REALIZING BENEFITS FROM ENTERPRISE SYSTEMS

Luay Anaya

Realizing Benefits From Enterprise Systems

Doctoral Dissertation 128

University of Agder
Faculty of Social Sciences
2016

Doctoral Dissertations at the University of Agder 128

ISSN: 1504-9272
ISBN: 978-82-7117-821-5

Printed by the Printing Office, University of Agder
Kristiansand

In partial fulfillment of the requirements for the

Ph.D. degree in Information Systems

This thesis has been submitted and accepted for defense

Department of Information Systems

Faculty of Social Sciences

University of Agder, Kristiansand, Norway

Defense Date: May 10th 2016

Evaluation Committee

Professor Elizabeth Daniel,

Business School, Open University, UK

Professor Matti Rossi,

Dept. of information and service economy, Aalto University, Finland

Associate professor Eli Hustad,

Dept. of Information Systems, University of Agder, Norway

Supervisors

Professor Leif Skiftenes Flak and Professor Dag Håkon Olsen

University of Agder, Norway

Acknowledgment

My journey in UiA was a joyful and challenging experience. It was a joy as the time I spent in UiA was great and I will never forget it. It was also challenging because of all the work that I had to complete in a short time. After Allah, there are my mother and my wife who were always praying for my success and always supporting me. There are also many wonderful people in UiA who helped me overcome the challenges. That said, my thanks go firstly to my supervisors, professors Leif S. Flak and Dag H. Olsen, for their constructive reviews, guidance, and support through the entire journey of this PhD. Indeed, I have learned a lot from them and I co-authored some works that are part of this thesis.

I am highly appreciative to all committee members, Prof. Elizabeth Daniel, Prof. Matti Rossi and Dr. Eli Hustad, for their important suggestions which have helped in improving the thesis. I am also grateful to Prof. Peter Axel Nielsen for his critical and insightful comments on this thesis.

Many thanks go to the Faculty of Social Sciences and to the Department of Information Systems at the University of Agder and to colleagues in the faculty and the department for providing an inspiring environment. I am especially grateful to Prof. Bjørn Erik Munkvold, the director of the PhD program, for his continuous efforts and support to improve the PhD program in IS at UiA. I am also grateful to Dr. Bjørn Furuholt and Prof. Leif Flak as department heads for developing a healthy environment that facilitates my role at the UiA.

I would also like to thank the participants in my research, who have willingly shared their knowledge and precious time during the data collection process.

Finally, I wish to thank my family for their support and encouragement throughout my studies. My mother, my wife, Dalia, and my kids, Yazan, Ahmad and Omar, have supported me along the way, through the interesting and challenging times as a PhD student.

Thank you all!

Abstract

Organizations are increasingly implementing Enterprise Systems (ES) and Enterprise Resource Planning (ERP) systems in particular. Despite notable studies on ES and their potential, many organisations are not satisfied with the benefits or advantages gained. Research and industry reports have raised concerns about the return value from ES, and they have examined that while many organizations obtain significant value from these systems, there are still a considerable number of organisations who do not realize substantial benefits, but encounter challenges to achieve these systems' potential. Therefore, many recent studies call for further contextual investigations to understand the realization of benefits from information systems in general and ES in particular.

These recent calls claim that further research is needed to help organisations not only effectively deploy ES after the physical implementation, but also improve their use of the system and realize more benefits. New research efforts, thus, need to focus on benefits actualization and technology exploitation. The body of existing research encompasses many studies on realizing benefits from ES. Most of these studies address the last stage of the implementation, which is called the post-implementation stage, and it is in this stage that organisations realise the benefits of the system. Many studies have suggested critical aspects needed to realize benefits from ES at the post-implementation stage. However, it is assumed in this thesis that focusing exclusively on the post-implementation stage to investigate improving benefits after the implementation of ES is not sufficient. Many factors occur at various times and stages of the implementation that influence the benefits realization afterwards. Hence, this thesis investigates how focusing on the whole process, and not only on the post-implementation stage, is more appropriate to develop a clear understanding of realizing the benefits from ES. Accordingly, the research question (RQ) that motivates this thesis is:

RQ: What can organizations do to realize benefits from enterprise systems?

