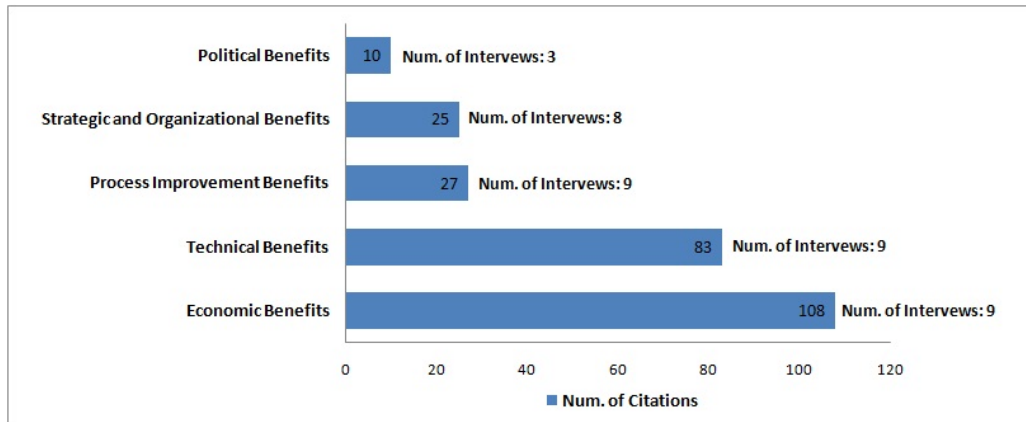


Figure 8.1: Overview of the shared services motives as observed from the case study data

As anticipated and as also observed from the archival analysis (see Chapter 5, Section 5.5.2) – Economic benefits were the most mentioned in the interviews. Financial and cost benefits are often put forward as the key reasons why organizations decide on various sourcing options (Baldwin, et al., 2001, p. 15). As argued in Chapter 5, Section 5.5.2, the case data also suggested that shifts to shared services are motivated by not only financial considerations, but also socio-technical - as illustrated by the other (non-economic) benefits instantiated by the case data. The following section discusses each of the different benefit categories. Table 8.1: Summary of benefits identified through the case data, provides further insights – illustrating the sub-themes that were mentioned frequently within each category (see columns 2) with supporting evidence from the case data (see columns 3-5).

8.3.1.1 Economic benefits

Economic benefits were the most cited (108 citations), with all nine interviewees mentioning this as a primary targeted aim of shared services. The data pointed to three specific sub-themes; Cost Advantages, Leveraging Resources, and Transparency in costs. *Cost Advantages* included general reduction of costs and overall cost efficiencies due to economies of scale. *Leveraging Resources* captured how costs can be reduced through better utilization of existing resources (e.g. pooling them), especially for operational tasks. *Transparency in costs* was the ability to show how and where costs occur, and was discussed almost as a side effect of having shared services.

Table 8.1: Summary of benefits identified through the case data

1	2	3	4	5
ID	Shared Services Benefit	Interviewees	Citations	Sample Evidence
1	Economic Benefits	9	108	
i)	Cost Advantages	9	71	<p><i>"for me the main benefits are reduced cost, able to control my resources"</i> <i>(ICT Director, CICT – UTeM)</i></p> <p><i>"we are able to avoid certain costs for the development of ICT projects when done through shared services... also able to avoid the cost of training and also time... We are able to lower the university's cost in terms of deploying and implementing the systems"</i> <i>(Deputy ICT Director, Computer Centre – UTeM)</i></p>
ii)	Leverage Resources	8	53	<p><i>"Reduction can be seen as one of the benefits and can be viewed in many ways. One of them is reduce cost - in terms of cost, we can reduce the operating cost. We can reduce cost through better utilization of resources. We also can reduce the duplication of efforts"</i> <i>(Deputy ICT Director, CICT – UTM)</i></p> <p><i>"No need to transfer the resources and no need to add extra resources. Whatever resources that CICT have, other units can use it.... it is lower our cost too as we don't have to maintain anything on our own such as hardware maintenance"</i> <i>(ICT Director, Computer Centre – UTeM)</i></p>
iii)	Transparency in costs	1	2	<p><i>"we are able to provide transparent budgeting and expenditure reporting for ICT across the university"</i> <i>(Deputy ICT Director, CICT – UTM)</i></p>
2	Technical Benefits	9	83	
i)	Standardise IT application development processes	4	20	<p><i>"The key excellent in information delivery is to standardize the central system and customize the delivery. From the view of system development, this means consolidating all your data into a central database and integrating it to allow users to access content through any application. Information delivery improvements from shared services arrangements may result from increased use of cross functional applications by enabling the integrated data... For those universities that use vendor products as their system, the systems were not integrated – I can observe that they have different interface environments from one system to another system. For me, in a sharing environment – standardization plays important role. Service is more reliable through standardization - easily to customize and configure in the future according to your specific needs and document flows"</i> <i>(ICT Director, Computer Centre – UTeM)</i></p>

ii)	Access to Technology and IT expertise	5	18	<p><i>"... latest technology obtained by them can be applied in the system development processes. In addition it help them to develop the system more effectively by sharing the knowledge and develop the systems that will meet the user requirements – kind a pooled experience here"</i></p> <p><i>(ICT Director, Computer Centre – UTeM)</i></p>
iii)	Better alignment of IT with business needs	3	13	<p><i>"In terms of sharing capability, this is looking at how the ICT projects will fit to your business objectives and how it will support the university strategy".</i></p> <p><i>(Deputy ICT Director, CICT – UTM)</i></p> <p><i>"The resources of many computers can be cooperatively and synergistically harnessed and managed as a collaborative tool towards one common objective - to serve the business needs"</i></p> <p><i>(Project Leader 1, CICT – UTM)</i></p>
iv)	Improved IT Opportunities	2	9	<p><i>"I think I can see that shared services organization is an option for the organizations to manage, control, maintain and update the cloud infrastructure... by sharing their resources, network bandwidth and storage can be consumed real-time in a more efficient manner by a number of users"</i></p> <p><i>(ICT Director, Computer Centre – UTeM)</i></p> <p><i>"I would say the main benefit is much more on the efficient use of idle resources. Jobs can be send work out to idle servers or even idle desktops.. Policies can be in place that allows jobs to only go to servers that are lightly loaded or have the appropriate amount of memory/cpu characteristics for the particular application... Jobs can be executed in parallel speeding performance"</i></p> <p><i>(Project Leader 4, CICT – UTM)</i></p>
3	Process Improvement Benefits	9	27	
i)	Removal of duplicate processes and related resources and tasks	9	16	<p><i>"We are able to avoid wasting time and available resources on redundancy effort... We also can reduce the duplication of efforts...and eliminate overlapping forms and paperwork"</i></p> <p><i>(Deputy ICT Director, CICT – UTM)</i></p> <p><i>"sharing avoids unnecessary duplication of effort during the maintenance process"</i></p> <p><i>(Deputy ICT Director, Computer Centre – UTeM)</i></p>
ii)	<i>Standardization of processes and functions</i>	6	8	<p><i>"Service is more reliable through standardization - easily to customize and configure in the future according to your specific needs and document flows"</i></p> <p><i>(ICT Director, Computer Centre – UTeM)</i></p>
4	Strategic and Organizational Benefits	8	25	
i)	Enable Collaboration	5	24	<p><i>"However, at one point universities in Malaysia should use sharing as a strategy to maintain independence for competitive advantages, but at the same time pursue collaboration for products and services that do not present a significant competitive differentiator... through sharing initiatives, we are able to engage with stakeholders across the university, including faculties and other departments and staff to create a collaborative, integrated ICT"</i></p>

				<p>environment”</p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p> <p>“it give opportunities for UTeM to collaborate with other universities and this might be able to improve cooperation for other matters”</p> <p style="text-align: right;"><i>(Deputy ICT Director, Computer Centre – UTeM)</i></p>
ii)	Professionalized service delivery	3	13	<p>“Where practicable, we need to consider options for streamlining the administrative operations <through sharing> to maximise the level and quality of administrative service, achieve cost savings, and look for ways of improving the quality of service in support of their teaching and learning, and research activities... sharing with integrated systems minimize the chances for data entry errors and conflicting data”</p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p> <p>“This also improves the quality of services through improvement of cross-functional coordination. For example – by using such systems, we are able to reduce the manual processes from 4 to 3 steps. This will reduce the time to get job done (i.e. cycle time) and avoid the duplication of effort. Furthermore it might also increase in percentage of tasks with no errors”</p> <p style="text-align: right;"><i>(Deputy ICT Director, Computer Centre – UTeM)</i></p>
iii)	Customer Orientation	3	6	<p>It improves customer service and help universities make more informed decisions.”</p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p>
5	Political Benefits	3	10	
				<p>“when UTM developed a product/ service that can be applied to all universities ... the ministry will recognized UTM as an outstanding university compared to others”</p> <p style="text-align: right;"><i>(ICT Director, CICT – UTM)</i></p> <p>“sharing moreover indirectly promotes UTM's name – when a system developed by UTM has been adopted by all public universities in Malaysia, in this case the MyLine System. This made UTM as the first public university as a reference ...that has been developed an in-house system that can be disseminated to other users - external to UTM...this has brought honour to UTM... The benefits are; successfully introduced UTM in Asia”</p> <p style="text-align: right;"><i>(Project Leader 1, CICT – UTM)</i></p>

8.3.1.2 Technical benefits

Technical benefits related to the objectives associated with Information and Technology which forms an important aspect in ICT shared services (the focus of this study). This, the second most cited category (83 citations), was also mentioned by all nine interviewees. The data suggested advantage from a *standardised IT application development process*, within shared services environments – and how this can facilitate data and information integration, and common interfaces, while at the same time reducing costs of ICT development and maintenance. *Access to Technology and IT expertise* was another main technical benefit that was mentioned, where applications, infrastructure and expertise are pooled through the sharing efforts. Sharing/ shared services also enables the institutions to *better align IT and its functionality to business requirements* and presents *improved IT opportunities*; like making use of cloud computing and grid computing.

8.3.1.3 Process improvement benefits

Implementation of shared services can have substantive impact on the business processes of involved parties, with improved processes noted both in the study (27 citations) and in prior research (Boh & Yellin, 2006; Goh, et al., 2007) as an important target goal of shared services. The *removal of duplicate processes and related resources and tasks* is one of the main process improvement related benefits. Shared services also encourage the *standardization of processes and functions*, which contributes to cost savings, improved services and better control over processes.

8.3.1.4 Strategic & organizational benefits

Strategic & Organizational benefits were mentioned by eight interviewees. As Table 8.1 depicts, three main sub-themes emerged for this category. The case data showed that *enabling collaboration* through shared services has direct and indirect strategic intent. *Professionalized service delivery* was also mentioned as a strategic imperative, where core and supporting processes and services can be delivered more efficiently and at a high standard. *Customer Orientation*, where a customer focus can be maintained for service delivery, was discussed as well within the case data. A number of other sub-themes were also mentioned, but seemed already to be encapsulated within the above mentioned three sub-themes (evident through analyzing the coded content in detail, where the same content was captured under different sub-themes). Due to this, and also as they were not highly instantiated, we did not consider them as separate sub-themes. Examples of such included;

competitive advantage (1 source - 2 citations), engagement with stakeholders (2 sources - 2 citations), and HR development (2 sources - 2 citations).

8.3.1.5 Political benefits

Political benefits were the least mentioned (10 citations) in the case data (similar to what was observed in the archival analysis – of Chapter 5). When mentioned, ‘Good will’ was emphasised, and it was more from the perspective of leading a sharing initiative (by developing services/ products that can be shared) - than from adopting shared services; being a shared services user.

8.3.2 Interrelatedness of Benefits

As Janssen & Joha (2006b) state, shared services are often driven by a series of complex, interrelated motives. These lead to and influence (anticipated) benefits, hence should be well understood. Once the benefits were identified and confirmed via case data coded by two coders (and inter coder reliability achieved- as discussed in the approach section above), potential interrelationships were investigated.

The case study data was searched for: (1) potential positive relationships, where fulfilment of one benefit can influence the fulfilment of another, (2) potential negative relationships, where realization of one benefit may conflict with the fulfilment of another benefit, and (3) potential reciprocal effects between two benefits, each of which can positively influence realization of the other. **Table 8.2** provides summary results derived by running matrix intersection⁵⁴ and proximity⁵⁵ queries using the NVivo tool. Investigating interactions between benefits suggested the preliminary shared services benefit-chain in Figure 8.2.

⁵⁴ A Matrix Intersection (‘AND’) search is a two-dimensional type of Boolean search made available through NVivo. It takes the searched feature from two collections at a time, and finds passages in the documents or nodes in which the search term is contained in both- thus indicating possible overlap and/ or relationships.

⁵⁵ A proximity search is a special kind of Matrix search within Nvivo, which allows the candidate to seek associations between nodes, “A proximity search finds passages with specific features which are close to each other” (Bandara, 2007, p. 377). Basically, proximity searches seek items that are near, precede or surround other items.

Table 8.2: Potential inter-relationships amongst the benefits - summary results

Motive Category	Economic	Technical	Process Improvement	Strategic & Organizational	Political
Economic					
Technical	✓ (a)				
Process Improvement	✓ (b)	○ (d)			
Strategic & Organizational	✓ (c)	✓ (e)	✓ (f)		
Political	-	-	-	-	

✓ A potential positive relationship, where fulfilling one benefit can subsequently influence fulfillment of another
 ○ A potential reciprocal relationship between two benefits, each of which can positively influence realization of the other

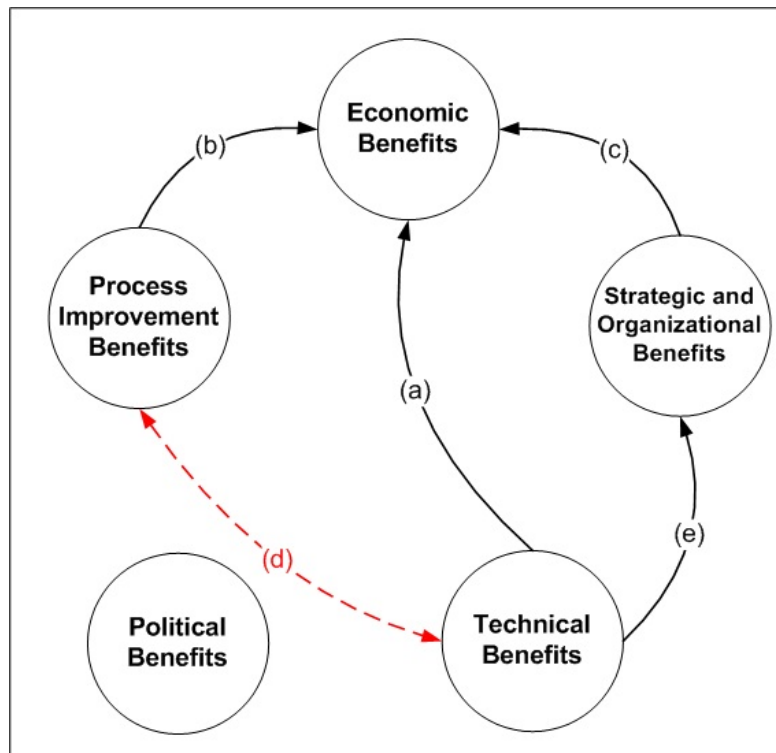


Figure 8.2: A preliminary shared services benefit-chain

Though literature e.g. (Hirschheim & Lacity, 2000) suggests some (anticipated) benefits can conflict (negative relationship), hence increase the challenge of managing benefits, analysis herein did not reveal such conflict. Rather, all relationships identified were positive - either one-way or two-way (reciprocal). It must be acknowledged that case study participants were not specifically asked about interrelationships and that results are limited to observations made from inductive data. Nonetheless, similar with Janssen & Joha's (2006) motives study, shared services are here seen (Figure 6C.2) to be driven by a series of complex, interrelated target benefits, prior understanding of which can usefully inform benefits priorities and management.

A relationship [see path (a)] was observed between ‘economic’ and ‘technical’ benefit categories; where participating entities can reduce costs through technical efficiencies, such as not having to create and maintain IT services and infrastructure:

*“Save cost which the faculties/units do not have to develop the same application to manage their staff information needs...this improves utilization of resources in terms of hardware, software and also staff
(Project Leader 3, CICT – UTM)*

*“the university no longer needs to develop the same application. The University may continue to use existing applications, thus saving costs”
(ICT Director, CICT – UTM)*

“other public universities also can save their cost. They can use existing resources. Existing resources provided by the UTM. What I mean here, resources refers to hardware and software, no need to develop a similar system, and they also can use the services of staff that is responsible for maintaining the systems”

(Project Leader 1, CICT – UTM)

The analysis showed how ‘process improvement’ can in turn influence the achievement of ‘economic’ benefits [see path (b)]. Interviewees referred to possible cost savings from elimination of duplication:

“Cost can be reduced by identifying the redundant effort...in terms of cost, we can reduce the operating cost. We can reduce cost through better utilization of resources”

(ICT Director, CICT – UTM)

Comments also pointed to cost savings due to the better utilization of related resources within different processes such as systems maintenance and development:

“the most important thing is make better use of existing hardware – this will save cost.

(Project Leader 4, CICT – UTM)

“In addition, there is no cost incurred by any university or UPU (one of the units in MOHE) in this project - can save a lot of cost by the use of existing infrastructure”

(Project Leader 2, CICT – UTM)

Collaboration identified as a ‘strategic & organizational’ benefit, can also promote cost reduction [see path (c)]

“Easier to collaborate with other organizations and the most important thing is make better use of existing hardware – this will save cost”

(Project Leader 4, CICT – UTM)

The data implied how ‘technical’ benefits (such as standardization and utilization of IT resources) and ‘process improvement’ benefits (such as standardization of processes and functions and removal of duplicate processes and related resources and tasks) work hand-in-hand, thus illustrating a reciprocal effect [see path (d)] between these two:

“the faculties/units do not have to develop the same application to manage their staff information. At the same time, this effort is able to avoid duplication in terms of developing the same application to be implemented in each faculties/units.... the shared HR system was able to promote the standardization of common processes”

(Project Leader 3, CICT – UTM)

“for example migrating to a common standardization systems — reduces the number of system setups, interfaces, security profiles, and manual workarounds, all of which streamline control design and testing processes”

(ICT Director, Computer Centre – UTeM)

As path (e) illustrates, the case study data described how shared IT systems can contribute towards obtaining strategic & organizational goals...

“shared systems like the grid can solve larger, more complex problems in a shorter time. Easier to collaborate with other organizations”

(Project Leader 4, CICT – UTM)

... thus, implying a potential link between ‘technical’ benefits (i.e. to share complex IT systems) and strategic & organizational intentions, in particular to harness collaboration. The case data showed that streamlining operations (via process improvements) enabled collaboration and professional service delivery which are core aspects of strategic & organizational benefits [see path (f)]

“Where practicable, we need to consider options for streamlining the administrative operations to maximize the level and quality of administrative service, achieve cost savings, and look for ways of improving the quality of service in support of their teaching and learning, and research activities.”

(Deputy ICT Director, CICT – UTM)

8.4 DISCUSSION

This study agrees with (Doherty et al., 2008, p. 85) who state *“it is unlikely that benefits will simply emerge, as if by magic”* from the introduction of shared services, and hence their realization needs to be carefully planned and managed. This study has the long term goal of developing a benefits realization framework for shared services within the HE sector. A benefits realization framework in this context is defined as; *the process of, and guidelines for, organizing, managing and realizing potential benefits arising from the implementation of shared services* (adopted from Ward and Elvin (1999)).

*“Identifying and Structuring”*⁵⁶ benefits is the first critical task in a benefits management process (Ward, Taylor, & Bond, 1996, p. 216). This chapter was dedicated to

⁵⁶ As stated in the Cranfield Benefits Management process model, *“one of the most widely used and cited models outlining the scope and nature of benefits management”* Braun, J., Ahlemann, F., & Mohan, K. (2010).

understanding the core benefits of shared services. Anticipated benefits and primary motives for implementing ICT shared services in the HE sector were used in this exploratory study, to identify benefits of shared services (both actual and anticipated). The case data was analyzed based on the benefits framework presented in Chapter 5, Section 5.5.2 which was an extension to the shared services benefits framework of Jansen and Joha (2006b). The case study confirmed that the ICT related shared services benefits from the HE sector (see Table 8.1 and Figure 8.1) were within the categories of: (1) Economic ; (2) Technical; (3) Process improvement; (4) Strategic & organizational; and (5) Political benefits.

A major problem with most prior work is that “they tend to be oriented towards the ‘what’, rather than the ‘how’: they focus on identifying the benefits that the project team anticipate [hope?] the resultant system will deliver, rather than attempting to understand how these desired outcomes will be realized” (Doherty, et al., 2008, p. 84). The study commenced by deriving a clear understanding of what benefits can be expected from shared services initiatives in the HE sector. This having been established (which was the scope and focus of this chapter), development of a comprehensive benefits realization framework to guide HE institutions in the management and realization of such benefits can proceed. The preliminary benefits chain derived from analysis of interrelationships observed in case evidence is a further step in this direction. Future work will also more closely investigate anticipated benefits versus actual obtained benefits (and reasons for any differentiation).

85 CHAPTER CONCLUSION

This chapter presented on the benefits for ICT related shared services from the HE sector. The main purpose of this chapter was to address research question **P-RQ1**: “*What are the benefits of ICT shared services in the Higher Education Context?*” The chapter presented the approach employed in attention to this question, followed by the findings. The chapter concluded with discussion and several pointers to future work (work beyond the intended scope of this thesis). The next chapter presents a similar analysis to the investigation of success factors in ICT shared services of the HE sector.

Chapter 9: Success Factors for Shared Services

9.1 CHAPTER INTRODUCTION

The adoption of shared services is a continuous process that evolves and transforms over time if it is to offer its full potential benefits to the organization. Hence, when organizations embarked on its shared services transformation, lists of lesson learned or critical success factors is needed to help organizations to achieve a successful shared services implementation. Understanding success and failure factors can form a strong foundation when deriving procedural guidelines on the design, implementation and sustainability of shared services (Borman, 2008a; Burns & Yeaton, 2008). Such understanding will also help to promote further research needed in the area.

Studies of success factors are common in emerging areas as they can provide guidance to practice on what to emphasize and what to avoid. For example, studies have identified a range of factors influencing the perceived success of systems implementations, including social, organizational, cultural and political aspects (Bandara, et al., 2005; Gable, 1999; Love & Irani, 2004). A better understanding of these factors is important for the progression and success of shared services in practice; for example, to help better understand the nature of shared services organizations (A.T. Kearny, 2004) and to support the design and deployment of shared service structures and governance (Firecone, 2007).

Rigorous research attention to shared services success factors has been limited. Section 5.5.5 in Chapter 5 provided a detailed list of shared services success factors based on an archival analysis of the Information Systems literature. Walsh et al. (2008) present shared services success factors based on lessons learnt from studying the non-profit sector. Burns & Yeaton, (2008) presents a report that assesses lessons learned from government organizations that have successfully implemented shared services. Becker et al. (2009), though not a critical success factor study, discuss factors that are important preconditions for shared services. Borman (2008a) highlights several attributes that could be considered prerequisites for shared services success; a high level classification of shared services centre features raised in the interviews. These studies, though pertaining directly or indirectly to shared services success factors, have had limitations. In several studies factors were identified as a secondary outcome [i.e. as part of lessons learnt from a shared services implementation (e.g. Walsh, et al., 2008) or as a side contribution where the study focus was on a different topic (e.g. Janssen & Wagenaar, 2004) discuss shared services success factors as

they present a framework that analyses motives to use a shared services centre)] with minimal focus on the investigation of the factors. Often the empirical evidence provided is narrow [i.e. limited to a single case study (e.g. Borman, 2010a) or archival analysis (e.g. Miskon, Bandara, Gable, & Fieft, 2011b)] or highly contextual [e.g. in the e-government context (e.g. Janssen & Wagenaar, 2004), in the non-profit Sector (e.g. Walsh, et al., 2008)].