To address this research question, investigations were carried out of the implementation of ES in two companies. The study adopted an exploratory case study strategy. Primarily, qualitative data in the two cases was collected from interviewees who had roles either in the system's implementation or the system's use. These methodological choices have been undertaken in order to address the research question that requires deep knowledge from practice. Five published articles present the study's findings, and this summary explains the research as a coherent whole.

This thesis integrates the findings from the published articles and suggests four main contributions. First, it provides an improved understanding of the process that enables organizations to realize benefits from ES. By extension, the study provides insights into the relevance of benefits management practices to ES implementation. The benefits of ES are formed as a result of interconnected actions or steps in different stages of the implementation, and they are influenced by certain conditions and situations. Second, this study contributes great details about the strategies that can help organizations improve and develop further benefits from ES. Third, it is evident that benefits realization is influenced by many factors that can improve or inhibit the process. This study has contributed to the literature by illuminating these factors that should be considered to realize benefits from ES. Fourth, the insights developed from the afore-mentioned contributions have been synthesized into a new model called BRES. The BRES model is a multi-stage process model that provides guidance to help organizations realize benefits from ES, and it is constructed to answer the main research question.

Abbreviations

BI	Business Intelligence
BM	Benefits Management
BPR	Business Process Reengineering
BR	Benefits Realization
CRM	Customer Relationship Management
CSF	Critical Success Factors
EA	Enterprise Architecture
EIS	Enterprise Information Systems
ERP	Enterprise Resource Planning
ES	Enterprise Systems
IS	Information Systems
IT/ICT	Information Technology/Information & Communications Technology
PM	Project Management
SME	Small and Medium sized Enterprises

Table of Contents

1.1. Background ----------15

1.1.1. Significance of ES ----------15

1.1.2. Definition of ES ----------16

1.2. Research Problem ----------17

1.3. Structure of thesis ----------21

2.1. Literature Review of ES Implementation ----------23

2.1.1. Effects of ES and the benefits that could be realized from ES----------24

2.1.2. ES Implementation Process----------24

2.1.3. Realizing Benefits from ES----------27

2.1.4. Barriers Influencing the Implementation Stages of ES ----------28

2.1.5. Enablers Influencing the Implementation Stages of ES ----------31

2.1.6. Critique of ES Literature ----------37

2.2. Benefits Management ----------40

2.2.1. Benefits Management Process and Principles----------41

2.2.2. The Need for A complementary Theoretical Perspective ----------45

2.3. Sociomateriality as an Analytical Lens to Study Benefits in Practice----------46

2.4. Summary of the Theoretical Perspectives ----------49

3.1. Philosophical Assumptions ----------53

3.2. Research Design----------54

3.2.1. Research Strategy ----------54

3.2.2. Sample Strategy to Select the Cases----------55

3.2.3. The Sample Size – The number of cases and number of informants ---------58

3.3. Research Context----------58

3.3.1. Research Sites ----------60
3.4. Overview of the Research Activities: ----------65
3.5. Data Collection ----------66
3.5.1. Research Instrument ----------66
3.6. Data Analysis ----------71
3.6.1. Initial analysis ----------72
3.6.2. Detailed Analysis ----------72
3.6.3. Hermeneutic Technique ----------73
3.6.4. Triangulation ----------74
3.6.5. Synthesis of the Outcomes ----------75
3.7. Data Validity ----------75
3.7.1. Reporting Details ----------76
3.7.2. Research Protocol ----------76
3.7.3. Participants Involvement ----------77
3.7.4. Summary for the Validity Tactics ----------78
4.1. Article 1: Towards an Improved Understanding for the Benefits Realization from Enterprise Information Systems ----------82
4.2. Article 2: How a Newly Established Company Realizes the Benefits of ERP Implementation: A Palestinian Case Study ----------83
4.3. Article 3: Developing business advantages from the technological possibilities of enterprise information systems ----------84
4.4. Article 4: Implementing ERP in a Challenging Environment: The Case of a Palestinian Telecom Company ----------85
4.5. Article 5: Start-up company? Get your ERP system ASAP! ----------87
4.6. Articles Summary ----------88
5.1. The process that enables organizations to realize benefits from ES ----------94