The success (or failure) of shared services is a critical concern as it can entail large scale investment and involve fundamental organizational change, thus impacting people, processes and technology. Anecdotal evidence (Craike & Singh, 2006; Janssen & Joha, 2006b; Lawson, 2007; Shah, 1998) suggests that many organizations have difficulty understanding the context and details of shared services. Practitioner reported outcomes for shared services initiatives have been mixed (e.g. Accenture, 2005; Deloitte, 2007b), suggesting value from an academic investigation of the phenomena, yet academic research has paid little attention to shared services best practices. In particular, the candidate notes a dearth of discussion on shared services success factors, i.e. those factors whose existence implies a benefit to the shared services initiative and/or factors that are critical to improve the level of success experienced [adopted from Rockart (1979) and Sedera et al. (2001)].

Thus, the goal in this chapter is to address the research question (see Chapter 1, Section 1.3):

P-RQ2: *What are the success factors for ICT shared services, in particular in the Higher Education?*

The remainder of the chapter first presents the approach employed in attention to this question, followed by presentation of findings. The chapter concludes with a summary discussion, acknowledgement of limitations, and several pointers to future work (work beyond the intended scope of this thesis).

9.2 APPLIED APPROACH

As stated in Chapter 7, one of the primary goals of the multiple case studies was to inductively identify potential success factors of shared services identified from the case data, and later substantiate them with observations from the literature. The study focused on ICT related/ supported shared services within the Higher Education context. A literal replication approach (Yin, 2009) was employed, where similar organizational settings are considered; public universities in Malaysia. Like universities elsewhere, Malaysian universities were experiencing many

environmental drivers encouraging a shared services approach (e.g. increased competition, reduced funding, pressures for operational efficiency improvements).

As described in Chapter 7, a case study protocol was designed, carefully documenting all procedures relating to the data collection and analysis phases of the study [thereby mitigating risks of several known potential weaknesses of the case study method (Benbasat, et al., 1987)]. Qualitative data collection mechanisms including in-depth interviews, and content analysis of existing documentation were used to collect ‘rich’ evidence about the shared services initiatives and the respective higher education institutions investigated. Observations and documentation were used to augment and corroborate interview data, which was the main input to data analysis (see Section 7.3 in Chapter 7). All interviews followed the same structure and format (as pre-specified by the case protocol) see Appendix D and Section 7.3.2 in Chapter 7. All relevant data (interview transcripts, research memos, documents about the sharing arrangement, etc.) were maintained in a ‘case database’ (Miles & Huberman, 1999; Yin, 2009), as described in Section 7.5.1.1 in Chapter 7. Throughout the analysis close linkages between the research questions, evidence, interpretations and conclusions were maintained supported by the qualitative data analysis tool NVivo 9.0. Two coders independently coded the content until agreement was reached. Inter-coder reliability was maintained in the findings reported herein. See Section 7.5.2 for further details on codifying the data. Construct validity was strengthened within the study through the use of multiple sources of evidence, establishing a chain of evidence with a well-structured case database, and by having key informants review draft case study reports at the completion of data analysis at each case site. Predictive validity was increased through data analysis techniques such as pattern matching and explanation building (Yin, 2009). External validity, or extensibility of the findings, has been improved through the conduct of multiple cases studies.

9.3 STUDY FINDINGS

This section presents the findings from case study analysis, reporting on the observed benefits of ICT shared services in the HE sector. It first presents the different motives for shared services, and then discusses how the different motives are inter-related.

The Interview data were analyzed within NVivo 9.0 in an inductive manner. Themes were captured via in-vivo inductive coding (coding with the key words identified within the text), at times supported and influenced by prior literature. These themes were then grouped within meta-

categories (which subsumed the detailed set of initial themes) that formed the final set of success factors. Ten success factors were identified, namely:

- 1) Understanding of Shared Services and the Notion of Sharing
- 2) Organizational Environment
- 3) Top Management Support
- 4) IT Environment
- 5) Governance Procedures
- 6) Process Centric View
- 7) Implementation Strategy
- 8) Project Management
- 9) Change Management
- 10) Effective Communication

Table 9.1 presents a summary of the factors identified through this effort. While the table includes counts of citations and sources (interviews) as observed from the case data for each factor, the intent is not to imply degree of importance of a factor, but merely identification, for model/theory building purposes. To ensure the identified factors were as complete as possible, those that had very low citations were also included. The relative importance of these factors (within different contexts) needs to be investigated in future research. The results are discussed in detail below, each time also referring to prior literature (when available) for triangulation purposes.

9.3.1 SF1: Understanding of Shared Services and the Notion of Sharing

The case study data pointed to “understanding of shared services and the notion of sharing” as a critical element for success. In particular the data suggested that in order to successfully proceed with a shared services arrangement, the key stakeholders should (1) understand what resources are available within the participating entities (2) have a clear understanding of sharing requirements, and also (3) understand what can (and can not) be shared. The data indicated that sharing occurs best when; common processes and routine processes are those selected to be shared and the shared processes/ functions are those in demand (needed) by a majority of the participants.

Table 9.1: Summary of success factors identified through the case data

1	2	3	4	5
ID	Success Factors	Interviews	Citations	Sample Evidence
1	Understanding of Shared Services and the Notion of Sharing	5	25	
i)	Understand what resources are within the participating entities	2	3	<i>"Sharing this kind of system (in this context) can be realized when the other universities understand and accept exactly what we have in such a system"</i> <i>(Deputy ICT Director, CICT - UTM)</i>
ii)	Have a clear understanding of sharing requirements	2	5	<i>"... before proceeding with any sharing arrangement, it is important to have a set of university requirements"</i> <i>(Deputy ICT Director, CICT - UTM)</i> <i>"Sharing is a continuous process. Before starting... we need to have an agreement of common requirements agreed by all parties involved"</i> <i>(ICT Project Leader 3, CICT - UTM)</i>
iii)	Understanding what can (and cannot) be shared	4	18	
-	Sharing is best when: common processes are shared	2	9	<i>"we can move towards sharing or SS when the work flows within an application are similar between the universities Common processes are one of the important aspects of sharing activities. Common processes should be promoted and developed across universities for sharing"</i> <i>(Deputy ICT Director, CICT - UTM)</i>
-	routine processes are shared	1	3	<i>"Sharing has been most successful where the functions <shared> are relatively routine"</i> <i>(Deputy ICT Director, CICT - UTM)</i>
-	what is shared is needed by the majority	3	6	<i>"... indeed we will develop the system or the improvement when it is needed by majority of the units/faculties.... even though the instruction may come from the top management, I still make sure that kind of system/module will be used by all units/faculties that are related with that kind of system/module. That it is needed not only by one unit/faculty"</i> <i>(ICT Director, Computer Centre - UTeM)</i>
2	Organizational Environment	3	4	
i)	have process champions involved	2	3	<i>"Champions are very important for sharing initiatives – in particular their knowledge and experience in implementing certain business processes and projects related with the processes. Successful sharing initiatives require champions who are passionate about the project and willing to promote its benefits to others. These champions</i>

				<p><i>need to be identified and involved in the planning process of these sharing initiative"</i> <i>(Deputy ICT Director, PTMK - UMP)</i></p>
ii)	having prior relationships or corporations	3	3	<p><i>"The most important thing, there must be collaboration between public universities with projects related with sharing. Besides that, the public universities are willing to implement the sharing initiative and also share the responsibilities throughout the sharing implementation"</i> <i>(ICT Project Leader 1, CICT - UTM)</i></p> <p><i>"I would say and believe that relationship management is the key to building strong partnerships. For me, developing trust between internal units in UMP is fundamental to successful internal sharing initiatives and needs to occur before sharing the initiatives externally are implemented"</i> <i>(Deputy ICT Director, PTMK- UMP)</i></p>
3	Top Management Support	6	26	
				<p><i>"Support from top management is one of the important factors. Top management means the Ministry of Higher Education (MOHE)... Top management should encourage all universities to look into this and if possible share the resources amongst universities"</i> <i>(Deputy ICT Director, CICT - UTM)</i></p> <p><i>"Support from the top management is very important to make sure the implementation of these sharing projects can be implemented successfully. Without the support from top management these systems would not be possible to succeed"</i> <i>(ICT Project Leader 1, CICT - UTM)</i></p> <p><i>"the sharing activities occurred when there was a direction from the top management people – the Vice Chancellor. Several units in the university were sharing their processes by using one application. When there is a mandate from the top management, then several units will cooperate with each other to share any kind of services... Other than that, it is very important to have commitment and high level leadership such as MOHE or the university's top management to ensure the successfulness of these sharing initiatives across universities or within university"</i> <i>(Deputy ICT Director, PTMK - UMP)</i></p>
4	IT Environment	9	25	
i)	Centralised, standardised and integrated IT plat forms	5	22	<p><i>"The key to excellence in information delivery is to standardize the central system and customize the delivery....this means consolidating all your data into a central database and integrating to allow users to access content through any application. Information delivery improvements from shared services arrangements may result from increased use of cross functional applications by enabling the integrated data."</i> <i>(ICT Director, Computer Centre - UTeM)</i></p> <p><i>"In my opinion, it is very easy to manage if all resources are centralized"</i> <i>(ICT Director, Computer Centre - UTeM)</i></p> <p><i>"It would be good to have all data integrated at the first place... From the user perspective, this is very important because the user can achieve the desired data quickly"</i></p>

				<i>(ICT Project Leader 3, CICT - UTM)</i>
ii)	Clearly defined IT Requirements	8	18	<p><i>"However, before proceed with any sharing arrangement, it is important to have a set of university requirements. The solutions must be based on university requirements and align with IT capabilities... We also need to have an agreement of common requirements agreed by all parties involved... Make sure the sharing initiatives are able to meet all the users' needs/requirements. As a HR team we need to make sure all users are satisfied with the services provided. No use to have the sharing initiative if we are unable to satisfy the parties involved in terms of their needs/requirements"</i></p> <p><i>(Deputy ICT Director, CICT - UTM)</i></p> <p><i>"It is very important to conduct the detailed requirement analysis. This is to identify the weak links in business processes and allows the system fit with the university's overall business processes. Furthermore it is important to make sure and to have the system specification is agreed upon by the stakeholders group and sometimes this will consume more time in deploying the system"</i></p> <p><i>(Deputy ICT Director, Computer Centre - UTeM)</i></p>
iii)	Strong IT Capabilities	4	8	<p><i>"IT capabilities are very important to simplify and automate the common processes across universities... in my opinion, in terms of choosing a partner for sharing initiatives, we should take a hard look at their IT capabilities, including their flexibility and their desire to invest in systems to make it easier to automate and centralize the processes"</i></p> <p><i>(Deputy ICT Director, CICT - UMP)</i></p> <p><i>"... adequate infrastructure in terms of hardware and networking are crucial for this project success. Inadequate infrastructure capabilities will lead to failure"</i></p> <p><i>(ICT Project Leader 2, CICT - UTM)</i></p>
5	Governance Procedures	9	34	
i)	Clearly define responsibilities for the shared services centre(s) and business areas.	4	10	<p><i>"A shared services initiative is a team effort that requires full participation from the business units, faculties and the implementation teams. Hold these groups accountable to encourage cooperation"</i></p> <p><i>(Deputy ICT Director, PTMK - UMP)</i></p> <p><i>"In sharing, it is important to establish the concept of clear ownership and all units involved must have collective agreement"</i></p> <p><i>(ICT Project Leader 2, CICT - UTM)</i></p>
ii)	Establish reward systems for the sharing context	4	6	<p><i>"The most important way to make sure all are happy is a reward. I think reward systems are the mechanisms that make this happen. You get what you are rewarded on"</i></p> <p><i>(ICT Project Leader 3, CICT - UTM)</i></p> <p><i>"Basically organizations don't want to be bothered with activities for which they wouldn't be rewarded, even though in theory it can be shown that by combining resources each organization will benefit".</i></p> <p><i>(ICT Project Leader 4, CICT - UTM)</i></p>
iii)	Mandating the shared services	5	18	<i>"...if it is not enforcement of a higher authority; quite difficult to implement the sharing concept <mandating></i>

	arrangement			<p><i>encourages each university to work through their differences. Furthermore, it creates a need to establish relationships with all stakeholders involved and requires patience and sustain persistent. Maybe it will take some time to get everyone realize the benefits of sharing, <where mandating will then not be required></i></p> <p><i>(Deputy ICT Director, CICT - UTM)</i></p> <p><i>"if there is no <mandatory> direction from the ministry, universities will not use this application ...each university will try to replicate what has been developed..."</i></p> <p><i>(ICT Director, CICT - UTM)</i></p>
6	Process Centric View	6	33	
i)	Understanding of how the impacted processes work	3	3	<p>The case data pointed to example task forces that were set up to look at the impacted processes, their primary role been to understand the sharing requirements and to see how the processes had to be re-configured to meet these requirements. <i>"they looked at how the processes fitted with user needs and organizational requirements...The more complex the scenario, the more important the analysis"</i></p> <p><i>(Deputy ICT Director, PTMK - UMP)</i></p>
ii)	Have standardised processes	5	26	<p><i>"If we want to move towards sharing, there should be a kind of standardization agreed between the involved universities"</i></p> <p><i>(Deputy ICT Director, CICT - UTM)</i></p> <p><i>"For me, in sharing environment – standardization plays important role. Service is more reliable through standardization - easily to customize and configure in the future according to your specific needs and document flows. It is just right for shared arrangements wanting to add on more processes over time"</i></p> <p><i>(ICT Director, Computer Centre - UTeM)</i></p>
iii)	Have process performance measures in place	2	3	<p><i>"the monitoring and evaluation of processes need to be built into the initiatives. Emphasis must be placed on evaluating the planning, implementation and collaboration processes – to make sure of the initiative's success"</i></p> <p><i>(Deputy ICT Director, PTMK - UMP)</i></p>
7	Implementation Strategy	5	7	
i)	Adopting a green field approach	4	4	<p><i>"green-field" development is very important...We had developed our main systems from scratch... Therefore, such systems were aligned with the university's requirement"</i></p> <p><i>(Deputy ICT Director, Computer Centre - UTeM)</i></p>
ii)	Using mental models	1	2	<p><i>"We have mental model – the development course as a guideline....Mental models are a means by which organizations and individuals create and share meaning, enabling a common understanding of any projects, especially the shared ones...The more complex the scenario, the more important the analysis of the current context..the used of mental models allow us to ensure the system is useful and actually used – meets the user needs or requirements"</i></p> <p><i>(Deputy ICT Director, PTMK - UMP)</i></p>
8	Project Management	7	27	
i)	Team work	4	13	<p><i>"First of all, the most important factor in ensuring successful shared systems is teamwork... Team members should</i></p>

				<p><i>participate in establishing shared values and common goals. Be committed to these goals, and have a feeling of interdependence and ownership for their jobs and unit... trust is very important in teamwork where there is a shared belief that you can depend on each other to achieve a common purpose. Furthermore teamwork will help to reduce confusion within a group and introduce a more clear understanding between its members. Teamwork creates a shared sense of group identity'</i></p> <p style="text-align: right;"><i>(ICT Project Leader 3, CICT - UTM)</i></p>
ii)	Stakeholder Involvement	5	13	<p><i>"We should never say 'we know what is best for you' Always ask the users what they want to include into the system"</i></p> <p style="text-align: right;"><i>(ICT Project Leader 3, CICT - UTM)</i></p> <p><i>"It is important to increase involvement of faculty, staff and students in this kind of initiative"</i></p> <p style="text-align: right;"><i>(ICT Project Leader 4, CICT - UTM)</i></p>
9	Change Management	9	22	
i)	Expectation and perception management	5	8	<p><i>"All universities need to understand the objectives of the project...and know what to expect and by when"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT - UTM)</i></p>
ii)	Developing and securing common norms	5	10	<p><i>"The sharing initiatives need to develop a strong, clear, appropriate and common mission, vision, purpose with clear objectives and most important – they must be achievable. We experienced the greatest success, documenting the explicit objectives, of what we want to achieve in a specific timeframe. We revisited them at each meeting to ensure progress... Without that strong direction, business units or faculties won't work together, and some individuals will sit on the sidelines waiting for it to all go away"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, PTMK- UMP)</i></p>
iii)	Establishing good relationships with the business	3	11	<p><i>"The relationship between the owner, user and CICT <the shared system> are created since the early phases of system development until the system has been implemented. This is very important in order to absorb and make use of the new information and to further support the requirements that should be included in the system design"</i></p> <p style="text-align: right;"><i>(ICT Project Leader 1, CICT - UTM)</i></p>
iv)	Emphasizing the need for shared services	5	10	<p><i>"MOHE should set up a target, let say by 2020 we should implement sharing as a strategy for avoiding duplication effort. If you do not do this, all universities will keep doing the same thing – establishing their own data centre because of they need it... Top management should encourage all universities to look into this and if possible share the resources amongst universities"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT - UTM)</i></p> <p><i>"The university management should encourage teamwork and collaboration towards sharing goals. I think this is a good approach and important to show the need to share, show how an organization's effectiveness can be improved with sharing initiatives... Most universities want to maintain their own business requirements. Maybe the top management such as MOHE or the university itself should promote the awareness and need of sharing initiatives"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, PTMK - UMP)</i></p>

10	Effective Communication	8	25	
i)	have a communication strategy	2	3	<i>"The issue is you need really need to make others understand what are you are trying to achieve. Hence, we need an effective internal and external communication strategy. When communication was clear and information sharing was effective. All universities need to reach agreement on the vision and the collaboration. Therefore it is important to managing communication and information sharing what is currently plan for the next 3-5 years"</i> <i>(Deputy ICT Director, CICT - UTM)</i>
ii)	have a common language	2	4	<i>"In order for a group of people to become a real team they will need to establish a common language and way of making themselves understood to one another"</i> <i>(ICT Project Leader 3 - UTM)</i>
iii)	build awareness and market the sharing arrangement	2	3	<i>"Marketing the shared application or services is very important to let others know the existence of these services and implement or use these services/softwares. One of the ways is through effective communication. Marketing by telling others, via internet – put on your portal or website, provide classes – train how to use or implement the shared software or system or services, and also it also can be done by using flyer or pamphlet"</i> <i>(ICT Director, Computer Centre - UTeM)</i>
iv)	build rapport with those involved	2	3	<i>"A rapport must be established in which people can have confidence both that they are being understood and that they understand the other person"</i> <i>(ICT Project Leader 3 - UTM)</i>
v)	discuss readiness to proceed with a sharing arrangement	2	2	<i>"MOHE and all universities should openly discuss the organizations readiness to move forward with this sharing strategy... Readiness should be in terms of hardware, systems, resources and also procedures"</i> <i>(Deputy ICT Director, CICT - UTM)</i>
vi)	involve users and stakeholders	2	3	<i>"always ask user what they need"</i> <i>(ICT Director, Computer Centre - UTeM)</i>

Evidence from literature supports some of these observations. Miskon et al. (2011b) specifically list “Knowing ‘what’ is to be shared” as a success factor, stating that there needs to be a systematic approach to appraising what should be included and what should not, within a shared services arrangement. They also argue (following (Goh, et al., 2007, p. 260)) that “*one should also be aware that not all activities can be shared*”. Borman (2008a, p. 7) states that “*The majority of SSCs felt that it was important to take an end-to-end process perspective on the services*” – hence inferring the need to clearly understand the processes and the related context being shared. Borman (2010a, p. 222) states that “*the extent to which shared service tasks are routine and provided in their entirety*” is a characteristic of successful shared service centres, hence reinforcing the notion that routine processes are better suited for sharing.

9.3.2 SF2: Organizational Environment

Organizational environmental factors are those elements and descriptors that come from the organizational context in which the shared services take place. The case studies suggested these organizational contextual elements as important factors, and in particular implied value from (1) having prior collaborations (relationships or corporations), a notion also supported in prior literature. For example Becker et al. (2009) state “*It is assumed that an emergence of shared services depends on whether certain forms of cooperation existed already before*” (Becker, et al., 2009, p. 3).

Case data also emphasized the (2) need to have process champions involved.

“Champion here refers to an individual who knows their business processes inside out. They are knowledgeable about the various processes responsible for the university activities – specifically to their field. For example, in HR, there is staff that really knew the HR processes from A to Z”.

(Deputy ICT Director, PTMK-UMP)

Management support can also be perceived as an organizational environmental factor, however was presented as a separate critical success factor (as described below) due to the strong emphasis it received both within the case data and in prior literature.

9.3.3 SF3: Top Management Support

Top management support was stated as one of the most important factors for the success of shared services. Top management support is defined in this context as the involvement and participation of senior management, and their ongoing commitment and willingness to devote necessary resources and time to oversee the shared services initiative.

Top management support is one of the most common cited success factor across any initiative and has also been cited as a critical element in prior shared services literature (e.g. Borman, 2010a; Miskon, et al., 2011b) . According to Becker et al. (2009, p. 2), “*management support and leadership are crucial success factors for the implementation of shared services...*” and “*the role of such key actors has to be taken into account when examining the emergence of shared services*” . It is important that top management understand requirements, proposed changes, and proper structuring of the shared services initiative (Goh, et al., 2007; Ulbrich, 2006). Ulbrich (2006, p. 201) specifically council “*first, assure that management is committed to the suggested change project*” .

9.3.4 SF4: IT Environment

IT environmental factors derive from the organizational IT context in which the shared services occur; particularly important for ICT related shared services. The case studies demonstrated how; (1) centralized, standardized and integrated IT platforms, (2) clearly defined IT requirements, and (3) strong IT capabilities, play a significant role in successful ICT related shared services.

Borman (2008a) describes how a common IT platform (like an ERP) is seen as an essential element of shared services. Standardization and integration enable such common IT platforms. The importance of strong IT capabilities is also supported by prior literature. For example, Miskon et al. (2011b) argue how this is the most commonly cited success factor they distilled from archival analysis of IS shared services literature. IT capabilities facilitate and ease implementation (Fonstad & Subramani, 2009). Fonstad and Subramani (2009, p. 1) state that “*Building the capabilities of the shared IT services group so it can provide infrastructure services more reliably and professionally*” is key to successful enterprise alignment.

9.3.5 SF5: Governance Procedures

Walsh et al. (2008, p. 203) argue that “*ensuring there is an effective governance arrangement in place*” is consistently identified as a key factor in the implementation of shared services. We too observed this within the case study data, with all nine interviewees mentioning this as a critical success factor. Governance in this context is defined as the system by which the shared services are directed and controlled, and includes the processes and mechanisms established to enable the shared services to function.

The case data emphasized the need for (1) clearly defined responsibilities and decision rights for the shared services centre(s) and business areas. This is reinforced by Borman (2008a) who argues for establishing clear allocation of responsibilities (and good relationships) amongst the SSC and the business areas it serves.