5.2. Ways or strategies to improve the realization of benefits from ES----------96
5.3. Factors influencing the realization of benefits from ES implementation-------- 102
5.3.1. Enablers influencing the realization of benefits from ES implementation - 102
5.3.2. Barriers influencing the realization of benefits from ES implementation -- 105
5.4. BRES - A new model for Benefits Realization from ES ---------- 108
5.4.1. Structure of BRES Model---------- 110
5.4.2. How the Model has been Developed ---------- 114
5.4.3. Explanation of the BRES Model---------- 121
5.5. Theoretical Contribution ---------- 124
5.5.1. Contribution Related to Benefits Management ---------- 125
5.5.2. Contribution Related to Sociomateriality---------- 128
5.6. The Implication of Context ---------- 131
5.7. Summary for the Contribution of this Thesis ---------- 137
6.1. Answering the research questions ---------- 139
6.1.1. Answering the first research sub question: ---------- 139
6.1.2. Answering the second research sub question ---------- 140
6.1.3. Answering the third research sub question ---------- 141
6.1.4. Answering the main research question---------- 142
6.2. Practical Implications---------- 143
6.3. Limitations ---------- 146
6.4. Critical Reflection---------- 147
6.5. Research Implications ---------- 148

List of Figures

Figure 2-1 ES Implementation Process

Figure 2-2 The Two Main Stages or Waves in the ERP Journey (Willis and Willis-Brown, 2002)

Figure 2-3 Benefits Management Process (Ward and Daniel, 2006)

Figure 3-1 Timeline for the Research Activities

Figure 3-2 The Research Process

Figure 5-1 The Constructed Model

List of Tables

Table 2-1 Key Barriers Inhibit Benefits Realization From ES.

Table 2-2 Key Enablers Including Ways Leverage Benefits Realization from ES.

Table 2-3 Set of Principles for Benefits Management Approach.

Table 2-4 A Summary for the Theoretical Premises.

Table 3-1 Adopted Purposeful Sampling Strategies

Table 3-2 A Summary for the Two Cases

Table 3-3 A & B Informants Lists

Table 3-4 A Summary for the Validity Tactics

Table 4-1 Overview for the Research Publication

Table 4-2 A Summary for the Published Articles

Table 5-1 Illustration for the Ways/Strategies to Improve Benefits Realization from ES

Table 5-2 Themes of BRES Model with Relevant Concepts and Empirical Instances

Table 5-3 Summary for the Theoretical Contribution

1. Introduction

Chapter 1 of this thesis provides a short background on enterprise systems as the research topic. It then introduces the research problem and purpose, including the research questions and the structure of this thesis. These aspects are illustrated in greater details in the following sections.

1.1. Background

This section will provide details on the importance of enterprise systems (ES) and will shed light on the reasons that motivate conducting research in the ES field. This discussion will be followed by the definition of ES.

1.1.1. Significance of ES

Increasingly, organizations are adopting and investing huge amounts of money to gain significant advantages from state-of-the-art technologies that help them perform business operations effectively. Many organisations consider enterprise systems more than just information technology solutions to facilitate and automate existing work; rather, such systems have comprehensive implications for organisational practices regarding how they organise, regulate, control and develop the business processes. Particularly, enterprise systems (ES) account for a significant amount of firms' investments (Robey et al., 2002; Seddon et al., 2010; Panorama Consulting, 2013). According to Forrester's market analysis, for the main enterprise system, which is enterprise resource planning (ERP), the market size was estimated to grow from $40.6 billion in 2009 to $50.3 billion by 2015 (Computer Business Review, 2011).

Different enterprises from different sectors are showing an interest in adopting ES to exploit the wide-range of benefits that are offered by these systems. Specifically, ES have become one of the most sophisticated and widespread IT solutions implemented in organizations, and they require a high level of investment, resources, attention and commitment (Al-Mashari et al., 2003; Grabski et al., 2011; Yen et al., 2011). Most importantly, it is claimed by Hirschheim and Klein (2012) that researchers have focused on business process redesign (BPR) and ERP as major developments in the information

systems (IS) field. These topics are of particular interest to the practitioners and have influenced greatly the research conducted in recent years.