The case data also pointed to the value of (2) establishing reward systems within the shared services context. Interviewees argued for systems designed to reward the service providers;

“to increase the motivation of staff involved to continue to maintain their excellence in providing services”

(ICT Director of CICT - UTM)

and also for systems designed to reward the users of the shared arrangement; e.g.

“giving award to the excellent users in the E-Learning usage. This is very important to ensure the use of E-learning can be sustained in the teaching and learning processes”

(ICT Director, CICT - UTM).

Another governance aspect identified from the case studies was the inclination to (3) mandate shared services. The case participants argued that until the value of sharing is perceived by the business areas (in the case of this data set, these were different universities and faculties), people will still ‘prefer to do their own thing’. The cases included scenarios where the mandate came from university level leadership roles like the Vice Chancellor (VC) (mainly for ⁵⁷intra –organizational shared services) and/or the Ministry of Higher Education (MOHE⁵⁸) (mainly for inter–organizational shared services⁵⁹). Borman (2008a, p. 8) describes how shared services initiatives can be mandated to achieve desirable benefits or objectives and also states that by mandating shared services, an organization is able to conduct reforms efficiently and deliver improved value for money *“you don’t want to weaken your economies of scale if you start picking and choosing”*. Miskon (2011b) identifies ‘not mandating’ the use of shared services as a potential failure factor.

9.3.6 SF6: Process Centric View

A process centric view encourages viewing and approaching organizational tasks based on their related business processes (rather than the tasks or functions they perform). Walsh et al. (2008) explain how business process redesign through standardizing processes and

⁵⁷ Intra- sharing within the same organisations (see Miskon et al., 2011 for further details)

⁵⁸ MOHE; Ministry of Higher Education Malaysia, is responsible for developing an advantageous higher education ecosystem in Public and Private Institutions of Higher Education (PIHE and PVIHE respectively) and Polytechnics and Community Colleges (see www.mohe.gov.my for further details).

⁵⁹ Inter- sharing across different organisations (see Miskon et al., 2011 for further details)

removing unnecessary steps, in order to optimize productivity and flow of work, is an essential requirement at some point in the implementation of a shared services model. Hence, Walsh et al. (2008) emphasize the need to have a clear process understanding and focus, to balance redesigning business processes while also reshaping roles and technology to support such redesign. Borman (2010a) states the need for a thorough process and work-level understanding. He (2008a, p. 10) supports this further stating “*One of the hardest, but most necessary, things to have in place before moving to shared services was seen to be a good understanding of how the impacted processes work*”. The case data also suggested this need to (1) have a clear understanding of the processes and how the impacted processes work. Evidence showed how task forces were set to achieve this goal.

The case data pointed to the need to (2) have standardized processes (26 citations across 5 of the interviews). One of the interviewees summarizes the need for standardized processes stating;

“for me, process standardization contributes to both the effectiveness and efficiency of internal control by improving the organization’s awareness, reducing variation, and eliminating duplication. In addition, standardizing technology — for example migrating to a common standardization systems — reduces the number of system setups, interfaces, security profiles, and manual workarounds, all of which streamline control design and testing”
(ICT Director, Computer Centre - UTelM)

Process standardization is identified as an important aspect in prior studies. Su et al. (2009) state that standardization (i.e., standardizing processes and technology across business and geography), is a transformation step when implementing Shared Services. Having common business processes and common IT applications are important to justify the migration to a Shared Services model (Goh, et al., 2007). Standardization can be implemented by having common business processes and common IT applications (Goh, et al., 2007).

The case data showed the need for (3) having process performance measures in place. Borman (2008a) presents a ‘measurement emphasis’ as a fundamental foundation for success in shared services. Borman (2010a, p. 233) makes a similar argument for the need to have performance monitoring in place; “*The means by which the performance of the SSC is enabled and monitored*”.

9.3.7 SF7: Implementation Strategy

The case interviewees commented on the relevance and importance of the implementation strategy; the general approach used to put the shared services into operation. They particularly commented on the value of (1) adopting a green field approaches, (2)

integrating within silo's first and (3) using mental models to communicate the solution to be implemented.

Borman (2008a) too suggests value in having a 'green-field approach' for shared services initiatives; that is, to start the shared services initiative from the beginning, arranging the staffing from scratch. This enables a smoother transition, with the revised roles, responsibilities and expectations clear from the start. Miskon et al. (2011b) also lists 'Adopt a green-field approach' as a success factor.

Project Management was also often mentioned in the case data when implementation was discussed, however this was deemed a separate success factor and is presented next.

9.3.8 SF8: Project Management

Project management was identified as a critical success factor within the case data. It is defined as; the effective and efficient management of activities and resources for the shared services initiative from inception to implementation. Miskon et al. (2011b) too list project management as a shared services success factor. Lacity and Fox (2008) emphasize the value in keeping 'transition managers' to project manage the initiative, until the new service model is fully stable.

As depicted in Table 1, two key themes were emphasized in the case data in relation to project management; (1) team work; where the parties involved in operationalizing the shared services would function collaboratively as a team, and (2) stakeholder involvement; where all parties effected by the shared services will be informed and consulted. This is common to many other critical success factors studies reported in other domains as well (e.g. Al-Mashari & Zairi, 1999; Bandara, et al., 2005; Bingi, 1999).

9.3.9 SF9: Change Management

Change management was mentioned in the case data as a critical factor for success. In this context we define change management as; a structured approach to transitioning those involved - individuals, teams, and organizations from a current state to a shared services model. This is essential as, creating shared services can require radical transformation of business processes and information technology (Lacity & Fox, 2008). As stated by Borman (2008a, p. 9) "*It is necessary to carefully manage the change for the employees of the SSC and the rest of the organization*" (p. 9). (Lacity & Fox, 2008; Sedera & Dey, 2007)

demonstrate how the SSC and its client organizations must employ effective change management.

Effective communication emerged as the primary theme around change management within the case study data, but this was later positioned as a separate success factor in its own right, due to the strong emphasis made for this (with 25 citations) and past literature (e.g. Bandara, et al., 2005; Brash, 1999; Miskon, et al., 2011b; Stefanou, 1999) that listed this as a separate Success factor- this is further described below. The other themes that emerged from the case data in relation to effective change management were (1) Expectation and perception management, (2) Developing and securing common norms, (3) Establishing good relationships with the business, and (4) Emphasizing the need for shared services.

9.3.10 SF10: Effective Communication

The need for effective communication; effective exchange of information amongst the stakeholders involved with the shared services initiative, was highlighted in the case data. This has been a noted critical success factor in prior shared services studies (e.g. Goh, et al., 2007; Janssen & Joha, 2006a) and also other IS, project related studies (e.g. Al-Mashari & Zairi, 1999; Stefanou, 1999). Goh (2007, p. 253) describes how new levels and kinds of communication are needed when establishing shared services, as “*all members of the new Shared Services unit are expected to interact and be interactive*”. Examples from literature of effective communication include: early education on the change management process (Ulbrich, 2006), marketing the message with tools, like brochures (Sia, et al., 2008), a regular review process to help business unit leaders see the value of shared services (Weill, 2004), and by listening and addressing adequately those issues raised by employees (Borman, 2008a; Goh, et al., 2007; Lacity & Fox, 2008). Communication between users and SSC is a key capability that affects the shared service process performance (Janssen & Joha, 2006a).

The case study data pointed to a few sub themes around effective communication, which are illustrated with supporting evidence in Table A.1. These included the need to; (1) have a communication strategy; (i2) have a common language; (3) build awareness and market the sharing arrangement, (4) build rapport with those involved, (5) discuss readiness to proceed with a sharing arrangement, and (6) involve users and stakeholders.

9.4 SUMMARY VIEW OF INTER-RELATIONSHIPS WITHIN THE SUCCESS FACTOR MODEL

Having identified and substantiated the success factors (via case data coded by two coders), potential interrelationships amongst the factors were investigated. A limitation of most critical success factors studies is the constrained attention to direct effects only. Sharma and Yetton (2003, p. 534) argue that “*this approach neither reflects the richness of the theory, nor provides a good description or explanation of the relationship. The main-effects model needs to be extended to capture the complexity of the relationship*”. Such pre-identified relationships amongst the factors can provide a foundation for the further operationalization of the constructs. Also these interrelationships can explain potential overlap between the constructs if and when the success factors model is quantitatively operationalized to function as a prediction model (i.e. to predict success). Hence, this study explored potential interrelationships amongst the factors, by running matrix intersection⁶⁰ queries using the NVivo tool. Figure 9.1 and **Table 9.1** provide the summary results of this analysis.

⁶⁰ A Matrix Intersection search is a two-dimensional type of Boolean search made available through NVIVO. It takes the searched feature from two collections at a time, and finds passages in the documents or nodes in which the search term is contained in both- thus indicating possible overlap and/ or relationships.

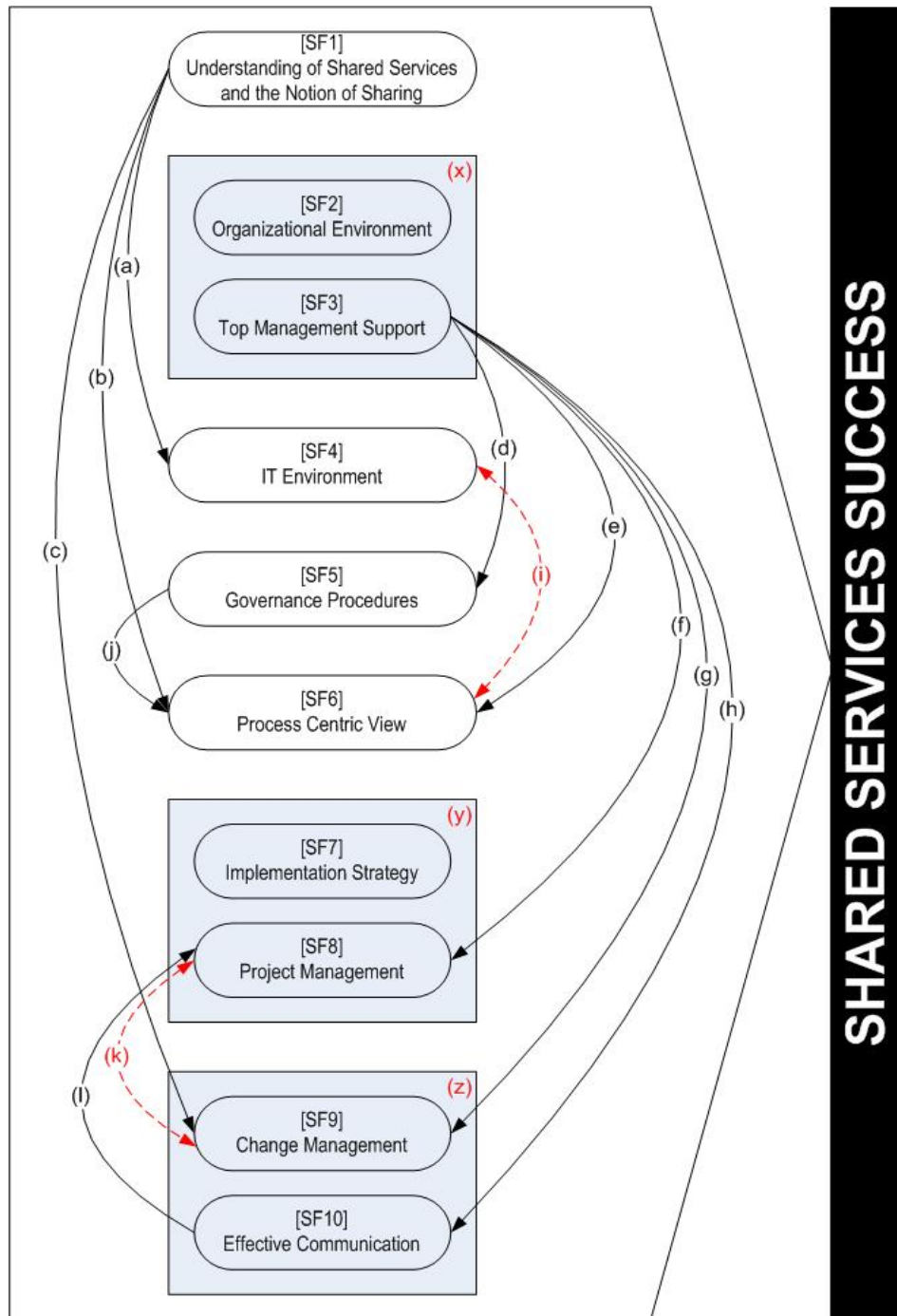


Figure 9.1: Shared Services Success Model: Factors and the Inter-relationships

Table 9.2: Potential inter-relationships amongst the success factors - summary results

	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8	SF9	SF10
SF1: Understanding of Shared Services and the Notion of Sharing										
SF2: Organizational Environment	-									
SF3 Top Management	-	< 'part of relationship>								
SF4 IT Environment	✓ (a)	-	-							
SF5 Governance Procedures	-	-	✓ (d)	-						
SF6: Process Centric View	✓ (b)	-	✓ (e)	○ (i)	✓ (j)					
SF7: Implementation Strategy	-	-	-	-	-	-				
SF8: Project Management	-	-	✓ (f)	-	-	-	< 'part of relationship>			
SF9: Change Management	✓ (c)	-	✓ (g)	-	-	-	-	○ (k)		
SF10: Effective Communication	-	-	✓ (h)	-	-	-	-	✓ (l)	< 'part of relationship>	
✓ - A potential causal relationship, where one variable can influence the other ○ - A potential correlation effect between two factors, where there are interdependencies with each other										

There were three ‘part of’ type relationships identified from the data set, meaning that though indicated as separate factor, conceptually they belonged together within another factor. ‘Top Management Support’, can be considered as an ‘Organizational Environment’ factor [see frame ‘X’ in Figure 9.1], Project Management as a sub category within Implementation Strategy [see frame ‘y’ in Figure 9.1], Effective Communication as a sub category within Change Management [see frame ‘Z’ in Figure 9.1]. This was explained earlier when these factors were presented in the section above.

The understanding of shared services and the Notion of Sharing (SF1), in particular the understanding of sharing requirements, can influence the IT Environment (SF4), by enabling the definition of the IT Requirements better [see path (a)]. An Understanding of Shared Services and the Notion of Sharing (SF1) can also influence the standardization processes, a core aspect of the Process Centric View (SF6) factor [see path (b)]. Path (c) indicates how Understanding of Shared Services and the Notion of Sharing (SF1) can also influence Change Management (SF9) in particular influencing the development of common norms.

Top Management Support (SF3) influences many other factors. It influences Governance Procedures (SF5) in particular with contributing towards the establishment and execution of reward systems and at times also been the authority that mandates the shared services arrangement [see path (d)]. Top Management Support (SF3) can influence the Process Centric View (SF6) factor, in particular with establishment and execution of process performance measures [see path (e)]. Top Management Support (SF3) influences Project Management (SF8) practices, by supporting and encouraging team work and stakeholder involvement [see path (f)]. Top Management Support (SF3) influences Change Management (SF9), by playing a mediating role when developing common norms and being a vital figurehead to impose the need for shared services [see path (g)]. Top Management Support (SF3) can also be the spokes persons to build awareness and market the sharing arrangement, hence influencing the Effective Communication (SF10) success factor [see path (h)].

Governance Procedures (SF5) can influence the Process Centric View (SF6) factor, in particular the setting up and execution of process performance measures [see path (j)]. Effective Communication (SF10) can influence good Project Management (SF8) [see path (l)], as having a common language and a communication strategy can support the management of activities and resources for the initiative.

A potential correlation relationship was observed between the IT Environment (SF4) and Process Centric View (SF6) factors [see (i)], where interdependencies within the two were

observed. For example, the nature of the IT environment can influence the process centrality (i.e. how the processes were standardized), and the nature of the processes can influence how centralized, standardized and integrated the IT platforms are. A similar relationship was observed between Project Management [SF8] and Change Management [SF9] [see (k)],

9.5 CHAPTER CONCLUSION

Shared services are growing in popularity. It is proving to be an effective model for re-organizing to reduce costs, increase quality and create new capabilities. Though there are numerous publications on shared services, there is a dearth of knowledge about shared services success factors. This study addresses this gap by investigating the success factors of shared services and deriving a shared services success factors model based on a detailed inductive analysis of multiple case study data that was collected within the HE sector. The main goal of this chapter was to address research question *P-RQ2*: “What are the success factors for ICT shared services, in particular in the Higher Education context?”

The applied approach was described first, followed by the multiple case study findings. The resulting shared service success factors model (Figure 9.1) includes 10 success factors: (1) Understanding of shared services; (2) Organizational environment, (3) Top management support, (4) IT environment, (5) Governance, (6) Process centric view, (7) Implementation strategy, (8) Project management, (9) Change management and (10) Communication. The study goes further, through combined (1) inductive matrix intersection searching and (2) deductive reference to relevant literature, inter-relating the 10 antecedents in a preliminary theory of shared services success, all of which suggests important guidance for practice and valuable future research. While several of these, such as management support, implementation strategy, project management, change management, governance and communication, are quite generic to many other ICT implementations, several unique factors or unique sub-factors were identified. For example, understanding of shared services is a factor that is unique to the context of shared services. Certain sub-factors of the more generic natures were also more emphasized in this study. For example, having prior collaborations (a sub-factor within the organizational environment factor) was seen as a core supportive aspect for shared services. Similarly, centralized, standardized and integrated IT platforms (a sub-factor of the IT environment) and having standardized processes (a sub-factor of the process centric view factor) were observed particularly prominently in the shared services context.

The study findings of this study entail several important contributions to both research and practice. It provides an empirically based model of antecedents of shared services success, especially within the context of ICT related shared services in the HE sector. The model in Figure 9.1 deriving from inductive matrix intersection searching, combined with deductive reference to the relevant literature, presents a preliminary theory of shared services success. The study provides guidance on what to consider when conducting shared services in practice.

Limitations of this work are acknowledged and are discussed further in Chapter 11, Section 11.5. Section 11.4.5.3 in Chapter 11 also presents a range of future work that is suggested to extend the results presented here.

Chapter 10: Issues of ICT Shared Services as Perceived from the HE Sector

10.1 CHAPTER INTRODUCTION

Chapters 8 and 9 illustrated the benefits of shared services and success factors for shared services. This chapter focuses on understanding the issues pertaining to shared services, specifically ICT related shared services in the Higher Education (HE) sector.

The goal of this chapter is to address the research question (see Chapter 1, Section 1.3):

P-RQ3: *What are issues that can hinder ICT shared services in the Higher Education Context?*

It derives an in-depth understanding of the perceived issues and challenges of ICT related shared services in the HE context.

Issues studies in Information Systems, is prevalent. Palvia and Palvia (2003) presents a detailed overview of how management information systems (MIS/ IS) and IT management issues have been investigated in USA, Canada, Europe, Australia, Hong Kong, India and Singapore arguing that “*such studies are perceived to be of value as they not only identify issues critical to determining strategies for organizations, but also provide direction for future MIS education, practice, and research*”. Researchers may benefit in terms of guidance for positioning their current research and targeting future research on the topics identified by practice as areas that need attention. Such work also creates an empirically based awareness on the common issues in the domain of investigation (Sadiq, Indulska, Bandara, & Chong, 2007).

Studies that analyze issues and challenges are encouraged in the shared services domain. Ulbrich et al. (2010) argue that an understanding of challenges/ issues, can support organizations adopting shared services. “*Our fundamental understanding is that the more organizations face similar challenges when adopting the shared services idea, the more other organizations can benefit from these experiences. In other words, common, reoccurring challenges are of generic nature, and important to understand by organizations that engage in IT-shared services arrangements*” (Ulbrich, et al., 2010, p. 2), hence justifying this work further.

Ulbrich et al. (2010) is one of the only studies that reports on shared services issues/ challenges. They re-used interviews that were used in their previous research which were conducted

to study the adoption of shared services and reports on a set of generic management challenges of adopting IT-shared services. Prior shared services studies (e.g. Janssen & Joha, 2006b) have applied findings from the outsourcing domain as an a priori starting base, justified due to the similarities that shared services and outsourcing can share (Janssen & Joha, 2008; Ulbrich, 2006; Yee, 2009). As issues/ challenges studies in shared services were scarce we also looked at issues/ challenges studies in the outsourcing domain. Al-Hakim (2005) presents a detailed set of failure factors/ challenges in outsourcing grouped around the three themes of; partnership factors, organisational factors and strategic factors. Khalfan (2003, p. 755), provides “*a pragmatic picture of the situation*” (p.755) and presents 20 issues that were raised as they diagnosed failed IT outsourcing projects in Kuwait. Sang (2010) reports on outsourcing challenges in Kenyan Universities. Prior work had its limitation; studies specific to shared services issues were limited, and when available (e.g. Ulbrich, et al., 2010) insights were from secondary data based on prior studies and were at a meta level (of generic management issues). While we can learn from the findings reported in the outsourcing domain; though similar, shared services *is* different (Janssen & Joha, 2006b; Ulbrich, 2006; Yee, 2009) and hence warrants specific investigations to be applicable in the shared services context. This study also had a specific focus; ICT related shared services in the HE sector, which is not a context in which issues of shared services had been investigated before. The candidate do use prior work as supporting evidence (for triangulation purposes) during the process of deriving the themes we report herein (which were inductively derived from open ended interviews).

The remainders of the chapter will first present the overall approach used to fulfil this goal and will then present the findings. The chapter concludes with a summary discussion with acknowledgements of limitations and some pointers to future work.

10.2 APPLIED APPROACH

As stated earlier (see Chapter 1 and Chapter 7), one of the primary goals of the multiple case studies was to inductively identify potential issues of shared services, as observed in the HE sector. The analysis of the issues took place in a very similar way to the analysis of the success factors which were presented in detail in the previous chapter. The interview data were analyzed within NVivo 9.0 in an inductive manner. Themes that directly or indirectly mentioned an issue, were captured via in-vivo inductive coding (coding with the key words identified within the text), and at times supported and influenced by prior literature (from shared services and other similar sourcing contexts like outsourcing). These themes were then grouped within meta-categories (via Axial

coding - which subsumed the detailed set of initial themes) that formed the final set of issues reported herein. The coding was done by two coders (the candidate and her main supervisor), maintaining inter-coder reliability of 80% or more, at all times with the reported findings. The content captured under the main issues categories were also subject to Matrix Intersection checks (as described in Ch 7, Section 7.5.2) to; further confirm the relevance of the different issues identified. The results are presented below, which were derived by systematically following the case study protocol that was described in Chapter 7, which enabled the reported outcomes to also fulfil validity and reliability standards set for this study (see Section 7.6 in Chapter 7).

10.3 STUDY FINDINGS

This section presents the findings of the case study analysis reporting on the observed issues pertaining to ICT shared services, in the HE sector. It presents the different issues identified, which are grouped around meta-themes. **Table 10.1** provides further insights – illustrating the primary issues categories and the detailed issues that were mentioned frequently within each category (see Columns 2) with supporting evidence from the case data (see Columns 3-5).

Overall, 8 main issue categories (and an additional ‘others’ category) were identified from the case study data, namely:

- 1) Technological issues
- 2) People issues
- 3) Strategic issues
- 4) Communication issues
- 5) Costing and pricing concerns
- 6) Poor project management
- 7) Partnership issues
- 8) Low adoption of sharing arrangement

Each of these is discussed in detail below, providing evidence from case study data.

Low adoption of the sharing arrangement was stated as a potential issue by 4 interviewees across 22 different citations. **Table 10.1** (see row ID 8) provides case study based evidence to illustrate this issue, which presents how the sharing initiative can fail, if/ when the client side(s) refuse to adopt it. Non-adoption can occur based on different reasons such as reluctance to change the current way of doing things or a mere reluctance to share resources. Sang (2010) refers to

client's non cooperation as a challenge in outsourcing arrangements, and warns that client cooperation and adoption issues can be a sensitive matter that needs to be dealt with caution.

Communication issues were mentioned frequently (within 5 interviews, with 20 citations). As **Table 10.1** depicts; lack of awareness of the sharing arrangements, lack of overall communication about the sharing initiative and lack of understanding of the client's requirements were prominent sub-themes that were mentioned within the communications issue. Communication issues have been cited as an issue in other prior studies as well. Ulbrich et al. (2010, p. 4) discuss communication as a major challenge in ICT shared services in particular when "*IT staff speaks a different language than the business side*". Al Hakim (2005) lists 'lack of communication' as a factor causing failure in outsourcing arrangements- describing how it can effect the partnerships between the involved parties. On a similar context, Khalfan (2003) describe how a lack of communication between all staff involved with the project can influence the failure of outsourcing projects.

Costing and Pricing concerns were raised as an issue in the case data. In particular; no funds allocated for the *maintenance* of the ICT sharing initiatives, lack of clear budget allocations overall, and unclear Business Models (for costing purposes) were captured as example issues related to this category (see **Table 10.1**, row ID 5). Costing issues such as; high hidden costs and incompatible costs/benefits trade offs (e.g. Al-Hakim, 2005) have been sighted in prior literature. Ulbrich et al. (2010, p. 4) specifically mention how '*customers struggle with new pricing mechanisms*'.

The case data pointed to a few **partnership issues**, namely: issues with services received, unsatisfactory relationships between user and provider, and inadequate contributions from involved parties. Partnership issues have been mentioned in the literature as a common concern within sourcing arrangements (i.e. Al-Hakim, 2005). Ulbrich et al. (2010) describes the challenges around service level agreements within shared services centres and its customers. Khalfan (2003) makes similar arguments based on a study of outsourcing challenges.

Table 10.1: Summary overview of the identified issues

1	2	3	4	5
ID	Issue	Interviewees	Citations	Sample Evidence
1	Technological Issues	9	52	
(i)	No standards set for data, information and technology	8	12	<p><i>"Currently we just try to implement for 4 universities only, however they are facing some difficulties in consolidating the data. This is due to the fact that every university have their own data structure... then there is the workflow processes – each university have their own workflow processes. For example, as I mentioned before about quotations. Some universities are implementing the quotation processes based on the circulars firmly. Some universities implement the process with complacency. Furthermore, the approval process itself is different across universities. Some universities just required an 'A' officer to approve the process. Some universities required Deputy Dean to approve the process. Therefore, that kind environment will make the workflow processes amongst the universities not common. This situation also is the same with the interview process. Different universities have different requirements for the same processes that are implemented across universities. This makes things very difficult"</i></p> <p><i>(ICT Director, Computer Centre – UTeM)</i></p>
(ii)	Low reliability of the systems	3	10	<p><i>"The problem is when we key-in data into the system, there are no data that can be accessed by users who key-in data (when key-in data, for example information on 'wife', the data cannot be displayed again). Then, when we review the data in the system, the user has 5 wives (the same name - because of data entry had been made 5 times due to failure to achieve the data back). This means the system is still have a lot of errors"</i></p> <p><i>(Deputy ICT Director, PTMK– UMP)</i></p>
(iii)	The shared systems not covering the client requirements	8	13	<p><i>"The issue is SAGA is not reliable with university environment. It is quite awry for universities to implement such system.... Not reliable in terms of not covering all processes that should be in the financial system. The modules are incomplete. There are some essential processes that do not exist in the system. How could you proceed with the system if there are some processes that are not completed? Towards the end, you need to develop another system. That is the problem".</i></p> <p><i>(Deputy ICT Director, CICT – UTM)</i></p>
2	People Issues	6	21	
(i)	Lack of manpower	4	14	<p><i>"...there is teamwork for HR system and this team has been established at an early stage before the HR's project begins. So, now we are in the middle of discussions with management in order to add manpower to the HR team, because we still lack manpower to develop the necessary modules in HR.... So, the HR team needs more staff to develop the required modules"</i></p> <p><i>(Project Leader 3, CICT – UTM)</i></p>

				<p><i>"The main problem here is there is only one appointed staff responsible for MyLine but have to manage many requests for improvement and suggestions by users either from the UTM or other public universities. So the staff is unable to handle all requests, especially ad-hoc requests from the external committee which is too much in the required time period"</i></p> <p style="text-align: right;"><i>(Project Leader 1, CICT – UTM)</i></p>
(ii)	Lack of training	4	4	<p>Example of Lack of training for client/ users: <i>"Other issue in implementation of such is that some users claimed they do not know how to use the system. For example – the university driver informed us that they do not know how to use computer to apply the over time details through the shared system"</i></p> <p style="text-align: right;"><i>(ICT Director, Computer Centre – UTeM)</i></p> <p>Example of Lack of training for service provider's staff: <i>"In terms of grid computing, CICT staff responsible for grid computing is still in the learning process, still in the process of enhancing the skills and knowledge grid, and CICT do not have any job to serve as a test (test-run). This will complicate the process of identifying related problem with the implementation of grid; only expect input from researchers and the Grid technical committees to improve this sharing initiative from time to time"</i></p> <p style="text-align: right;"><i>(Project Leader 1, CICT – UTM)</i></p>
(iii)	Negative attitude of people involved	2	3	<p><i>"The most difficult thing is the attitude of the individual. If individual attitudes can be changed, then the problem can be solved otherwise"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p>
(iv)	Ego of participants	3	4	<p><i>"the big issue here is the ego – the culture. Why? This is because of the maturity level of certain university. For example – let say University A is big and old and my university established just 3 years at that time. Imagine – a 3 years old university invite an old and big university (let say University A) to share the system development for financial system...Sometimes these universities would like to differentiate themselves. As I mentioned before, this is all about ego"</i></p> <p style="text-align: right;"><i>(ICT Director, Computer Centre – UTeM)</i></p>
(v)	Dissatisfied staff	3	3	<p><i>"Most of the staff are not satisfied, especially the programmer. Not satisfied means they are not satisfied in terms of workload, promotion and work instructions. Work order given is not transparent and the scope of work as well"</i></p> <p style="text-align: right;"><i>(Project Leader 3, CICT – UTM)</i></p>
(vi)	Poor rewarding schemes	2	5	<p><i>"However, there is no bonus payment for staff that has succeeded in developing this system.. Normally the government staffs are difficult to get extra money. They just can claim the over time salary. The issue here is at least the top management should have provided a reward system"</i></p> <p style="text-align: right;"><i>(Project Leader 1, CICT – UTM)</i></p>
3	Strategic Issues	6	19	
(i)	Lack of strategic vision	2	6	<p><i>"MOHE should be setting up a target let's say 'by 2020 we should implement sharing as a strategy for avoiding duplication effort'. If you do not do this, all universities will keep doing the same thing – establishing their own data centre because they need it. This is wasting time, spend money on the same process for each university and MOHE"</i></p>

				<p><i>will lose in terms of allocated budgets and resources"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p> <p><i>"The most important problem facing here is the objectives outlined in such project is not aligned with the objectives need to be achieved by these public universities in implementing the grid"</i></p> <p style="text-align: right;"><i>(Project Leader 4, CICT – UTM)</i></p>
(ii)	Lack of flexibility	2	4	<p><i>"The universities are welcome to propose sharing options, but not necessary all can be implemented... especially when there are specific requirements the institutions wish to tick by.... As we noticed, each university have their formatting respectively. We just want to have a concept where just use the system that we had. If all universities are open – the sharing concept can be realized...Where a high level of customization is required to meet university requirements, sharing is likely to be less effective"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p>
(iii)	Competitive concerns	5	10	<p><i>"at one point universities in Malaysia should use sharing as a strategy to maintain independence for competitive advantages, but at the same time pursue collaboration for products and services that do not present a significant competitive differentiator...The problem now is that most of us (the universities) are still not willing to work towards it... we need to compete in all things. Some of them yes, but some can be shared or collaborate within universities. But, this paradigm is very difficult for us to breach."</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p> <p><i>"Another obstacle in implementing sharing across universities is each the fact that each public university is competing with each other in terms of getting research grants, students, award - for examples the 'Research University' status. Therefore it is difficult for these public universities to cooperate with each other"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, Computer Centre – UTeM)</i></p>
(iv)	IP Issues	1	2	<p><i>"Lately this MyULIS has been transferred to UPM. UPM will take over. So in that discussion, if we have decided to transfer MyULIS to UPM, so everything related to MyULIS should be transferred. For me it is not fair. MyULIS belongs to me – it is my IP. I can only give the script, back-end processing, but for the back-end source code you have to develop your own code. Not fair if my IP is transferred away just like that. So they have to develop from scratch...For example, if it's the UMP, which provides the data, then it should UMP that owns the data"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, PTMK– UMP)</i></p>
4	Communication Issues	5	20	
(i)	Lack of awareness	3	10	<p><i>"The problem now is that most of us (the universities) are still not willing to work towards it. Most of us are unprepared and unaware of it...If these initiative is not been emphasized at an early stage, universities will continue implementing their own agendas and keep competing each other's"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p> <p><i>"The problem is they did not know there was a grid initiative for the use of researcher within and outside of the UTM"</i></p> <p style="text-align: right;"><i>(Project Leader 4, CICT – UTM)</i></p>
(ii)	Lack of communication	3	6	<p><i>"If these initave is not been emphasize at an early stage, universities will continue implementing their own agendas"</i></p>

				<p><i>and keep competing each other's"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p> <p><i>"Hmmm sometimes no meeting was made. Suddenly, we were instructed to carry out the development / improvement of the system at the university"</i></p> <p style="text-align: right;"><i>(Project Leader 2, CICT – UTM)</i></p>
(iii)	Lack of work understanding	2	4	<p><i>"The issue here is we do not know in detail what is actually required by them"</i></p> <p style="text-align: right;"><i>(Project Leader 2, CICT – UTM)</i></p>
5	Costing and Pricing concerns	5	11	
(i)	No funds allocated for the maintenance of the sharing initiative	2	4	<p><i>"one problem is not knowing the budget for the system maintenance and I think more to the needs of staff to maintain and keep MyLine"</i></p> <p style="text-align: right;"><i>(Project Leader 1, CICT – UTM)</i></p> <p><i>"We have also raised the following issue before - to get the budget for upgrading the hardware and etc, but we still do not get positive feedback from the MOHE"</i></p> <p style="text-align: right;"><i>(Project Leader 2, CICT – UTM)</i></p>
(ii)	lack of clear budget allocations overall	2	4	<p><i>"University need to allocate some budget for that purposes. It is not as negotiated earlier"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p>
(iii)	Unclear business model	1	2	<p><i>"The problem for the data centre is the business model is not clear yet and how to charge for the usage. At the end of the day the universities will be charged for the more expensive fees which included the maintenance and the infrastructure services. Of course the universities will look at other options that charge less expensive to implement the data centre"</i></p> <p style="text-align: right;"><i>(ICT Director, CICT – UTM)</i></p>
6	Poor Project Management	5	8	
(i)	Role changes within the project and sharing initiative	2	4	<p><i>"Another issue occurred in these projects, are when there are changes of officer(s)... We implement rotation of post in UTeM especially for the post of administrator. For instance we do have Mr. A for the post of administrator in Unit 'A'. Later after certain duration, the administrator post in the Unit 'A' will be handled by others. This rotation of the post will lead to the changes of requirements for the ICT project"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, Computer Centre – UTeM)</i></p> <p><i>"problems at that time were when the committee is keep changing. Initially it was agreed that the system is dynamic in nature, but each time the meeting is held, the need for MyULIS system will also change. So such problem to some extent have contributed to the system was less successful – the system eventually will not be ready to be implemented - take a long time to develop.... This is due to the champion has changed. The ICT Centre Directors are often changed – every 2 years – this is an issue to us... in the UMP, the appointment of Director of ICT conducted every two years. Therefore, the Director of ICT keep changing every two years. The problem is every time the position changed, the</i></p>

				<p><i>policy that was made by the former directors will not be pursued by the new director. This will cause the policy is constantly changing and lead to inconsistent implementation - policies that were outlined earlier cannot be fully implemented"</i></p> <p><i>(Deputy ICT Director, PTMK– UMP)</i></p>
(ii)	No task force to implement the shared services	1	2	<p><i>"...there is no task force established for addressing the mandate. So, how we want to move to the next step? Sharing requires teamwork. This is included strong project management practices that tie ICT project initiatives to business objectives"</i></p> <p><i>(Deputy ICT Director, CICT – UTM)</i></p>
(iii)	Misaligned and lengthy implementation times	2	3	<p><i>"The process is essentially from the registrar but when it's time for implementation, each faculty or unit has a slightly different implementation in each other. Some of them are transparent in doing the processes, some just follow as directed and some are loose in terms of its implementation seems like there is a shortcut. This matter has become a problem when we want to carry out the concept of sharing in the process related with HR or finance for each faculty / unit involved"</i></p> <p><i>(Project Leader 3, CICT – UTM)</i></p> <p><i>"Took almost 2 years because of the collaboration between several parties – a bit long"</i></p> <p><i>(ICT Director, CICT – UTM)</i></p>
(iv)	Changing project milestones	2	3	<p><i>"Yes, there were discussions on sharing amongst the universities. It is recorded in the minutes. So far, only on paper, but I do not see in terms of implementation or action taken on these recommendations. In the ICT directors meetings, I noticed that it is quite difficult to get consensus amongst them."</i></p> <p><i>(Deputy ICT Director, CICT – UTM)</i></p> <p><i>"Of course, whenever there are changes to the systems, this will involve duration of system development. More time needed to complete the system. Another issue occurred in this such projects are when there are changes of officer"</i></p> <p><i>(Deputy ICT Director, Computer Centre – UTeM)</i></p> <p><i>"MyULIS problems at that time were when the committee is keep changing. Initially it was agreed that the system is dynamic in nature, but each time the meeting is held, the need for MyULIS system will also change. So such problem to some extent have contributed to the system was less successful – the system eventually will not be ready to be implemented - take a long time to develop"</i></p> <p><i>(Deputy ICT Director, PTMK– UMP)</i></p>
7	Partnership Issues	5	7	
(i)	Issues with services received	1	2	<p><i>"Staffs in UMP lacked a clear picture of what services or applications were provided by the ICT Centre. We had 200++ systems, and many people doing the same thing in different departments, but not really talking to each other. It was a siloed approach, which led to loss of confidence on the part of the business — a perception that things were going wrong and IT weren't able to deliver...Among the issues identified were duplicate data, the access system is slow. What happens is the HRMIS disregard any comments or complaints that have been granted"</i></p> <p><i>(Deputy ICT Director, PTMK– UMP)</i></p>

(ii)	Unsatisfactory relationships between user and provider	2	3	<p><i>"Yes through several meetings between MOHE and ICT Directors before they implement any projects. We already practice this since 6 years ago. However not all things can be done through bundling. For example ORACLE, ORACLE unable to provide services to all universities when we purchase the product as bundle. If we but the product as bundle, ORACLE only can provide services to MOHE. This will lead to unsatisfaction towards universities involved in the bundling process. Another example, when we try to buy Adobe product through bundling process (centralized at MOHE) – the cost becomes higher"</i></p> <p style="text-align: right;"><i>(ICT Director, Computer Centre – UTeM)</i></p> <p><i>"At the beginning the relationship between user and provider is quite unsatisfactory"</i></p> <p style="text-align: right;"><i>(ICT Director, CICT – UTM)</i></p>
(iii)	Inadequate contributions from involved parties	2	2	<p><i>"At the early stage of developing such projects, we faced difficulties in getting the user requirements from the multiple units which involved in the sharing arrangement"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, Computer Centre – UTeM)</i></p>
8	Low adoption of the sharing arrangement	4	22	
				<p><i>"However, if the users are not serious in implementing/using the application, no matter how good the application is, it will fail eventually... Actually ...as we proposed this system/module to the top management, all units/faculties agreed to use the system in the web based environment. However when it comes to the implementation – they just refused to use the system."</i></p> <p style="text-align: right;"><i>(ICT Director, Computer Centre – UTeM)</i></p> <p><i>"There are also users refuse to use the existing system. Normally this type of user does not want to change from their old way in implementing the task workflow"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, Computer Centre – UTeM)</i></p> <p><i>"Many groups are still reluctant with sharing resources even if it benefits everyone involved"</i></p> <p style="text-align: right;"><i>(Project Leader 4, CICT – UTM)</i></p>
9	OTHER Issues			
(i)	Not mandating the use	1	3	<p><i>"For now, if it is not enforcement of a higher authority; quite difficult to implement the sharing concept.... Without a mandate from MOHE, this will not happen – means other universities might not use MyLine"</i></p> <p style="text-align: right;"><i>(Deputy ICT Director, CICT – UTM)</i></p>
(ii)	Lack of Governance	1	3	<p><i>"Each of university has the sources so this is another problem yet to be solved at university level and also inter-universities... we need to provide governance... So when we want to share the resources, we have to agree at certain point... In terms of governance so we still do not have any agreement for this kind of situation.. How do we want to share?"</i></p> <p style="text-align: right;"><i>(ICT Director, CICT – UTM)</i></p>

People issues was one of the most cited issues from the case data, with over 21 citations across 6 interviews. Lack of skilled staff to work on the sharing initiatives received a lot of attention (8 citations). This has been observed as a common issue in other studies as well. For example; Al Hakim (2005) mention that lack of skills can be an organizational factor that can cause concerns in outsourcing arrangements. Another related people issue is the lack of training. This can be for the clients/ users and the employees of the service provider. The negative attitude of those involved, in particular ‘ego’ issues were mentioned in the case data by a few participants. Sang (2010) also recognizes these ‘attitudinal’ issues and challenges in the outsourcing context. Dissatisfied staff (those working within the shared services) was another people related issue raised. Miskon et al. (2011b) supports this, with their discussion on how inflexible staff arrangement can lead to staff dissatisfaction. The case data also showed how Poor rewarding schemes can contribute further towards staff dissatisfaction.

Poor Project Management was mentioned as an issue in the case data. The case data illustrated how; role changes within the project and sharing initiative, not having a task force to implement the shared services, misaligned and lengthy implementation times, and changing project milestones all contributed towards poor project management. Khalfan (2003) makes a similar observation when investigating into issues that influence outsourcing failures. Khalfan (2003, pp. 755-756) argues that ‘*lack of project management expertise*’ and ‘*vague implementation time tables*’ can cause major issues within outsourcing projects.

A number of **Strategic Issues** were raised within the case data. The lack of a strategic vision was mentioned as an issue by the case participants, emphasizing the need to align the sharing goals with the broader goals of the participating entities. The case data also pointed to the lack of flexibility as a hindrance to proceed with sharing. Al-Hakim (2005) also identifies the ‘lack of a strategic vision’ and ‘lack of flexibility’ as strategic aspects causing hindrances in outsourcing projects. The case data emphasized on competitive concerns (5 interviewees mentioning it 10 times). This was particularly the case if the shared resource was first developed by one university and was later maintained by the same university but shared by all- as then the other universities felt ‘threatened’ that the ministry will recognize the university hosting and maintaining the sharing arrangement, as the outstanding university compared to others. IP issues was also raised as a competition-related concern, where the ownership of the content shared (i.e. the data, the source code etc) created a concern amongst the participating entities.

Technological issues were the most cited issues category with all nine interviewees mentioned related issues across 52 citations. These were relatively new and not found in prior shared services (or outsourcing) issues and challenges studies. Non standardization of

data, information and technology was mentioned as a hindrance to sharing as this resulted with the need to have multiple variants. Low reliability of the systems was discussed with examples of a range of systems errors within some of the shared applications. The shared applications not addressing the client requirements were also emphasized as an issues with multiple (13) citations across eight of the interviewees. Large development and maintenance efforts were mentioned, emphasizing in particular the downside of having to develop a system from scratch (as opposed to sharing an existing system). Ongoing maintenance of systems often seemed to face lack of skilled staff and required budgets to sustain the services/ systems. The interviewees (who were the leaders of the shared IT), mentioned ‘changing user requirements’ as a critical challenge. This seemed to be influenced due to a lack of communication, changing roles within the client end and had a significant impact of the service quality and overall project management of the shared IT services and applications. Privacy and Confidentiality concerns were also raised in the interviews, with concerns of sharing mission critical information across digital networks. At times, the ICT sharing arrangements were not provided with the required infrastructure support- which created various impacts.

A range of other issues were also identified. These were presented as other issues- as there were only a few (i.e. 1 or 2) instantiations of these issues within the case data, and they did not necessarily fit as a sub-theme within any of the identified issues. These included; **not mandating the sharing arrangement’s use, lack of governance, and not understanding what is available to share and what can be shared within the HE sector**. Evidence from prior literature supports some of these. Miskon et al. (2011b) for example specifically mention not mandating the use of shared services as a potential failure factor. Miskon et al. (2011b) also support the importance of *Knowing ‘what is to be shared’, and the lack of this to be an issue*.

104 CHAPTER CONCLUSION

This chapter was dedicated to addressing **P-RQ3: “What are issues that can hinder ICT shared services in the Higher Education Context?”**

The interviews conducted within the case studies were analyzed inductively and 8 themes of issues were identified (as presented in **Table 10.1**); namely: (1) Technological issues, (2) People issues, (3) Strategic issues, (4) Communication issues, (5) Costing and pricing concerns, (6) Poor project management, (7) Partnership issues, (8) Low adoption of sharing arrangement, and (9) Other issues.

This study have contributed to a better understanding of the issues and to what needs to be considered when considering ICT related shared services- specifically in the HE sector. *“Better understanding these challenges is essential for further research”* (Ulbrich, et al., 2010, p. 8). This study is a preliminary step towards a complex endeavour of addressing these challenges. *“Organizations should consider that the adoption of IT-shared services is no smooth ride. Many obstacles exist and organizations face the same challenges over and over”* (Ulbrich, et al., 2010, p. 8). Through these study outcomes, future practice and academia (particularly those interested in ICT shared services) are better informed about the generic challenges, some which can be resolved in advance. Good preparation with focus on these challenges can *“help practitioners to pave the way for a success adoption of IT-shared services in an organization”* (Ulbrich, et al., 2010, p. 8). Researchers also benefit from the study results in terms of guidance for positioning their current research and targeting future research on the topics identified by practice as areas that need attention. Such work also creates an empirically based awareness on the common issues in the domain of investigation. A range of possible extensions from this work is presented in Chapter 11 Section 11.5. Section 11.4.5.4, Chapter 11 acknowledges some limitations of the findings presented here.

Chapter 11: Study Contributions, Limitations and Outlook

11.1 CHAPTER INTRODUCTION

The preceding chapters of this thesis presented the study goals and its findings, also illustrating how the study evolved as it progressed. This concluding chapter summarizes the study contributions and limitations and provides an overview of potential further research.

First, the research goals that drove this study are re-visited and a brief discussion on how the targeted research questions were addressed is provided. The main contributions of this study are presented illustrating both the applied and academic contributions from the research. Next, limitations of the research are summarized in relation to each main research phase. The chapter concludes by looking ahead to possible future research.

11.2 OVERARCHING DISCUSSION

Environmental drivers such as; continuing growth in student numbers, changes in the nature of academic work, increasing competition between institutions, government pressure to improve operational efficiency, and the diverse and shifting expectations of stakeholders have been contributing to increased pressure in the HE sector for more efficient and improved processes with lower costs (Deloitte Touche Tohmatsu, et al., 2001; KPMG, 2006). These substantial and continuing shifts in the sector demand universities to look for resolutions, with many HE institutions considering cooperating or sharing in a wide range of areas. Universities are looking to ‘shared services’ as one means of improving organizational performance (Wagenaar, 2006). Anecdotal evidence suggests that universities are: good candidates for shared services (Dove, 2004; Yee, et al., 2009), are embracing shared services, and have much potential to further exploit sharing arrangements. Universities thus seek to identify services that can be managed more effectively within a sharing arrangement to provide better services at lower costs. Consequently, many HE institutions are considering cooperating or sharing in a wide range of areas.

The HE Sector entails a unique context for shared services. Universities have been described as combining “hierarchical administration with a peer philosophy that views professors as self-governing colleagues (or a community of scholars), a tenure system for job security, an ethic of academic freedom within a highly regulated and bureaucratized system,

decentralized departments that often operate independently rather than as part of an organization, and myriad constituencies served by the university” (Barsky, 2002, p. 161). Thus, while prior studies on shared services from other industry contexts can provide useful insights, studies specific to the HE context are required to provide insights that are genuinely relevant to shared services within the HE sector, and these are scarce. It should not be assumed that findings to date in other sectors apply directly to HE (Burke, 2005). Though the HE sector appears particularly well poised to benefit from shared services, it has received minimal attention in the academic literature.

Information Systems have dual relevance to shared services as both a support function amenable to the shared services arrangement and as a key enabler of shared services across other support functions. Though not as widespread as in Finance or HR, the adoption of shared services for the IS function is growing rapidly (Lacity & Fox, 2008; Peters & Silver, 2005). Additionally, IS applications and infrastructure are both a driver and enabler of shared services generally (e.g. in Finance, HR, etc.). As computer-based corporate information systems have become de facto and the internet pervasive and increasingly the backbone of administrative systems, the technical impediments to sharing have come down dramatically. Moreover, shared services has the potential to leverage IT related benefits with respect to faster, more accurate process coordination and execution, and greater accuracy of and visibility into organizational data (Seddon, et al., 2010). In addition, shared services can also require (radical) change to the IS applications and infrastructure, for example combining corporate-wide standardization with business unit specific customization.

This study is situated within the Higher Education Sector of Malaysia, which was originated after a nationwide HE ICT strategic review, which resulted in the request to investigate the potential and pathways for shared services within the Malaysian HE Sector. Hence, the study embarked on an investigation of the benefits, success factors and issues of shared services in the HE sector, with the primary goal of addressing the research questions:

- P⁶¹-RQ1:** What are the benefits of ICT shared services in the Higher Education context?
- P-RQ2:** What are the success factors for ICT shared services, in particular in the Higher Education context?
- P-RQ3:** What are issues that can hinder ICT shared services, in particular in the Higher Education context?

⁶¹ ‘P’, implies that this is a primary focus/ goal of the study

Preliminary work in the early phases of the study illustrated a lack of common understanding about shared services (what it is, how they are structured, who is/ can be involved etc), and the lack of research in shared services – in both the IS domain and the HE sector. Thus, this study extended (after an initial investigation) with an exploratory phase with the aim of addressing some of these gaps. The aim of this extended exploratory phase was to gain a better understanding of the notion of shared services in IS and HE, understand the current status of research and practice in these domains, and hence provide a firm basis to contextualize and support the main research outcomes. Primarily this exploratory phase was designed to seek answers to the research questions:

S⁶²- RQ1: What is shared services, in the context of Information Systems?

S - RQ2: What is the status of shared services research in the context of Information Systems?

S – RQ3: What are the different types of shared services, in particular in the Higher Education context?

The primary research question; **“What are the benefits of ICT shared services in the Higher Education context?”** was addressed through a deductive analysis approach which was presented in detail in Chapter 8. The analysis used prior shared services frameworks as presented in Section 5.5.2 in Chapter 5, to support the coding and analysis of benefits identified from the multiple case study data. The findings further validated an extended version of the shared services benefits framework presented by Janssen and Joha (2006b). The findings present shared services benefits categories and also presented their interrelationships through a tentative benefits-chain. This forms an important and useful foundation for practice and academia, which enables a clearer understanding of benefits and supports the better realization of benefits from shared services. The potential to leverage ICT related benefits through shared services has been recognised. More and more ICT related shared services solutions are predicted to take place, to address calls for efficiency, reduced costs, quality improvement and innovation. While shared services in practice has been excellent, it has not gained enough attention and momentum from academia. From an IS academic perspective, our goal should be to: (1) do strong, relevant research that informs the practice of shared services and related curriculum; and (2) anticipate important roles our IS graduates might assume in relation to shared services, and insure the academicians are preparing them to be preferred for these roles. Such roles might be in the business areas of

⁶² ‘S’, implies that this is a secondary focus/ goal of the study, which was introduced to support the primary goals of the study.

shared services using organizations, in the IS function of shared services using organizations, with software or service providers involved in shared services.

The primary research question; **“What are the success factors for ICT shared services, in particular in the Higher Education context?”** was addressed through an inductive analysis of multiple case study data. Themes were captured via in-vivo inductive coding (coding with the key words identified within the text), at times supported and influenced by prior literature (hence a mixed approach). Ten important antecedents of shared services success was identified as presented in Chapter 9. The study goes further, through combined: (1) inductive matrix intersection searching and (2) deductive reference to relevant literature, inter-relating the antecedent factors to form a preliminary theory of shared services success, all of which suggests important guidance for practice and valuable future research. The resulting ICT shared services factors include 10 success factors and their inter-relationships. It is noted that some of the success factors (such as top management support, change management, and effective communication) identified as success factors for ICT shared services, are also mentioned as critical success factors in other IS studies (e.g. Bandara, et al., 2005; Gargeya & Brady, 2005; Love & Irani, 2004; Magal, Houston, & Watson, 1988). Other the success factors (e.g., understanding of shared services and the notion of sharing) appear specific to the shared services context. These points to several potential future research areas. First, when common factors are mentioned, it would be interesting and relevant to understand how these success factors manifest within shared services initiatives. For example, even though top management support is a commonly acknowledged success factor in most IS initiatives, one should and can investigate what aspects of top management support are most important and unique to shared services initiatives. Second, when new, more unique factors are identified as success factors within the shared services domain (e.g. understanding of shared services and the notion of sharing), a deeper investigation into defining and describing these is needed; to guide practice and to test research propositions related to this factor. A better understanding of these factors is important for the progression and success of shared services in practice and academia. Such results can, for example, support the design and deployment of shared service structure and governance; and help better understand the nature of shared services organizations specifically in the HE sectors.

The primary research question; **“What are issues that can hinder ICT shared services, in particular in the Higher Education context?”** was addressed through a mixed approach in analyzing the shared service benefits which was presented in detail in Chapter 10 (the approach is similar in addressing the second primary research question discussed above). This chapter provides an evidence based overview of the issues pertaining to ICT

shared services in the HE sector, as observed from the Malaysian HE sector. Nine important issues categories were identified and they form an empirically based awareness on the common issues of ICT related shared services in the HE sector. Among these, technological issues were the most cited issues category. Some ICT shared services initiatives already under way, or about to begin, are giving cause for concern. The decision and process to implement shared services initiatives is in itself a daunting experience. After deploying ICT shared services, issues may start coming to the forefront, and this could jeopardise its success and risk the overall initiatives or lead it to failure. One major reason of technological issues in ICT shared services implementations is not having standards set for data, information and technology. These have still not gained sufficient consideration even though these factors can greatly impact performance of the shared services initiatives (Goh, et al., 2007; Ross, 2003; Sedera & Dey, 2007). Overall, this study has contributed towards a better understanding of the issues and to what needs to be looked at closely when considering ICT related shared services- specifically in the HE sector.

In attention to the secondary research question; “What is shared services, in the context of Information Systems?” and “What is the status of shared services research in the context of Information Systems?” were addressed through a rigorous and systematic analysis process as presented in Chapter 5. The study systematically identified relevant papers on shared services in IS literature, resulting in a primary set of 29 papers that focused on shared services, and a secondary set of 164 papers that mentioned shared services. This analysis (as depicted in Chapter 5) provides a descriptive overview of the status of shared services in the IS literature. The chapter then presented in detail the understanding of shared services based upon the shared services literature in the IS discipline. It addresses both, what the candidate know and what the candidate yet needs to know. It is structured along the basic questions of ‘what’, ‘why’, ‘who’ and ‘how’. Firstly, the candidate discussed what shared services are by addressing the definitions. Thereafter, the candidate looked in closer at the ‘why’ and ‘who’ by identifying the objectives and the stakeholders. Next the candidate discussed the ‘how’ by describing different notions of sharing. Finally, the candidate presented ‘what’ by presenting the success/failure factors reported in shared services study. The chapter also reports a meta-analysis, and analytical overview of theories and methods used in shared services research. The final section of this chapter presented the a research agenda with an overview on what shared services related themes warrant further investigation by IS researchers.

The secondary research question; **“What are the different types of shared services, in particular in the Higher Education context?”** “ was addressed through an archival analysis of documented case studies of shared services as presented in Chapter 6. Through inductive attention to the shared services literature, and content analysis of 36 secondary

case studies of shared services in the higher education sector, three salient dimensions emerged: (1) the existence or not of a separate organizational entity, (2) an intra- or inter-organizational sharing boundary, and (3) involvement or not of a third party. Next, the findings were presented based on three dimensions identified. Each dimension being dichotomous, yielding 8 shared services structural arrangement types. Each of the 8 structural arrangement types was defined and demonstrated through case examples. The typology can serve as a guideline for practitioners or organizations to map the type of sharing arrangement or project they are engaged in. Furthermore, organizations are able to use the typology as a tool to determine which critical issues arise in different types of sharing arrangements/projects to be managed and be aware off and also to identify the evolution of sharing arrangements from one to another type.

A detailed research approach was designed and executed (as presented in summary in Chapter 3), where each of the research questions were addressed. Table 11.1 summarizes how each of the research questions (see Column 4 was addressed by the various outcomes presented (see Column 3) of the chapters and its sections (see Columns 1-2) of this thesis. The next sections provide a detailed account of the study contributions, limitations and also discuss future work that can be built on the outcomes presented in this thesis.

Table 11.1: Summary overview of how the Research Questions were addressed by the thesis

1	2	3	4
Chapter	Chapter sub-sections	Primary outcomes ⁶³	Contributions to Research Question
<p>Chapter 2 - Literature Review: This chapter presented prior literature on shared services, and is intended to position and contextualize this study further.</p>	<p>2.3 The evolution of shared services 2.4.1 Organizational and structural aspects 2.4.2 Various means of sharing in shared services settings 2.5 Higher Education (HE) sectors 2.6 Shared services in HE sectors 2.7 Discussion and conclusion</p>	<ul style="list-style-type: none"> • Understanding of the evolution of shared services • Understanding of the shared services and sharing notions • The shared services notion within the IS domain • Overview of the HE sector • Shared services in the HE sector • Perceived gaps in the literature 	<p>This provides important contextual details to support addressing the research questions.</p>
<p>Chapter 4 – Pilot Case Study: This chapter presented the pilot case conducted early in the study with the main aim of preparing for the multiple case study phase and gaining a better understanding of the context investigated (ICT shared services in the HE sector).</p>	<p>4.3 The case study protocol 4.4.1 Insights into the perceptions of shared services 4.4.2 Insights into the anticipated benefits of shared services initiatives in the HE sector 4.4.3 What is been shared and how things are shared 4.4.4 Summary of pilot case study findings</p>	<ul style="list-style-type: none"> • Pilot case study protocol • Initial protocol for multiple case study phase • Gaps in understanding the notion of shared services • Preliminary list of anticipated benefits of shared services in the HE sector • An initial overview of what is been shared in the HE sector • Evidence to the existence of different shared services models in the HE sector • Further insights for protocol design for multiple case study phase 	<p>This provides indirect contributions towards the following Research Qs: P-RQ1: <i>What are the benefits of ICT shared services in the Higher Education context?</i> P-RQ3: <i>What are issues that can hinder ICT shared services, in particular in the Higher Education context?</i> S-RQ3: <i>What are the different types of shared services, in particular in the Higher Education context?</i></p>
<p>Chapter 5 – Shared Services in the IS Domain: This chapter presented the review of</p>	<p>5.3 Research design 5.4 The status of shared services literature in the IS discipline</p>	<ul style="list-style-type: none"> • A database of shared services in IS literature in IS • Trend analysis of shared services 	<p>This provides direct contributions towards the following Research Qs: S-RQ1: <i>What is shared services, in the</i></p>

⁶³ These outcomes are those listed as outcomes in Figure 3.1 and its subsequent decompositions (Figures 3.2 to 3.4)

<p>shared services in the IS domain (i.e. the current status of shared services in IS academia, and reports on some preliminary findings based on the archival analysis results) which was aimed at gaining a better understanding of shared services from an IS lens.</p>	<p>5.5.1 Defining shared services in the IS literature 5.5.2 Objectives of shared services in the IS literature 5.5.3 Identifying stakeholders 5.5.4 Understanding the notion of ‘sharing’ 5.5.5 Success and failures factors of shared services 5.6.1 The development and application of theory 5.6.2 Research methods applied 5.7 Discussion</p>	<p>literature within IS</p> <ul style="list-style-type: none"> • Definition of shared services within the IS literature • A broader definition of shared services (within the IS context) • Overview of shared services objectives as observed in IS • Conceptual framework of ICT related shared services stakeholders • Conceptual framework of what is been shared • Success & failure factors of shared services as reported in IS literature • The development and application of theory within IS shared services research • Research methods applied for IS shared services studies • Detailed research agenda for shared services research in IS • Methodological guidelines for shared services research in the IS domain. 	<p><i>context of Information Systems?</i> S-RQ2: <i>What is the status of shared services research in the context of Information Systems?</i></p> <p>This also provides indirect contributions towards the following Research Qs: P-RQ1: <i>What are the benefits of ICT shared services in the Higher Education context?</i> P-RQ2: <i>What are the success factors for ICT shared services, in particular in the Higher Education context?</i></p>
<p>Chapter 6 – Shared Services in the HE Sector: This chapter presented an overview of the current status of shared services implementations in the HE sector and reports on the types of shared services observed in the HE sector as evidenced through an archival based content analysis of 36 published HE shared services cases.</p>	<p>6.4.2 Data analysis and preliminary observations 6.5.1 Important dimensions for shared services structural arrangements 6.5.2 Shared services structural types</p>	<ul style="list-style-type: none"> • (36) case examples of SS in HE domain • Core dimensions that differentiate structural arrangements of SS • A typology for SS structural arrangements (8 types) • Instantiation of the typology based on empirical evidence 	<p>This provides direct contributions towards the following Research Qs: S–RQ3: <i>What are the different types of shared services, in particular in the Higher Education context?</i></p>
<p>Chapter 7 – Exploratory Case Studies</p>	<p>7.3 Data collection procedures</p>	<ul style="list-style-type: none"> • Multiple case study protocol 	<p>This provides direct contributions</p>

<p><u>in the Malaysian HE Sector: Case Design:</u> This chapter presented the overall case study design and the high level details of the data collected for this case study phase including a detailed protocol that was designed based on best practice guidelines observed from case study methodological literature.</p>	<p>7.4 Participating organizations and Participants 7.4.5 Overview of sharing arrangements as observed from the case study data 7.5 Data analysis and procedures</p>	<ul style="list-style-type: none"> • A detailed contextual overview of ICT SS in Malaysian HE sector • An exemplar on how qualitative tools can be applied in the case study phases 	<p>towards the following Research Qs: S–RQ3: <i>What are the different types of shared services, in particular in the Higher Education context?</i></p>
<p><u>Chapter 8 – Benefits for ICT related Shared Services: Insight from the HE Sector:</u> This chapter presented a set of shared services benefits with some insights to their interrelationships.</p>	<p>8.3 Study Findings – Motives for shared services as observed in the HE sector 8.3.2 Interrelatedness of motives</p>	<ul style="list-style-type: none"> • Benefits-chain of shared services 	<p>This provides direct contributions to the research question: P-RQ1: <i>What are the benefits of ICT shared services in the Higher Education context?</i></p>
<p><u>Chapter 9 – Shared Services Success Model:</u> This chapter provides a preliminary theory towards shared services success, illustrating the success factors and their inter-relationships.</p>	<p>9.3 Study Findings – 10 success factors 9.4 Summary view of Inter-relationships within the success factor model.</p>	<ul style="list-style-type: none"> • Shared services success factors • Preliminary theory for SS success 	<p>This provides direct contributions to the research question: P-RQ2: <i>What are the success factors for ICT shared services, in particular in the Higher Education context?</i></p>
<p><u>Chapter 10 – Issues with Shared Services in the HE Sector:</u> This chapter presented a detailed analysis of perceived issues of shared services from the HE sector.</p>	<p>10.3 Study Findings – Issues of ICT Related Shared Services</p>	<ul style="list-style-type: none"> • Issues of ICT related SS (from the HE context) 	<p>This provides direct contributions to the research question: P-RQ3: <i>What are issues that can hinder ICT shared services, in particular in the Higher Education context?</i></p>

11.3 RESEARCH CONTRIBUTIONS

This section presents the contributions of the study, which are classified into two categories; applied (benefits that have implications for practice) and academic (benefits that have implications for the research community).

11.3.1 Practical Contributions

The resulting comprehensive literature review, in particular on shared services within the IS context is a valuable practical contribution of the study. This will serve as a useful resource for shared services practitioners, to gain an overview and broad understanding of how shared services are positioned in general and within the IS context (see Chapter 5 and Chapter 2). It also has been described in Chapter 2 how IT (i.e. ERP, IOIS, cloud computing) is a major enabler and contributor to shared services success. Realizing the organization's objectives always requires infusion of ICT. Thus, this requires every CIO or CEO should understand the capability and limitation of ICT available to the shared services model in order to enable the organization gain full benefits of shared services. Hence, all these concepts (i.e. ERP, IOIS, cloud computing) are very important to understand and not to be confused with- to which this thesis contributes to.

A comprehensive overview on how shared services are defined (see Chapter 5–Section 5.5.1 - in particular from an IS lens) was provided in this thesis. This contributes to removing the confusions caused by multiple (at times conflicting) definitions and descriptions found in the field, and provides a firm basis to have a clear understanding of shared services. A broad definition of shared services is provided “*a collaboration arrangement of multiple organizational units involving the concentration of resources for providing and using services that support their business processes*” to capture the main ideas of ‘sharing’ and ‘services’ and is inclusive, accommodating most perspectives on shared services found in the IS literature. This can serve as a tentative definition to practitioners, to understand the broadness and diversity of shared services.

An overview of stakeholders involved in shared services initiatives was provided (see Chapter 5 Section 5.5.3). This is important to; support the identification of appropriate perspective(s) of the relevant stakeholders. Furthermore, Janssen and Joha (2006b) argue that different stakeholders often have different requirements and expectations, which warrants deeper understanding of matters. Findings presented in this thesis, contribute towards a better understanding of stakeholders in relation to shared services, particularly when

gathering requirements for the implementation of shared services or when evaluating the initiatives.

Identification of shared services objectives and anticipated benefits; in order to provide an understanding of why an organization should consider shared services (see Chapter 5, Section 5.5.2) was provided. The early development of a benefits realization framework as presented in Chapter 8 can be used to guide, particularly the HE institutions, for organizing, managing and realizing potential benefits arising from the implementation of shared services. The identification of such benefits and their interrelationships can form the starting foundation for a shared services benefits management program.

A typology of shared services structural arrangements, with particular emphasis on strategic design at the enterprise level and the composition of and relationships among organizational units was provided (see Chapter 6). This enables practitioners to recognize types of sharing arrangements that can occur in the organization, and can aid considerations for the introduction or further development of shared services arrangements.

Conceptual frameworks of *what* can be shared and *how* the sharing can occur, based on IS literature (see Chapter 5 Section 5.5.4) was provided. It can be observed that the notion of sharing is understood in different ways (e.g. within a single organization or across multiple organizations). What is been shared and how things are shared can also be influenced by the various contexts (more specifically the contingency factors affecting the notion of sharing) and the set objectives. This can help practitioners to better exploit shared services by maximizing what can be shared. A deeper understanding of how sharing occurs will assist with the overall design and planning for shared services.

Identification of success factors and their relationships that must be managed effectively in order to implement successful shared services initiative(s); this thesis provides guidance on what to consider when conducting shared services in practice (see the Chapter 5 Section 5.5.5.1 and Chapter 9).

An understanding of issues pertaining to sharing initiatives (as presented in Chapter 10), not only identify issues critical to determining strategies for organizations, but also provides direction for future practice (i.e. planning, education/training etc).

11.3.2 Academic Contributions

A comprehensive shared services annotated bibliography and synthesized critique on shared services research in general (see Chapter 2) and specifically within the IS domain (see Chapter 5) was presented in this thesis. A literature review process is always the inception of

any research, and these findings will support future research, by providing a single consolidated overview on shared services related literature published till September 2011 in IS outlets. This annotated-bibliographic-style literature review presented amongst others:

- 1) the status of shared services in the IS discipline
- 2) an understanding of shared services research with a summary of:
 - a. definitions of shared services found within IS literature
 - b. categories of shared services objectives as reported by IS literature
 - c. overview of data gathered from literature about shared services stakeholders
 - d. data gathered from IS literature about different forms of sharing
 - e. success and failure factors reported in the IS literature
- 3) the current shared services studies in IS are viewed and reported as follows:
 - a. a meta-analysis of the theories applied
 - b. a meta-analysis of the research methods used

A comprehensive research agenda that can be applied in future research of shared services is presented in Chapter 5 [Sections 5.7 (including all sub-sections)]. As part of this research agenda, the candidate also provided some theoretical considerations and methodological guidelines (as summarized in the last two rows of Table 5.8) to support better empirical research in this domain.

The study resulted in inductively derived and empirically supported conceptual frameworks on shared services stakeholders as presented in Chapter 5, Section 5.5.3, and sharing elements (*what* can be shared- see Chapter 5 Section 5.5.4), and deductively derived and empirically validated conceptual frameworks on shared services objectives and benefits (see Chapter 5 Section 5.5.2 and Chapter 8). These conceptual frameworks can form an essential start for theory building and further investigations.

The typology of shared services structural arrangements (see Chapter 6) offers clarity around shared services structural arrangements. It can serve as a useful analytical tool for researchers investigating the phenomenon further, especially by providing a parsimonious framework to describe and position diverse shared services and to better understand the variety of shared services structures. This also assists in providing a common and better understanding of shared services.

The study has also made significant contributions for the future research. It presents:

- 1) The literature based research agenda presented in Chapter 5 points towards the identified gaps as seen in the current IS literature on shared services, which can assist future researchers in identifying and justifying areas for further investigation.
- 2) The shared services benefits model introduced in Chapter 8 is the first reported empirically validated set of ICT related shared services benefits. It provides a firm basis towards a comprehensive benefits realization framework of shared services.
- 3) The success factors model introduced in Chapter 9 is the first empirically based model of antecedents of shared services success, especially within the context of ICT related shared services in the HE sector. It contributes towards a preliminary theory of shared services success.
- 4) The shared services issues presented in Chapter 10 forms an empirically supported set of common issues of ICT shared services in HE, and provide direction for future research. Researchers may also benefit in terms of guidance for positioning their current research and targeting future research on the topics identified by practice as areas that need attention.

Detailed methodological guidelines are provided for the conduct of a comprehensive archival analysis [see Chapter 5 Section 5.3, and Bandara et al. (2011)]. A good method is crucial for a comprehensive and accurate literature review (Levy & Ellis, 2006; vom Brocke, et al., 2009) for any IS study. However, *“information systems (IS) scholars tend to be unaware of the need for structure in literature reviews”* Okoli and Schabram (2010, p. 1). The guidelines provided and demonstrated in the study is specifically targeted towards novice IS researchers, who would seek to conduct a systematic detailed literature review in a focused domain. Specific contributions of the method are extensive tool support, the identification of appropriate papers including primary and secondary paper sets and a pre-codification scheme.

An exemplar on how qualitative tools such as NVivo can be applied in the literature review and case study phases is another contribution from this research. Chapter 5 provided an overview of a tool supported archival analysis approach. Chapter 8-10 illustrated how the tool can be used to maintain a clear chain of evidence between the research goals, findings and case data. The thesis also demonstrated how features such as matrix intersection searches can be used to identify interrelationships between the observed phenomena- which can aid in forming preliminary theory. These contributions can be utilized for research training purposes and will also support any extension studies or replication studies within similar study contexts.

11.4 RESEARCH LIMITATIONS

This section discusses the study limitation across the main study phases and presents how these limitations have been addressed.

11.4.1 Limitations in the Preliminary Literature Review Study Phase

This section describes the limitations related to the preliminary literature review phase presented in Chapter 2. This was conducted to provide an initial understanding of the context and was not based on an extensively rigorous literature search, analysis or interpretation strategy (as seen in the literature review of Chapter 5 for example). The interpretations were influenced by the candidate's (then limited) understanding of the domain. The extended exploratory work that followed this phase addressed some of these limitations.

11.4.2 Limitations in the Pilot Case Study Design and Conduct

This section describes the limitations related to the pilot case study presented in Chapter 4. The pilot case was initiated to prepare the candidate better with the study. It was a preliminary 'exposure to practice' and 'experience for case study research'. The pilot case study took place quite early in the study where a mature understanding of the domain and the scope of the study was still forming. As a result, the case study protocol was limited in scope. Only one primary participant was interviewed (across two 1-1.5 hr length interviews). Thus, even though other documentations were reviewed within the pilot case study phase (see Appendix C - Section C.1) the reported findings were skewed based on the view of this one respondent. The coding (though guided by her supervision team and the case protocol) was done only by the candidate- also creating potential researcher bias with regards to the findings reported. Nevertheless, the pilot case study did point to gaps that warranted further attention and it assisted in the redesign of the study (by further confirming the need for some exploratory work prior to the main data collection in the multiple case studies phase). The conduct of the pilot case also provided design and case conduct insights and experience to the candidate.

11.4.3 Limitations in the Archival Analysis of Shared Services Literature in IS

While Chapter 5 presented a comprehensive analysis of the shared services literature in IS, several limitations are acknowledged. Though fitting with the intended scope - shared services within the IS context, the findings are limited to only one domain – IS. For

feasibility and rigour reasons a clear scope within the IS domain was specified. There were only a few papers that primarily focused on shared services within this scope. As a means to (partially) address this limitation, the study also included a larger number of secondary papers, resulting in a total of 193 papers (29 primary papers and 164 secondary papers). While this can be considered as a substantial pool of papers to conduct an archival analysis - the candidate does acknowledge that there can be other papers in the broader shared services domain that relate to IS, which have been omitted in this analysis. Nonetheless, the candidate believes the sample analyzed is representative of the IS domain.

In addition to this, the approach applied here, share limitations more generally associated with archival analysis, for example; researcher bias in source selection, coding and interpretations. While the candidate employed strategies to minimize these (such as the design and application of detailed protocols and coding procedures, maintenance of a trail of evidence, triangulation with other literature, and coding by multiple coders), further validation and testing of the outcomes presented here is warranted to further confirm study findings.

11.4.4 Limitations in the Content Analysis of Shared Services Cases in the HE Sector

This section describes the limitations in relation to Chapter 6 - where a typology of shared services structures was presented together with a more detailed overview of the nature and status of shared services as observed in the HE sector.

The candidate acknowledges limitations inherent to the research approach and on the generalizability of the related results. Potential limitations (and potential bias) of the search outcomes can be due to - subjectivity in search terms used and in codifying the large volumes of textual evidence; uncertainty regarding the authenticity and accuracy of the information extracted; and missing details (due to secondary data). These limitations undoubtedly resulted in oversight of possibly relevant cases, as well as possible miscoding in some instances. The fact that saturation was reached suggests possible oversight of cases is less an issue. The identification of robust, high-level dimensions (meta-themes) too lessens any concern with subjectivity, as does results of back-mapping the cases to dimensions/types.

Most qualitative research is based on thematic analysis, and findings can appear subjective and lacking in transparency on how the themes are developed. While the candidate have sought to address this with clearly documented data analysis procedures (as described in Chapter 6 Section 6.4.2), there undoubtedly are other dimensions (in addition to

the 3 dimensions presented here) of possible value in a shared services typology. Furthermore, this study was based purely on secondary data, and constrained its data collection to cases in the HE sector. Although the candidate is confident that the resulting types can be generalized to other sectors, their instantiations as observed from this dataset, is in places somewhat specific to the HE sector. In example, the HE sector practices ‘cooperative competition’ (co-opetition) more than other sectors, whereby universities tend to cooperate on one level, while remaining competitors on another (Yee, 2009). This may explain why the candidate sees case studies in this data set where inter- organizational sharing is prominent, which might not be the case in other business contexts. Hence a caution must be made when attempting to generalize the findings here to a broader context.

11.4.5 Limitations in the Overall Case Study Design and Conduct

This section describes the limitations in related to the overall multiple case study phase, which studies Malaysian HE institutions. It first presents the limitations associated with the overall case design (Chapter 7) and then presents potential limitations associated with the three main areas reported; benefits of shared services in the HE sector (Chapter 8); success factors of shared services in the HE sector (Chapter 9), and issues of shared services in the HE sector (Chapter 10).

11.4.5.1 Limitations associated with the overall multiple case study design

This phase of the study has several limitations. There were inherent limitations in the case study design and conduct. The results presented here were limited to 3 case sites, where analysis was based on interviews of selected stakeholders (i.e. the directors and higher level ICT managers of the selected universities). The study was also prone to the more general limitations of case study research such as case selection bias, analysis limitations due to only 9 interviews, and researcher bias in data collection and analysis, although mitigated by multiple coders and inter-coder reliability. It is acknowledged that this could have impacted the completeness and accuracy of the findings presented from the case study data.

11.4.5.2 Limitations associated with the investigation of shared services benefits

Chapter 8 presented a set of shared services benefits with some insights to their interrelationships. While the data was collected in an inductive manner; primarily based on the responses to a single open ended question within the case study interview protocol, the analysis was done deductively. This study used the Jansen and Joha’s (2006b) shared

services benefits framework, which was extended and validated by the archival analysis results (as illustrated in Chapter 5 Section 5.5.2). While this assisted in the overall analysis, this could have also influenced extraction and interpretation of the Benefits discussed in the case data. This was somewhat mitigated by the two coders independently coding the full content until consensus was reached.

11.4.5.3 Limitations associated with the investigation of shared services success factors

The success factors were identified in an inductive manner, primarily based on the responses to a single open ended question within the case study interview protocol. While two coders conducted the coding (maintaining inter-coder reliability at >85%) and the findings were triangulated with prior research, the results are still prone for researcher and data bias. Hence, the completeness, mutual exclusivity and interrelationships of the presented shared services success model needs to be investigated further. Additionally, though potential relationships among the identified success factors were analyzed, no consideration was given in either data collection or analysis to potential contingency factors (i.e. moderating or mediating factors or relationships), which can limit the overall explanation power of the resulting model.

11.4.5.4 Limitations associated with the investigation of issues of shared services specific to the HE sector

This chapter was limited to only the identification of issues – from 3 case studies in the Malaysian HE sector, primarily based on the views of senior ICT managers (hence limited to a selected stakeholder view). The work needs to be extended to confirm the completeness of the issues and should also progress with identifying the relative importance of the issues identified, in order to derive practical guidelines and have further impact. While inherent weaknesses of interviews (which were used as the data collection approach) were mitigated as much as possible with a coherent interview protocol and multiple coders, the process of identifying issues and grouping them around meta-themes, is relatively subjective in nature and research bias may have occurred during data collection.

115 RECOMMENDATIONS FOR FUTURE RESEARCH

This section makes recommendation for future work, and is structured around the core contributions (as per Chapter 5-10) made in this study.

Chapter 5 provided detailed methodological guidelines on the design and conduct of a tool supported archival analysis approach. This can be tested and applied on other domains. The archival analysis in Chapter 5, reported on many different insights including: the trends of shared services research within IS; overview of shared services definitions and objectives; conceptual frameworks of shared services stakeholders, and what is been shared; success and failure factors of shared services, an analysis of the development and application of theory within shared services, and an analysis of the research methods applied in IS. Each of these sections were complimented with a gap-analysis which was then consolidated to an overarching research agenda, all pointing to specific research that can be conducted in relation to shared services and IS.

Chapter 6 presented a typology of shared services structural arrangements. To the candidate's best of knowledge, this is the first study on shared services that - specifically addresses the identification of structural arrangements for shared services, identifies multiple dimensions of such structural arrangements, and is based on extensive and broad empirical data. This typology has provided the foundations for a better understanding of the different types of shared services structures. Valuable possible extensions of this work include: (1) further validate the core dimensions and resultant typology with primary data across multiple domains; (2) investigate the relative benefits (advantages) and challenges (disadvantages) associated with the different types, and the motivations for these different types; (3) discover those salient contextual factors that may influence the effective implementation and operation of each of these different types, (4) provide evidence-based guidance on how to proceed with implementing the different types, and (5) investigate possible evolutionary progression from one type to another. Subsequently, (6) the roles and responsibilities of stakeholders involved with the different types, and (7) the governance implications of the types can be usefully investigated.

Chapter 8 presented benefits and a benefits-chain of ICT related shared services from the HE sector. This work can be further extended by investigating further how to measure benefits, and how the identified benefits may differ based on the contextual factors around shared services. Following a similar approach to Jansen and Joha (2006b), one can also use Chapter 8's shared services benefits as a base to study how the initial motives may differ from those already obtained (and explain why), in particular understand why initially anticipated motives were not achieved. Prior Literature encourage this kind of further study, for example Braun et al. (2010, p. 3) state; "*benefits have to be identified, evaluated (ex-ante), realized and evaluated again (ex-post)*". As discussed in Chapter 8, identifying the benefits is (only) the first step towards a detailed benefits realization plan, this can be extended to deriving and evaluating a detailed benefits realization plan, where Resources to

achieve benefits should also be investigated. Braun et al. (2010, p. 5) argue resources that supports the benefits management process “*increase the organization’s capability to exploit*” related initiatives and resources and argue for the need to derive three basic types of benefits management resources: (1) resources supporting benefits identification, evaluation and measurement (benefits measurement resources), (2) resources supporting benefits realization planning, and (3) resources supporting benefits implementation. Deriving such resources for ICT related shared services benefits realization has been recommended as an extension of this work.

Chapter 9 presented a preliminary theory towards shared services success, illustrating the success factors and their inter-relationships. A range of future work is suggested and planned to extend this shared services success study. Design principles for practice, for achieving and managing the identified success factors can be formulated to guide practice on how to achieve and maintain these success factors. An extended case study phase including more cases from other organizational and process contexts can be conducted, to further extend and validate the model beyond the HE sector, to identify potential contingency variables and to identify potential dependent variables (to measure the success of shared services). The study can also be extended to a quantitative model validation phase (like in Bandara, 2007; Love & Irani, 2004). The above mentioned extended-case studies can also be used as input to construct operationalization for such a global survey intended to validate the extended shared services success model; results of which will also yield insights on the relative importance of the success factors.

Chapter 10 presented a detailed analysis of perceived issues of shared services from the HE sector. While an understanding of issues is important, one must also have an understanding of how the issues are different or similar based on different contexts, in order to be able to usefully apply the learning from prior studies and lessons from practice. Hence, this work could be extended to other HE domains (outside Malaysia) and also other sectors. Palvia and Palvia (2003) encourage that when such extension work (to compare different domains) is done, that one develops and use a consistent instrument and deploys this (as best as possible) minimising other variables – hence conducting the data collection within the same time frame- applying the same method(s).

Issues studies often progress from initial issues identification to deriving rankings for the issues; to identify which issues are more prominent than others. This is normally done by multi-phased Delphi studies [e.g. Gable and Chang(2002), Indulska et al. (2009), Niederman et al. (1991)] , where issues are identified and then ranked across multiple rounds. The issues identified in this study can also be extended, further validated and ranked in a similar manner. While descriptive studies are helpful in identifying the key issues, as

argued by Palvia and Palvia (2003), future studies should also investigate into the determinants of the key issues, as when they are known, a preliminary estimation of the issues can be made with less effort. Once the issues (and their relative importance is understood), then they can also be incorporated in practice with specific practical implications, for example in the formation of policy.

Some issues studies collect and consider issues from multiple stakeholders – to gain a more balanced and complete perspective (Bandara, Indulska, Chong, & Sadiq, 2007; Sadiq, et al., 2007) and some (e.g. Indulska, et al., 2009) also focus the investigation, to differentiate between current issues and anticipated future challenges. Anticipated future challenges are incorporated, to provide better recommendations and guidelines for practice, not only based on what is observed now-but also to prepare for the issues that will emerge in the near future.

11.6 CHAPTER CONCLUSIONS

This chapter concludes the thesis. It provided an overarching summary discussion on how the study evolved and unfolded, proceeding next to a summary overview of the practical and academic contributions from this study. The study limitations are also discussed, with a structured walk through of all the main phases of the study. Recommendations for future research are provided as the chapter and thesis concludes.

In conclusion, this study was conducted in an emerging and important domain, where mature empirically based studies are somewhat limited. Every major phase in this thesis had a unique contribution to knowledge (see Figure 3.1 and Appendix B). Overall, the study provides a sound basis for further research in shared service in particular ICT related shared services, and shared services in the HE sector.

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Appendices

Appendix A

OVERVIEW OF THE MALAYSIAN HIGHER EDUCATION SECTOR

This appendix provides a summary report on the status of the Malaysian Higher Education sector. This context has influenced the study motivation and the study design (i.e. the multiple case study phase – see Figure 3.1). All available published materials from the internet and selected organizations’ official websites (for instance, the Ministry of Higher Education’s official website - www.mohe.gov.my) were sought for to derive this summary report.

The Malaysian higher education sector is under the jurisdiction of the Ministry of Higher Education. The establishment of this Ministry was on the 27th of March 2004, which marked an important part of history in Malaysia, particularly in the development of higher education. The establishment of MOHE is in line with the vision of the government in making Malaysia a hub of educational-excellence and in internationalizing Malaysian education.

MOHE is the governing authority for the Malaysian higher education sector, overseeing HE institutions, community colleges⁶⁴, polytechnics⁶⁵ and other government agencies involved in higher education activities such as the soon-to-be established Malaysian Qualifications Agency (MQA) (which is the merger of the National Accreditation Board and the Quality Assurance Divisions of MOHE), the National Higher Education Fund Board [Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN)] and Tunku Abdul Rahman Foundation (Yayasan Tunku Abdul Rahman)⁶⁶.

HE Institutions in Malaysia can be divided into two sub-sectors; public and private. In the public sectors, there are 20 universities and 6 university colleges⁶⁷. Below are the Public Institutions of Higher Education in Malaysia:

- 1) Universiti Malaya (UM)
- 2) Universiti Sains Malaysia (USM)
- 3) Universiti Kebangsaan Malaysia (UKM)
- 4) Universiti Putra Malaysia (UPM)

⁶⁴ Community colleges provides a wide range of vocational and technical post-secondary education courses within the Malaysian Qualifications Framework (MQF - http://www.mqa.gov.my/en/utama_mqf.cfm)

⁶⁵ Polytechnics provide training in engineering and commerce to students specializing in technical and vocational areas.

⁶⁶ Please refer to the website link given for further details on the other government agency such as MQA and PTPTN. <http://www.mohe.gov.my/>

⁶⁷ The term ‘university college’ is used to for those tertiary level education institutions that are able to confer their own degrees but have not achieved university status.

- 5) Universiti Teknologi Malaysia (UTM)
- 6) Universiti Utara Malaysia (UUM)
- 7) Universiti Malaysia Sarawak (Unimas)
- 8) Universiti Malaysia Sabah (UMS)
- 9) Universiti Pendidikan Sultan Idris (UPSI)
- 10) Universiti Teknologi MARA (UiTM)
- 11) Universiti Islam Antarabangsa Malaysia (UIAM)
- 12) Universiti Darul Iman (UDM)
- 13) Universiti Malaysia Kelantan (UMK)
- 14) Universiti Malaysia Pahang (UMP)
- 15) Universiti Malaysia Perlis (UniMAP)
- 16) Universiti Malaysia Terengganu (UMT)
- 17) Universiti Pertahanan Nasional Malaysia (UPNM)
- 18) Universiti Sains Islam Malaysia (USIM)
- 19) Universiti Teknikal Malaysia Melaka (UTeM)
- 20) Universiti Tun Hussien Onn Malaysia (UTHM)

A special Higher Education Committee, called ‘The Zahid’ committee was set up by the previous Higher Education Minister, Datuk Dr. Shafie Salleh in January 2005 **‘to study, review and make recommendations concerning the development and direction of higher education in Malaysia’**, and to initiate a ‘change of opinion’ in higher education. This committee produced a report to inform the status of Malaysian Higher Education, best practices in HE at regional and international levels and provided recommendations for HE strategies. The overall purpose of this report was to review and make recommendations concerning the development and direction of HE in Malaysia.

Most public HE Institutions in Malaysia have embarked on ICT initiatives to improve communication and exchange of information to compete in global competition; “...*most universities have undertaken or are undertaking the setting up of web-based portals*”(Ministry of Higher Education, 2006, pp. 142). These initiatives have certainly been high Government investments in ICT in HE sectors especially public universities. The purpose of these initiatives has been to ensure that the progress and continuity of the HE sectors is sustained.

KICTSP was national project that took place in 2007 lead by Prof. Dr. Rose Alinda Alias that resulted in a strategic planning documentation, namely the '*Knowledge, Information and Communication Technology Strategic Plan, Public Higher Education Institutions - KICTSP IPTA (2007-2010)*'. This documentation was specifically prepared for the Information Technology Division in Ministry of Higher Education (MOHE), Malaysia and the Steering Committee of ICT Management (JKPICT IPTA) which comprised of ICT centre director for each public university in Malaysia. This project was lead by a group of consultants namely, Knowledge & Information System Management Research Group (KISyM) from the Faculty of Computer Science and Information Systems (FSKSM), Universiti Teknologi Malaysia (UTM). This document explained the strategy for the knowledge, information and communication technology (KICT) in the public higher education institutions in Malaysia. Furthermore the MOHE and JKPICT IPTA have been using this documentation as a guideline in planning, managing and implementing the ICT in their university respectively.

Results from the KICTSP⁶⁸ project showed that most of the universities have implemented a range of applications to support the university's administrative function (e.g. financial, HR and student). Furthermore, there are also a range of applications that support the main business processes of the university such as research, teaching and learning⁶⁹ (Raja Hussin, 2004).

However, there are some limitations in the ICT implementation in the Malaysian HE sectors also identified by the committee⁷⁰ and stated in the report (Ministry of Higher Education, 2006, pp. 146). These limitations were also addressed by the KICTSP project, as stated below:

- 1) Applications and platforms among public universities are not standardized.
- 2) MOHE senior executives do not have access to real time, accurate and consolidated data either in their own departments or in public universities.
- 3) Lack of integration and networking between the database of MOHE and public universities.

⁶⁸ As mentioned in the section 1.2.2, candidate played a leading role in this project. Therefore, candidate has accesses to the report produced by the group. The report is unpublished and in a Malay language version.

⁶⁹ Example of applications is E-Learning. Raja Hussin (2004) gave example of two universities in Malaysia incorporate the use of E-Learning in their degree program.

⁷⁰ This committee was given the mandate to study the status of higher education in Malaysia taking into account contemporary regional and international developments in tertiary education. In addition, the committee was instructed to prepare a report with recommendations for the Ministry of Higher Education based on Terms of Reference stipulated by the Honorable Minister.

Thus, the committee⁷¹ recommended a list of recommendations (-138 recommendations to be exact) to enable MOHE and various institutions of HE to act upon recommendations to drive changes and stimulate efforts towards excellence. A number of these recommendations related with the ICT issues, some specifically stating the need to consider shared services. These are presented below, the shared services specific recommendations depicting in bold (Ministry of Higher Education, 2006, pp. 152):

- 1) Recommendation (51): Policy be formulated for an integrated eHigher Education (eHiED) Environment to improve ICT capabilities and enhance information management.
- 2) Recommendation (52): A centralized HE ICT Council to be formed, to champion the overall strategy and implementation of the eHiED environment. This council shall be spearheaded by the MOHE and is to be the highest ICT strategic body for the nation's higher education.
- 3) Recommendation (53): Open source solution (OSS) in MOHE and HE institutions.
- 4) Recommendation (54): Secure networks using gigabyte Ethernet and wireless technologies.
- 5) Recommendation (55): ICT Shared services centre implemented for all public universities, polytechnics and community colleges.
- 6) Recommendation (56): Disaster recovery centre implemented by leveraging on the services from eHiED ICT Shared Services Centers.
- 7) Recommendation (57): E-learning content development.
- 8) Recommendation (58): National Library to become the central digital repository.
- 9) Recommendation (59): An integrated Knowledge Management capability.
- 10) Recommendation (60): MOHE analyze and consolidate real time data from public universities, polytechnics and community colleges via integrated Executive Information Systems (EIS), Data Warehouse (DW) and Enterprise Integration (EI).
- 11) Recommendation (61): Each institution in eHiED employs an integrated Campus Management System (CMS).
- 12) Recommendation (62): Institutional of Higher Education to adopt a standardized smart card system.

⁷¹ Refer to the Zahid Higher Education Committee

From the above list of recommendations, there are 2 specific recommendations; (55) and (56) that show the need for shared services in the Malaysian HE sector. Therefore, in order to implement these recommendations, the committee proposed to further investigate into the benefits of shared services in the Malaysian HE Sector, How to proceed (i.e. what will make such initiatives successful) and what might be the inhibitors. They also wanted to look into best practices, and learn from examples of other HE contexts in other nations. Addressing these topics in a rigorous manner, that provided relevant insights to the Malaysian Higher Education Sector, became a driving motivation of this study. The above mentioned context also influenced the case design and conduct (as depicted in Task 6 of the overall research design in Figure 3.1).

Appendix B STUDY OUTCOMES

This appendix summarizes the tangible outcomes of this study. It consists of two (2) sections:

- **Section B.1** - depicts all academic papers derived from content related to this thesis [illustrating which thesis section(s) the publications are derived from].
- **Section B.2** - depicts the doctoral consortiums that the candidate has attended during her doctoral candidature.
- **Section B.3** – depicts special recognitions that the candidate has achieved during her doctoral candidature.

B.1 Academic Papers Derived from Content Related to this Thesis

ID	OUTCOMES	RELATED THESIS CHAPTER/SECTION
JOURNAL PUBLICATIONS		
J1	Miskon, S., Bandara, W., Fielt, E., & Gable, G. (2010). Understanding Shared Services: An Exploration of the IS Literature. <i>International Journal of E-Services and Mobile Applications</i> , 2(4), 60-75.	Chapter 5 (Section 5.5.1 and 5.5.2)
J2	Miskon, S., Fielt, E., Bandara, W., & Gable, G., (2012). Towards a Typology of Structural Arrangements for Shared Services: Evidence from the Higher Education Sector. <i>The International Journal on Networked Business Special Issue "Shared Services: A Holistic Perspective"</i> , doi: 10.1007/s12525-012-0116-0	Chapter 6
J3	Miskon, S., Bandara, W., Gable, G. G., & Fielt, E. (2012). Success Factors for ICT Shared Services in the Higher Education Sector. <i>Journal of Information Technology Research (JITR)</i> , 5(3), 1-24. doi:10.4018/jitr.2012070101	Chapter 9
J4	Title: Exploring Shared Services from an IS Perspective: A Literature Review and Research Agenda . Submitted to <i>Communications of the Association for Information Systems</i> . STATUS: Accepted for publication and has been submitted for revision.	Chapter 5
INTERNATIONAL CONFERENCE PAPERS (REFEREED)		
C1	Miskon, S., Bandara, W., Gable, G., & Fielt, E. (2009). <i>Understanding Shared Services: An Exploration of the IS Literature</i> . Paper presented at the 20th Australasian Conference on Information Systems, Melbourne, Australia.	Chapter 5 (Section 5.5.1 and 5.5.2)
C2	Bandara, W., Miskon, S., & Fielt, E. (2011). <i>A Systematic, Tool-Supported Method for Conducting Literature Reviews in Information Systems</i> . Paper presented at the 19th European	Chapter 5 (Section 5.3)

C3	Conference of Information Systems, Helsinki, Finland.	
	Miskon, S., Bandara, W., Fielt, E., & Gable, G. (2011). <i>An Exploration of Shared Services Types in Higher Education</i> . Paper presented at the Proceedings of the Seventeenth Americas Conference on Information Systems, Detroit, Michigan.	Chapter 6
C4	Miskon, S., Bandara, W., Gable, G., & Fielt, E. (2011). <i>Success and Failure Factors of Shared Services: An IS Literature Analysis</i> . Paper presented at the International Conference on Research and Innovation in Information Systems, Kuala Lumpur, Malaysia. (Won Best Paper Award)	Chapter 5 (Section 5.5.5)

B.2 Doctorial Consortium Attendance

- 1) Miskon, S. "IS-Impact of Admin Systems in Universities in Malaysia" presented at Information Technology Professional Services Doctoral Consortium, Brisbane, Australia, November 6, 2008.

ACADEMIC PANEL MEMBERS:

External Scholars: Dr. Andrew Burton Jones and Dr. Wuigee Tan.

- 2) Miskon, S. "The Potential for Shared Services in the Higher Education Sector" presented at Information Technology Professional Services Doctoral Consortium, Brisbane, Australia, November 23, 2009.

ACADEMIC PANEL MEMBERS:

External Scholars: Prof. Shirley Gregor, Prof. Peter Seddon.

- 3) Miskon, S. "The Potential for Shared Services in the Higher Education Sector" presented at IFIP TC 8, Information Systems Doctoral Consortium (held just prior to the World Computer Congress), Brisbane, Australia, September 19, 2010.

ACADEMIC PANEL MEMBERS:

External Scholars: Dr. George M. Kasper, Prof. Michael Rosemann, and Prof. Maria Wimmer.

- 4) Miskon, S. "The Potential for Shared Services in the Higher Education Sector" presented at Information Technology Professional Services Doctoral Consortium, Brisbane, Australia, November 17, 2010.

ACADEMIC PANEL MEMBERS:

External Scholars: Prof. Dirk S. Hovorka, Prof. Mary Tate.

- 5) Miskon, S. “The Potential for Shared Services in the Higher Education Sector” presented at Information Technology Professional Services Doctoral Consortium, Brisbane, Australia, July 12, 2011.

ACADEMIC PANEL MEMBERS:

External Scholars: Prof. Eph McLean and Prof. Rajeev Sharma.

B.2 Special Recognitions

- 1) Best Paper Award in the International Conference on Research and Innovation in Information Systems (2011).

Miskon, S., Bandara, W., Gable, G., & Fielt, E. (2011). *Success and Failure Factors of Shared Services: An IS Literature Analysis*. Paper presented at the International Conference on Research and Innovation in Information Systems, Kuala Lumpur, Malaysia.

Appendix C

DOCUMENTATION RELATED TO THE PILOT CASE STUDY

This appendix consolidates some of the documentation that relates to the pilot case study and contains the following:

- C.1 Pre analysis plans- preparing for the Case study
- C.2 Proposal for Case study with a call-for-participation
- C.3 Interview protocol for Initial Interview
- C.4 Interview protocol for follow-up Interview
- C.5 Evidence of Ethical Clearance

C.1 Pre Analysis Plans: Preparing for the Case Study

Yin (2009) explicitly states the importance of preplanning what one intends to gather from the case study and identifying the potential sources of evidence (if possible multiple sources) for collecting them. Table C.1 below shows the evidence that was used before, during and after the pilot case study.

Table C.1: Evidences used to support the pilot case

Goals	Sources
Evidences gathered when preparing for the case study:	
<ul style="list-style-type: none"> • To understand the organizational background of the selected cases. <ul style="list-style-type: none"> - Organizational structure - Corporate mission and vision • To aid with the interview conduct. 	<ul style="list-style-type: none"> • Literature review findings (i.e. in understanding the sharing notion and shared services in HE sector). • QUT organization’s official website. • The official website of the Information Services Division of QUT.
Evidences gathered during the case study:	
<ul style="list-style-type: none"> • To further understand the information related with the interview sessions. <ul style="list-style-type: none"> - Participant’s profile. - Other supporting information, for example of list of sample sharing projects (e.g. CAUDIT⁷², Talent2⁷³) mentioned by the participants. 	<ul style="list-style-type: none"> • Individual interviews with the targeted participant. • The targeted participant’s profile from the QUT organization’s official website. • Other organization’s website (for instance the CAUDIT website, Talent2 website) – that were mentioned during the interview. • Field notes taken during the interview.
Evidences gathered after the case study:	
<ul style="list-style-type: none"> • To further understand the organization of case study <ul style="list-style-type: none"> - History of the organization - Extended information of the ongoing projects mentioned at the interviews • To further understand other sharing activities related with the case organization (either within or external to the case organization) <ul style="list-style-type: none"> - Other projects related with the sharing activities in the case organization • To analyse in-depth the case study findings. • To write-up the case study report. 	<ul style="list-style-type: none"> • Interview transcripts. • QUT organization’s official website. • The Information Services Division of QUT official website. • Any published articles related with the implementation of shared services at QUT. • Other organization’s website (for instance the CAUDIT website, Talent2 website) which related with the implementation of sharing services at QUT.

⁷² CAUDIT is the Council of Australasian University Directors of Information Technology. Further details please refer to Chapter 3, Section 3.2.

⁷³ Talent2 is an example of software that applicable for shared services environment. For further details see <http://www.talent2.com>.

C.2 Proposal for case study with a call-for-participation

A case study on potential from sharing and shared services at QUT

Proposal: To conduct a descriptive, qualitative case study of existing and potential ‘Shared Services’ and other relevant sharing arrangements that QUT has or might benefit from, in relation to its core support functions (i.e. Financials, HR, Students, Library, Research, Facilities, etc), in particular the Information systems enabling these functions.

Study Team: The study would be conducted by the IT Professional Services (ITPS) Research Group at QUT. The core study team will include (1) Professor Guy Gable (Supervisor), (2) Dr Wasana Bandara (Supervisor), (3) Dr Erwin Fieft (Supervisor), and (4) Ms Suraya Miskon (PhD candidate). One or more other research students may become involved.

Background: The term ‘Shared Services’ has various connotations. For the purpose of this study, we define Shared Services as “*the concentration of company resources performing like activities, typically spread across the organization, in order to service multiple internal partners at lower cost and with higher service levels, with the common goal of delighting external customers and enhancing corporate value*”⁷⁴. There are many Shared Services success stories in both public and private sectors. Leading research firm Gartner reports on the application of Shared Services across a diversity of industries, stating that “*Many enterprises are looking to Shared Services to support efficiency goals and to enhance business integration and agility*”⁷⁵. Potential from Shared Services is most apparent for support functions, it being widely employed in Human Resource Management, Finance and Accounting, and ICT. Reports show that 16 of the top 20 Fortune 500 companies employ Shared Services centres.

While the use of Shared Services is growing rapidly, it is a relatively recent phenomenon. Review of the literature suggests a need for improved understanding of shared services; the very notion is at times unclear and more work is required to understand when it is suitable, how to implement successful shared services and the associated challenges and means to address them. The proposed study aims to address these gaps, focusing specifically on the Higher Education (HE) sector.

Interest from Higher Education Institutions in Shared Services (Australia and worldwide) has many environmental impetuses, including: continuing decline in per-student government funding and support, globalisation and global competition, continuing growth in student numbers, changes in the nature of academic work, increasing competition between institutions, government pressure to improve operational efficiency, and generally diverse and shifting expectations of stakeholders. These substantial and continuing shifts in the sector demand more efficient and improved processes.

The proposed study will investigate the status of Shared Services in the higher education sector, with detailed case studies of a series of selected Universities. As an institution that has gained recognition for innovative and efficient ICT and process management, the research team would much value the participation of QUT.

Main Study Objectives: are to better understand (1) *when Shared Services is a suitable solution in the Higher Education sector, and the anticipated benefits*; (2) *the lifecycle phases of designing, deploying and maintaining sharing arrangements*; (3) *the challenges associated with such sharing arrangements*; and (4) *potential means of addressing these challenges*.

Approach: The study would entail mainly qualitative evidence from documents and interviews. Though the evidence collection is expected to be evolutionary, and thus not entirely predictable, every effort would be made to minimize demands on QUT staff.

⁷⁴ Schulman, D.D. et al., 1999. *Shared Services: Adding Value to Business Units*. John Wiley & Sons, Inc.

⁷⁵ Gartner 2008. "Achieving Success With Shared Services," Gartner Corporate Marketing.

Agreement on a small number of meetings/interviews would be sought well in advance; these meetings would be professionally organised.

The intended interviews seek the participation of stakeholders who influence, or are influenced by, existing and potential sharing arrangements. A high level interview protocol (including intended questions) will be circulated to agreed participants well in advance. With the permission of the participants, these interviews will be audio recorded and transcribed for analysis purposes. The data will be analysed to address the objectives listed above.

The anonymity and confidentiality of all participants will be safeguarded in any publication of results from this research. No individual or institution will be referred to (except through the use of pseudonyms), and only aggregated results will be reported. All information gathered will reside securely with the research team and will be subject to audit by QUT's Research Ethics Review Committee.

Benefits to QUT: will include - documented inventory of existing sharing arrangements, including suggested strengths and weaknesses, and documented analysis of further sharing potential; as well as insights gained through discussion and interaction with the study team.

QUT's Role and Investment: is primarily staff time involved in the supply of study evidence.

Timeframe: The project will extend over 3 months commencing as soon as convenient.

Communication of Findings: is through a final report to QUT, deliverable by the research student within 1 month of study completion. Further detailed findings will be reported in research students' theses and related papers, over which QUT will have veto; anything sensitive being anonymized, excluded or embargoed.

C.3 Interview Protocol for Initial Interview

Interview protocol

Date: 11th of Sept 2009

Interviewee: Mr Joe Dascoli (Associate Director) - Technology, Information and Learning Support Information Technology Services Department (ITS -Enterprise Information Services, QUT)

Introduction

- Thank interviewees for consenting to the interview and taking time off to do it.
- Ask for permission to record the interview session.
- Inform him/her where we are up-to now

What might we try to do and find out at the first meeting with Mr Joe Dascoli

The main goal of this meeting will be to introduce Joe to the study and try to get his support for conducting a case study at QUT. For this we might need to:

- Acknowledge his support in prior work
- Discuss what this study aims to do – and how QUT may fit into the bigger picture
- We should also state what benefits QUT will get from this and mention how the data will be collected and handled (i.e. Ethics, anonymity etc)

Provided that Joe is supportive of the study and when/if relevant, we might also make use of this meeting as a data collection opportunity – in particular to collect some meta details that might help us with the more specific data collection. Things we might need to ask may include:

- What “sharing” occurs at QUT? <In relation to IT?>

<We could try to get an understanding of what Joe see’s as *sharing arrangements in ICT* here and also some potential sharing arrangements that we can conduct some follow-up study for. Can ask for some introductory details and potential contacts for the different arrangements mentioned here>

- **If opportunity arises**, we can also ask him the following Qs:
 - *Do you think Shared Services (or sharing) is a suitable solution in the Higher Education sector? Why so...?*
 - *At what particular instances is Shared services (or sharing) a viable solution/option?*
 - *What are the challenges associated with such sharing arrangements? What may be some potential means of addressing these challenges?*
 - *Can ask what specific sharing arrangements Joes has played a critical role and ask him to walk us through the main phases of arranging such an arrangement?*

Furthermore, **provided that Joe is supportive of the study and when/if relevant**, we might also make use of this opportunity to see what other data we can get access to through Joe (i.e. contacts he might be able to introduce us to within and outside QUT).

C.4 Interview Protocol for Follow-Up Interview

Interview protocol (Interviewee)

Date: 30th of Sept 2009

Interviewee: Mr Joe Dascoli (Associate Director)- Technology, Information and Learning Support Information Technology Services Dept (ITS-Enterprise Information Services, QUT)

Introduction

- Thank interviewees for consenting to the interview and taking time off to do it.
- Ask for permission to record the interview session.
- Inform him/her where we are up-to now

Confirmation of details from the previous interview...

1. Can you please confirm that we have correctly captured your view of sharing and shared services, at QUT? (*Is there anything that you'd like to change or add here?*)
 - a. *What are the characteristics of 'Shared services' in your view?*
 - b. *How does, in your opinion 'Shared Services' differ from other forms of sharing?*
 - c. *What does 'Service' mean in this context?*
2. Can you please confirm that we have identified the benefits that you see by sharing and/ or shared services? (*Is there anything that you'd like to change or add here?*) *Please see summary report on previous interview*
 - a. After looking at literature, I have identified a number of benefits of shared services. Is there anything from here that you'd like to change or add to this report?

• Cost effectiveness	• Become more process focused
• Support consolidation	• Improve organizational structure
• Support standardization	• Accumulate capital assets
• Enhance value generation	• Address dissatisfaction with current performance
• Avoid duplication of efforts	• Focus on core competencies
• Deploy new technologies	• Generate revenue
• Improve services	• Improve control
• Facilitate sharing	• Propagate best practice
• Increase customer focus	• Avoid risk
• Provision to create COE	• Enhance collaboration
• Gain better access to organization's resources	• Facilitate customization
3. Can you please confirm that we have identified all the different types of (related) sharing arrangements at QUT? (*Is there anything that you'd like to change or add here?*) *Please see summary report on previous interview.*
 - a. Which of these are the most critical ones, in your view?

- i. Can you please explain why?
- ii. What unique aspects make it so...?

Next steps for case study...

Ideally, as the next steps, we seek your help to identify at least one case from each of the (critical) sharing arrangements mentioned above.

<Here we can present the list of applications found in the QUT web site as ask about them. >

Sharing arrangement	Type	Brief background	Key contacts we can follow-up with

The main goal of the next task/level is to understand the different type of sharing arrangement. Things we might need to ask may include:

- What is your position in the organizations? (If not known).
- Years of experience/job scope?
- Can you please explain the project background?
 - Who are the users/owners (internal/external)/responsible units?
 - What initially attracted the organization/you to implement shared services/sharing arrangements in this initiative? (List and discuss all the SS objectives)
 - What were the challenges you faced when implementing shared services/sharing arrangements in this initiative? (List all the SS inhibit factors)
 - What may be some potential means of addressing these challenges?
 - How does the organization influence/encourage the employee to accept the Shared Services/Sharing Arrangement initiatives? (mandatory/voluntary)
- Do you think this Shared Services (or sharing) is a suitable solution in the Higher Education sector? Why so...?
- At what particular instances is Shared services (or sharing) a viable solution/ option?
 - How could the sharing arrangements be positioned within the HEI context? (probe)
 - What is the relationship between the customer and the provider? (probe)
- How can Shared Services benefit HE institutions? (probe)

C.5 Evidence of Ethical Clearance

Ethics Application Approval -- 0900001086

Page 1 of 1

Ethics Application Approval -- 0900001086

Research Ethics [ethicscontact@qut.edu.au]

Sent: Monday, October 19, 2009 3:55 PM

To: SURAYA MISKON; Wasana Bandara

Cc: Janette Lamb

Dear Mrs Suraya Miskon

Project Title:

A case study on potential from sharing and shared services at Australian higher education institutions (HEIs)

Ethics Number: 0900001086

Clearance Until: 19/10/2012

Ethics Category: Human

This email is to advise that your application has been reviewed by the Chair, University Human Research Ethics Committee and confirmed as meeting the requirements of the National Statement on Ethical Conduct in Human Research.

Whilst the data collection of your project has received ethical clearance, the decision to commence and authority to commence may be dependant on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or permissions from other organisations to access staff. Therefore the proposed data collection should not commence until you have satisfied these requirements.

If you require a formal approval certificate, please respond via reply email and one will be issued.

Decisions related to low risk ethical review are subject to ratification at the next available Committee meeting. You will only be contacted again in relation to this matter if the Committee raises any additional questions or concerns.

This project has been awarded ethical clearance until 19/10/2012 and a progress report must be submitted for an active ethical clearance at least once every twelve months. Researchers who fail to submit an appropriate progress report may have their ethical clearance revoked and/or the ethical clearances of other projects suspended. When your project has been completed please advise us by email at your earliest convenience.

For variations, please complete and submit an online variation form:
<http://www.research.qut.edu.au/ethics/forms/hum/var/variation.jsp>

Please do not hesitate to contact the unit if you have any queries.

Regards

Research Ethics Unit | Office of Research
Level 4 | 88 Musk Ave | Kelvin Grove
p: +61 7 3138 5123 | f: +61 7 3138 1304
e: ethicscontact@qut.edu.au | w: <http://www.research.qut.edu.au/ethics/>

<https://outlook.qut.edu.au/OWA/?ae=Item&t=IPM.Note&id=RgAAAABXJHbUwOU2SY...> 1/04/2012

Appendix D

DOCUMENTATION RELATED TO THE MULTIPLE CASE STUDY

This appendix consolidates some of the documentation that relates to the case study and contains the following:

- D.1 Pre analysis plans- preparing for the case study
- D.2 Case study protocol
- D.3 Interviewee questions
- D.4 Interviewee contact details
- D.5 Proposals for case study with a call-for participation
- D.6 Letter to approach target interviewees
- D.7 Field note templates
- D.8 Shared services definition
- D.9 Interview scheduling template
- D.10 Evidence of ethical clearance
- D.11 Consent form

D.1 Pre analysis plans - preparing for the case study

Yin (2009) explicitly states the importance of preplanning what one intends to gather from the case study and identifying the potential sources of evidence (if possible multiple sources) for collecting them. Table D. below shows the evidence that was used before, during and after the multiple case studies.

Table D.1: Evidences used to support the case studies

Goals	Sources
Evidences gathered when preparing for the case study:	
<ul style="list-style-type: none"> • To understand the organizational background of the selected cases. <ul style="list-style-type: none"> - Organizational structure - Corporate mission and vision • To aid with the interview conduct. 	<ul style="list-style-type: none"> • Literature review findings (i.e. in understanding the sharing notion and shared services in HE sector). • Further insights for protocol design from the pilot case study phase. • Case participant organization’s official website. • The official website of the Centre of ICT for each case participant.
Evidences gathered during the case study:	
<ul style="list-style-type: none"> • To further understand the information related with the interview sessions. <ul style="list-style-type: none"> - Participant’s profile. - Other supporting information, for example of list of sample sharing projects (e.g. MyLine⁷⁶, MYREN⁷⁷) mentioned by the participants. 	<ul style="list-style-type: none"> • Individual interviews with the targeted participant. • The targeted participant’s profile from their organization’s official website. • Other organization’s website (for instance MYREN website) – that were mentioned during the interview. • Field notes taken during the interview.
Evidences gathered after the case study:	
<ul style="list-style-type: none"> • To further understand the organization of the case sites <ul style="list-style-type: none"> - History of the organization - Extended information of the ongoing projects mentioned at the interviews • To further understand other sharing activities related with the case organization (either within or external to the case organization) <ul style="list-style-type: none"> - Other projects related with the sharing activities in the case organization • To analyse in-depth the case study findings. • To write-up the case study report. 	<ul style="list-style-type: none"> • Interview transcripts. • Case organization’s official website. • The official website of the Centre of ICT for each case organization. • Any published articles, booklets, pamphlets related with the implementation of sharing initiative related with the case organizations. • Other organization’s website (for instance MYREN website) which related with the implementation of sharing services at case organization selected.

⁷⁶ MyLine is an example of sharing initiatives implemented within UTM and also has been expanded across Malaysian Public Universities.

⁷⁷ MYREN is the Malaysian Research & Education Network has thus far connected all public universities in Malaysia enabling closer collaboration to underpin critical applications, education and research activities across the country. For further details see <http://www.myren.net.my/>.

Case Study Protocol

A Case Study on Potential from Sharing and Shared Services at Higher Education Institutions

Project Team:

Suraya Miskon <i>(Researcher/PhD Candidate)</i> suraya.miskon@student.qut.edu.au Phone: +61 4 3360 6139	Dr. Wasana Bandara <i>Principle Supervisor</i> w.bandara@qut.edu.au Phone: +61 7 3138 9484	Prof. Guy Gable <i>Associate Supervisor</i> g.gable@qut.edu.au Phone: +61 7 3138 9472	Dr. Erwin Fielt <i>Associate Supervisor</i> e.fielt@qut.edu.au Phone: +61 7 3138 1207
Queensland University of Technology (QUT), Faculty of Science and Technology Information Systems Discipline 126 Margaret Street, Level 3 Brisbane, QLD 4000, Australia			

Overview:

This protocol is designed for the first (exploratory) phase of a multi-phased case study.

The objectives of this phase are as follows:

1. To build awareness of the study and its benefits and get support for data collection.
2. To understand ‘Shared Services for ICT’, as in the Malaysian HE sector.
3. To identify types of Shared Services initiatives in the university sector (in general).
4. To help characterise Shared Services from other forms of sharing arrangements
5. ***To better understand the issues, success factors and failure factors related to Shared Services in HE.

This protocol consists of the following:

1. Interview questions (see Section D.3)
2. Interviewee details (see Section D.4)
3. Proposals for case study with a call-for participation (see Section D.5)
4. Email to approach target interviewees (see Section D.6)
5. Field notes templates (see Section D.7)
 - a. Contact Summary Form
 - b. Observation Checklist
 - c. Document Summary Form

D.3 Interview Questions

Date: XXth of XXX 2010

Introduction

1. Thank interviewees for consenting to the interview and taking time off to do it.
2. Ask for permission to record the interview session (explain the consent form and get it filled and signed – see Section D.11)

The main goal of this meeting will be to introduce the study and try to get his/her support for conducting a case study at <university name>. For this the candidate might need to:

1. Discuss what this study aims to do – and how the <university name> case fits in the bigger picture
2. The candidate should also state what benefits <university name> will get from this and mention how the data will be collected and handled (i.e. ethics, anonymity etc)

Things might need to ask may include:

OBJECTIVE 1: To understand shared services in the ICT environment.

There are two types of scenarios that might happen when investigating the current state of Shared Services initiatives. These are:

- a. Comprehend Shared Services:
 - Those interviewed, understand and/ or have implemented (or plan to) Shared Services initiatives. A similar scenario might also be that they understand Shared Services but have not implement Shared Services BUT might have some ICT projects that are close to the Shared Services definition.
- b. Does not Comprehend Shared Services:
 - Those interviewed, do not understand what Shared Services is BUT might have some ICT projects that are close to the Shared Services definition.
 - i. This group is only worthwhile pursuing further IF:
 1. They are aware of the Shared Services initiatives AND Considering the Shared Services initiatives in the future.

ELSE

2. Discontinue the interview session and ask whether he/she might be able to introduce us within or outside <university name> that might have potential projects that are close with the Shared Services notion.
- 3.

1. What is Shared Services in your view?

COMPREHEND SHARED SERVICES	<p><i><If the interviewee is able to provide an answer proceed to question 1(a)></i></p> <p>1(a). How would you describe Shared Services?</p> <ul style="list-style-type: none"> • In your view, how do Shared Services differ from other notions of sharing (such as sourcing, centralization, or internal organization systems)? • Can you briefly outline the history of Shared Services within your department/university? • Is there any organizational unit responsible for these Shared Services initiatives at <university name>? • How did you position Shared Services within your organization? • Who are the parties that are currently responsible in developing/maintaining/implementing the Shared Services initiatives in your university? (I.e. Internal technical staffs, outsource, vendor. If different parties at different level please describe). • Does your organisation plan to continue using the current Shared Services/Sharing Arrangement initiatives in long term, or are there any possibilities that the organisation might revert to other sourcing arrangements? Why? <ul style="list-style-type: none"> ▪ Usually, WHO makes the decisions about creating/ continuing with Shared Services at your university? (i.e. organisation wide, department level) <p><i><Proceed to question 2></i></p>
DOES NOT COMPREHEND SHARED SERVICES	<p><i><If the interviewee is unable to provide an answer proceed to question 1(b). The interviewee will be given the Shared Services definition distilled from the literature.></i> [Please refer to Section D.8 – shared services definition.]</p> <p>1(b). Based on the brief definition given here, are you aware of OR do you know about Shared Services?</p> <ul style="list-style-type: none"> • Do you considering implementing Shared Services in your department/university in the future? Why? <p><i><If the answer is YES, proceeds to question 1(c)></i></p> <p><i><If the answer is NO, proceeds to question 1(d)></i></p> <p>1(c). What initially attracts the department/university/you to implement Shared Services initiatives?</p> <ul style="list-style-type: none"> • What does the department/university/you expect to achieve by implementing Shared Services initiatives? <p>1(d). What aspects made the department/university/you not to choose/adopt Shared Services initiatives?</p> <p><i><Proceed to question 2></i></p>

OBJECTIVE 2: To identify types of shared services initiatives in the university (actively implement/plan to implement/consider to implement).

In this situation, for those who do not understand what Shared Services is, they will be given the Shared Services definition distilled from the literature. The purpose is to identify ICT projects that are as close as possible to the Shared Services definition.

Shared Services can share different kinds of things. What types of sharing occur in the projects your department/university is currently involve in (or plan to be involved in the future)?

OBJECTIVE 3: To identify the success factors, failure factors and issues related to shared services initiatives in the universities

- **If opportunity arises**, the following questions will be asked:
 - **What are the benefits of these ICT projects in relation to Shared Services (or sharing)?**
 - Do you think Shared Services (or sharing) is a suitable solution in the Higher Education sector? Why so...?
 - At what particular instances is Shared services (or sharing) a viable solution/option?
 - **What are the success factors associated with such ICT projects in relation to Shared Services (or sharing)?**
 - Did you think <success factor attribute⁷⁸> is important to the success of such Shared Services (or sharing) initiatives?
 - Why this <success factor attribute> is important?
 - How to make this <success factor attribute> happen?
 - **What are the challenges associated with such ICT projects in relation to Shared Services (or sharing)? Do these problems impede the process of Shared Services (or sharing) implementation in the organization?**
 - What may be some potential means of addressing these challenges?

Furthermore, **provided that the interviewee is supportive of the study and when/if relevant**, we might also make use of this opportunity to see what other data we can get access to through the interviewee (i.e. contacts he might be able to introduce us to within and outside <university name>). [Please refer to Section D.9 – Interview Scheduling Template.]

- **Do you know any other Shared Services (or sharing) initiatives that occur within and outside your <university name>?**
 - Can you give me some potential contacts of people I may talk to, to find out more details please?
-

- **If time permits**, the following questions will be asked:
 - **In your view, what do you see as the core characteristics of “sharing” in Shared Services initiatives?**
 - What make Shared Services different from other forms of sharing (such as sourcing, centralization, or internal organization systems)?

⁷⁸ This was based on the results from the lit review, as presented in chapter 4, Section 4.5.5

D.4 Interviewee Details

The study would entail mainly qualitative evidence from documents and interviews. Though the evidence collection is expected to be evolutionary, and thus not entirely predictable, every effort would be made to minimize demands on university staff specifically in IT Department/Centre. Agreement on a small number of meetings/interviews would be sought well in advance; these meetings would be professionally organised. Below is the list of targeted universities:

- 2) UTM (Universiti Teknologi Malaysia)
- 3) UMP (Universiti Malaysia Pahang)
- 4) UiTM (Universiti Teknologi Mara)
- 5) UTeM (Universiti Teknologi Melaka)
- 6) UKM (Universiti Kebangsaan Malaysia)

The intended interviews seek the participation of stakeholders (the major decision maker – see Section D.4.1 for contact details for each university) who influence, or are influenced by, existing and potential sharing arrangements in ICT projects. Then, the major decision maker will be contacted (i.e. the ICT Director, key contact person). At the initial preparatory phase, the key contact person were approached through email with a mini proposal (see D.5) and seeking support for a case study at the respective university and to allow them to have an idea of what to expect during the case study. A high level interview protocol (including intended questions) will be circulated to agreed participants well in advance (please refer to the attachment the exploratory questions). If there is not enough data from the above universities OR there is an interesting sharing arrangement between the above universities with other organization, these organizations outside these universities will be contacted/ approached in this study and the same protocol will be followed, see the letter to approach target interviewees in Section D.6.

D.4.1 Interviewee Contact Details⁷⁹

1. UTM (Universiti Teknologi Malaysia)

<http://www.utm.my/cict/>

Prof. Dr. Safa'ai Deris

Post: ICT Director

Email: C-SAFAAI@UTMKL.UTM.MY; safaai@utm.my; pengarahict@utm.my

Contact number: (direct line) 07-55 33033; (ext. num.) 32222;

Assoc. Prof. Dr. Sulaiman Mohd Nor

Post: ICT Deputy Director (Network and Communication)

Email: sulaiman@suria.fke.utm.my; - Not valid

Contact Number: (direct line) 07-550 5024 (ext. num.) 35224;

Mr. Abd. Hamid Nasir

Post: ICT Deputy Director (Administration Computing)

Email: hamid@utm.my;

Contact Number: (direct line) 07-553 2046 (ext. num.) 32046;

Assoc. Prof. Hanizam Sulaiman

Post: ICT Deputy Director (Academic Computing)

Email: hanizam@utm.my; hanizam@fkkksa.utm.my;

Contact Number: (direct line) 07-553 2034 (ext. num.) 35507

2. UMP (Universiti Malaysia Pahang) – ICT Centre

<http://ptmk.ump.edu.my/index.php/direktori-staf.html>

Mr. Roslan Awang Abdul Rahman

Post: ICT Director (Act of Director)

Email: roslanr@ump.edu.my;

Contact number: (direct line) 09-549; (ext. num.) 2175;

Mr. Wan Azlee Wan Abdullah

Post: ICT Deputy Director (Application and System Development)

Email: wazlee@ump.edu.my;

Contact number: (direct line) 09-549; (ext. num.) 2195;

Mr. Mohd Rashid Abu Bakar

Post: ICT Deputy Director (Network and Telecommunication)

Email: mrashid@ump.edu.my;

Contact number: (direct line) 09-549; (ext. num.) 2173;

Ms. Norshuhada Muhd Nordin

Post: ICT Deputy Director (ICT Skills and Multimedia)

Email: norshuhada@ump.edu.my;

Contact number: (direct line) 09-549; (ext. num.) 2185;

Mr Sabri Ahmad Hisham

⁷⁹ Last accessed February, 2012

Post: ICT Deputy Director (ICT Management Campus Pekan)
Email: sabri@ump.edu.my;
Contact number: (direct line) 09-424; (ext. num.) 2179;

Ms. Ernie Nurazlin Lizam
Post: ICT Deputy Director (Administration and Financial)
Email: ernie@ump.edu.my;
Contact number: (direct line) 09-424; (ext. num.) 2370;

Mr. Irman Khalil
Post: ICT Deputy Director (Server and Recovery)
Email: irman@ump.edu.my;
Contact number: (direct line) 09-424; (ext. num.) 2183;

3. Universiti Teknologi Mara

Have campus for each state in Malaysia.

INTEC's Information Technology Unit (IITU).

Assoc. Prof. Rahidzab Talib
Post: Director of Centres of Integrated Information Systems (CIIS)
Email: pgrhPSMB@salam.uitm.edu.my;
Contact number: (direct line) 603-5544 2196;
Notes: <http://www.uitm.edu.my/index.php/en/about-uitm/administration/centre-heads>
http://psmb.uitm.edu.my/index.php?option=com_peoplebooks2&Itemid=112

Mr. Sajudin Samad
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Ms. Kamaliyah Sarjo @ Haji Ahmad
Post: Head of ICT Projects Unit
Email: kamaliyah@salam.uitm.edu.my
Contact number: (direct line) 603-5544 2577

Mr. Osman Mat Sam
Post: Head of ICT Coordination Unit (Campus and Faculty)
Email: osman@salam.uitm.edu.my
Contact number: (direct line) 603-5544 2194

Mr. Husain Rahim
Post: Head of ICT Collaborative and Communication Dept.
Email: husainrahim@salam.uitm.edu.my
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4. Universiti Teknologi Melaka

http://www.utem.edu.my/pusat_komputer/index.php?option=com_contact&catid=13&Itemid=92

Mohd Isa Bin Mohd Dom
Post: Director
Email: mohdisa9@utem.edu.my
Contact Number: 06-331 6005

Norhazlena Binti Sabtu
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Mimi Rahayu Binti Hamdin
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Mohd Radzif Bin Abdul Hamid
Post: IT Officer (Head of Division) - Network & System Support Division
Email: radzif@utem.edu.my
Contact Number: 06-331 6055

5. Universiti Kebangsaan Malaysia

www.ukm.my

Prof. Dr. Ir. Othman Bin A. Karim
Post: Director
Email: othman@ptm.ukm.my ; pghpk@ukm.my
Contact Number: 03-89216193

Sulaiman Bin Jalil
Post: Timbalan Pengarah (Perkhidmatan & Pengurusan Infrastruktur)
Email: tpiptm@ptm.ukm.my
Contact Number: 03-89216170

Prof. Dr. Mahamod Ismail
Post: Timbalan Pengarah (Sokongan Penyelidikan & Pendidikan)
Email: mahamod@ptm.ukm.my; mahamod@eng.ukm.my; tpspp@ptm.ukm.my
Contact Number: 03-89217004

Salina Ibrahim
Post: Timbalan Pengarah (Sistem Aplikasi & Pengurusan Pengetahuan)
Email: salina@ptm.ukm.my
Contact Number: 03-89216091

D.5 Proposal for case study with a call-for-participation



Proposal: To conduct a descriptive, qualitative case study of existing and potential ‘Shared Services’ and other relevant sharing arrangements that <University Name> has or might benefit from, in relation to its core support functions (i.e. Financials, HR, Students, Library, Research, Facilities, etc), in particular the Information Systems enabling these functions.

Study Team: The study would be conducted by the IT Professional Services (ITPS) Research Group at Queensland University of Technology (QUT), Brisbane. The core study team will include (1) Professor Guy Gable (Supervisor), (2) Dr Wasana Bandara (Supervisor), (3) Dr Erwin Fielt (Supervisor), and (4) Ms Suraya Miskon (PhD candidate).

Background: The term ‘Shared Services’ has various connotations. For the purpose of this study, we define Shared Services as “*the internal provisioning of services by a semi-autonomous organizational unit to multiple organisational units involving the consolidation of business functions supported by a sharing arrangement*”⁸⁰. There are many Shared Services success stories in both public and private sectors. Leading research firm Gartner reports on the application of Shared Services across a diversity of industries, stating that “*Many enterprises are looking to Shared Services to support efficiency goals and to enhance business integration and agility*”⁸¹. Potential from Shared Services is most apparent for support functions, it being widely employed in Human Resource Management, Finance and Accounting, and ICT.

While the use of Shared Services is growing rapidly, it is a relatively recent phenomenon. Review of the literature suggests a need for improved understanding of shared services; the very notion is at times unclear and more work is required to understand when it is suitable, how to implement successful shared services and the associated challenges and means to address them. The proposed study aims to address these gaps, focusing specifically on the Higher Education (HE) sector.

Interest from Higher Education Institutions in Shared Services worldwide, has many environmental impetuses, including: continuing decline in per-student government funding and support, globalisation and global competition, continuing growth in student numbers, changes in the nature of academic work, increasing competition between institutions, government pressure to improve operational efficiency, and generally diverse and shifting expectations of stakeholders. These substantial and continuing shifts in the sector demand more efficient and improved processes.

The proposed study will investigate the status of Shared Services in the higher education sector, with detailed case studies of a series of selected Universities in Malaysia. An early exploration from the literature review in Malaysian HE context confirmed the keen interest of the Malaysian Government⁸² and HE Institutions to pursue Shared Services, hence the research team would much value the participation of <university name> to provide valuable insights on potential sharing and Shared Services at <university name>.

⁸⁰ Miskon, S., Bandara, W., Fielt, E., and Gable, G. (2009). Understanding Shared Services: An Exploration of the IS Literature. In Proceedings of the 20th Australasian Conference on Information Systems, Melbourne.

⁸¹ Gartner 2008. "Achieving Success With Shared Services," Gartner Corporate Marketing.

⁸² MOHE. (2006). Report by the Committee to Study, Review and Make Recommendations Concerning the Development and Direction of Higher Education in Malaysia. Retrieved November, 2006.

Main Study Objectives: are to better understand (1) *what Shared Services are in your view*; (2) *types of sharing arrangements occur or might implement in the university*; (3) *the challenges associated with such sharing arrangements*; (4) *success factors associated with such sharing arrangements*; and (5) *benefits of such sharing arrangements*.

Approach: The study would entail mainly qualitative evidence from documents and interviews. Though the evidence collection is expected to be evolutionary, and thus not entirely predictable, every effort would be made to minimize demands on <university name> staff. Agreement on a small number of meetings/interviews would be sought well in advance; these meetings would be professionally organised.

The intended interviews seek the participation of stakeholders who influence, or are influenced by, existing and potential sharing arrangements. A high level interview protocol (including intended questions) will be circulated to agreed participants well in advance. With the permission of the participants, these interviews will be audio recorded and transcribed for analysis purposes. The data will be analysed to address the objectives listed above.

The anonymity and confidentiality of all participants will be safeguarded in any publication of results from this research. No individual or institution will be referred to (except through the use of pseudonyms), and only aggregated results will be reported. All information gathered will reside securely with the research team.

Benefits to <university name>: will include - documented inventory of existing sharing arrangements, including suggested strengths and weaknesses, and documented analysis of further sharing potential; as well as insights gained through discussion and interaction with the study team.

<university name>'s Role and Investment: is primarily staff time involved in the supply of study evidence.

Timeframe: The project will extend over 6 months commencing as soon as convenient.

Communication of Findings: is through a final report to <university name>, deliverable by the research student within 1 month of study completion. Further detailed findings will be reported in research students' theses and related papers, over which <university name> will have veto; anything sensitive being anonymized, excluded or embargoed.

Suraya Miskon

Researcher/PhD Candidate

Faculty of Science and Technology,
Queensland University of Technology,
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126 Margaret Street, Brisbane, Australia 4001
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Lecturer

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81310 UTM Skudai,
Johor, Malaysia.
Email: suraya@utm.my

D.6 Email to approach target interviewees

Dear <insert ICT Director name>,

My name is **Suraya Miskon** and I am a PhD student conducting research with the IT Professional Services (ITPS) research group in Queensland University of Technology (QUT), Brisbane, Australia. My supervisors are Professor Guy Gable, Dr. Wasana Bandara and Dr. Erwin Fiert. My research topic is titled “The Potential for Shared Services in the Higher Education Sector”. The main objective of this research is to investigate the potential for Shared Services in the Malaysian Higher Education (HE) sector. Specifically, we are currently focusing on IT projects, as we believe that IT projects have a lot of potential for sharing services across universities. Kindly find here attached a proposal to conduct a case study on the potential for Shared Services at <insert university name>.

The purpose of this email is to request for your kind participation in a one hour interview. The study is based around Shared Services. The interview will focus on gathering information that will enable us to understand what ‘sharing’ options currently occur and those you might be considering. Thus, this will enable us to understand Shared Services initiatives and potential for such, at your university. Specifically, the areas of interest covered in our instruments include existing and potential ‘Shared Services’/IT Projects and other relevant sharing arrangements that Higher Education Institutions have or might benefit from, in relation to its core support functions (i.e. Research, Teaching, Financials, Human Resource, Students, Library, Facilities, etc), in particular the Information Systems enabling these functions. Thus, we seek your assistance in identifying and recommending suitable staff that will be able to address questions in those specific areas.

As we plan to gather similar data across several universities, the data will also enable us to perform cross-institutions analysis and provide insights into the potential for universities that participate in our study to share their ICT arrangements.

Please refer to the attached participant information sheet for more information. Alternatively, you can email me at suraya.miskon@student.qut.edu.au or call me at (+61 4 3360 6139) if you have any questions. As we intend to carry out data collection within the month of June and July, we would appreciate it if you can reply, indicating your potential support and participation by [4th June 2010] please.

Kind Regards,

Suraya Miskon

Researcher/PhD Candidate

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D.7 Field Note Templates

This field note templates is designed for the reflection purposes during the interview session. The templates consist of:

- 1) Contact Summary Form
- 2) Observation Checklist
- 3) Document Summary Form
- 4) Pre-interview Search Checklist

Contact Summary Form

Contact (visit, phone, email)

Site: _____

Type:

Detail of the contact person:

Contact _____

Date:

Name: _____

Position: _____

Contact (phone) _____

Detail: _____

(email)

Today's _____

Date:

		Reflection Notes
1	What were the main issues that struck you in this contact?	
2	Summarize the information you got (or failed to get) on each of the target questions you had for this contact.	
3	What new emerging issues about the field situations were suggested by the contact?	
4	Anything else that struck you as salient, interesting, illuminating or important in this contact	
5	What new (or remaining) target questions do you have in considering the next contact with this site?	

Observation Checklist

Venue: _____

Date: _____

Observation _____
on:

	Notes
<input type="checkbox"/> Types and name of the ICT projects	
<input type="checkbox"/> Who are involved in the ICT projects	
<input type="checkbox"/> Who are the stakeholders	
<input type="checkbox"/> Any difficulty in implementing the ICT projects	
<input type="checkbox"/> Any potential means to address the difficulties	

Document Summary Form

Venue: _____

Date: _____

Accessed _____
from: _____

		Notes
1	Name of the document:	
2	Importance of the document:	
3	Summary of the document:	
4	Additional comments:	

Pre-interview Search Checklist

Venue: _____

Date: _____

Observation on: _____

Accessed from: _____

	Notes
<input type="checkbox"/> Background of the interviewee	
<input type="checkbox"/> Organization Chart	
<input type="checkbox"/> Organization website	
<input type="checkbox"/> Current ICT Project	
<input type="checkbox"/> Others	

D.8 Shared Service Definition

Shared services typically perceived as

“Shared Services is “the internal provisioning of services by a semi-autonomous organizational unit to multiple organisational units involving the consolidation of business functions supported by a sharing arrangement”

(Schulman, et al., 1999)

However, a review on shared services definitions in the practice and academia were diverse and not limited to internal organization (intra-organizational) and outsourcing, therefore for this study the candidate defines shared services broadly as

“a collaboration strategy of multiple organizational units for providing and using services”

D.9 Interview Scheduling Template

Project 1: <insert name here>								
University Name: <insert name here>								
Department/Business Unit:								
	CONTACT DETAILS				Interview Day 1	Interview Day 2	Consent provided to audio record the interview (yes/no)	Possibility for further contact (yes/no)
	Telephone	Email	Other details (Post etc.)	Prefer Mode of Contact				
Project Team(s)								
1								
2								
...								
User(s)								
1								
2								
...								
Other(s)								
1								
2								
...								

D.10 Evidence of Ethical Clearance

Ethics Application Approval -- 1000000502

Page 1 of 1

Ethics Application Approval -- 1000000502

Research Ethics [ethicscontact@qut.edu.au]

Sent: Friday, June 18, 2010 3:01 PM

To: SURAYA MISKON; Wasana Bandara; Guy Gable; Erwin Fieft

Cc: Janette Lamb

Dear Mrs Suraya Miskon

Project Title:

A case study on potential from sharing and shared services at Malaysian Higher Education Institutions (HEIs)

Approval Number: 1000000502
Clearance Until: 18/06/2013
Ethics Category: Human

This email is to advise that your application has been reviewed by the Chair, University Human Research Ethics Committee, and confirmed as meeting the requirements of the National Statement on Ethical Conduct in Human Research.

Whilst the data collection of your project has received ethical clearance, the decision to commence and authority to commence may be dependant on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or permissions from other organisations to access staff. Therefore the proposed data collection should not commence until you have satisfied these requirements.

If you require a formal approval certificate, please respond via reply email and one will be issued.

Decisions related to low risk ethical review are subject to ratification at the next available Committee meeting. You will only be contacted again in relation to this matter if the Committee raises any additional questions or concerns.

This project has been awarded ethical clearance until 18/06/2013 and a progress report must be submitted for an active ethical clearance at least once every twelve months. Researchers who fail to submit an appropriate progress report may have their ethical clearance revoked and/or the ethical clearances of other projects suspended. When your project has been completed please advise us by email at your earliest convenience.

For variations, please complete and submit an online variation form:
<http://www.research.qut.edu.au/ethics/forms/hum/var/variation.jsp>

Please do not hesitate to contact the unit if you have any queries.

Regards

Janette Lamb on behalf of the Chair UHREC
Research Ethics Unit | Office of Research
Level 4 | 88 Musk Avenue | Kelvin Grove
p: +61 7 3138 5123
e: ethicscontact@qut.edu.au
w: <http://www.research.qut.edu.au/ethics/>

<https://outlook.qut.edu.au/OWA/?ae=Item&t=IPM.Note&id=RgAAAABXJHbUwOU2S...> 14/04/2012