Interestingly, Rikhardsson and Kræmmergaard (2006) have indicated that over time, few IT advances have had as much impact on organizations as enterprise systems. Ample research has found an association between the adoption and investments in ES, and business performance and development. In particular, studies have found that enterprise systems can lead organizations towards more profitability (Hendricks et al., 2007), can help achieve digital business strategies (Mathrani et al., 2013; Leonard and Higson, 2014), can expand and develop staff's jobs (Sia et al., 2002), can develop business in organizations (Rikhardsson and Kræmmergaard, 2006), and can enhance organizational learning (Tomblin, 2010), among other advantages. In the same regard, a number of studies (Shang and Seddon, 2002; Eckartz et al., 2009) have demonstrated benefits classification models that show abundant benefits can be realized from ES.

Accordingly, even though implementing such systems is expensive and challenging, business executives, in different business sectors and countries, tend to invest in these systems because of their great potential, especially their capabilities in organizing and integrating enterprise business operations (Davenport, 1998; Shang and Seddon, 2002; Eckartz et al., 2009), or for other reasons or pressures related to the organization (Poba-Nzaou et al., 2008; Liu et al., 2010). In fact, these technologies are crucial solutions for decision making, business development and growth. By comparison, other small-scale information systems are smaller and do not provide the same capabilities and practices, or serve as a comprehensive solution that can integrate the work across different business functions in an enterprise (Davenport, 1998). Accordingly, many scholars and practitioners consider ES or ERP systems the most important technological product for organizations, and a fundamental organizational initiative that can extensively transform business operation and organizations' structure (Chen, 2009; Davenport, 1998; Hawking et al., 2004; Melin, 2010; Wagner et al., 2010, Staehr et al., 2012).

1.1.2. Definition of ES

Enterprise Systems (ES) or Enterprise Information Systems (EIS) are often referred to as Enterprise Resource Planning (ERP) systems, so these terms or acronyms can be used interchangeably (Davenport, 1998; King and Burgess, 2006). According to Shanks et al. (2003), ES include many systems like enterprise resource planning (ERP), customer

relationship management (CRM), supply chain management (SCM), product life cycle management (PLM), enterprise application integration (EAI), data warehousing and decision support, intelligent presentation layer, and eProcurement/ eMarketplace/ electronic exchange software. Basically, as Davenport (1998) indicates, an enterprise system is an integrative mechanism connecting diverse organizational units by shared data and software modules. Other definitions for ES demonstrate the scope of these systems. Aladwani (2001, p.266) defines ES as "an integrated set of programs that provides support for core organizational activities such as manufacturing and logistics, finance and accounting, sales and marketing, and human resources".

These illustrated definitions for ES reveal the special features and importance of such systems which have motivated researchers to conduct massive research on ES. Primarily, this importance comes from the comprehensive features or the complexity of ES that works with cross-organizational business functions and even cross-organizational entities, the range of different stakeholders involved, the influence of the organization's culture, and the changes that are introduced to the organization, in addition to the ability to serve organizations with what has been called the 'best business practices' (Davenport, 1998; Shanks et al., 2003; Grabski et al., 2011; Kallinikos, 2004; Schlichter and Kraemmergaard, 2010). In short, the enterprise system differs from a traditional information system in a number of areas including scope, scale, complexity, the organisational changes that are implied, and the consequences for business process reengineering that could result from implementing such a system (Davenport, 1998; Somers and Nelson, 2001; Pearlson and Saunders, 2013).

1.2. Research Problem

The literature about ES implementation shows contradictory results. While many organisations are satisfied and have gained substantial benefits from the implemented enterprise systems, many other organisations face considerable obstacles in realising the potential benefits from these systems (Nwankpa, 2015; Chou et al., 2014; Staehr et al., 2012; Aslam et al., 2012; Schubert and Williams, 2009; 2011; Peng and Nunes, 2009; Panorama Consulting, 2013; 2014). Former studies have indicated that various organizations from different countries and industries have implemented ES, but their experiences and perceptions of the systems' benefits are varied. In their investigations, Marchand and Peppard (2008) examined two similarly sized banks that have their

operations in the same geographical market and deployed the same Customer Relationship Management (CRM) system, implemented by the same team of consultants from the same vendor. One bank has considered the system the cause for the decline in the bank's competitiveness, whereas the other bank has considered the system as the basis for the most consistent period of profitable growth. In the same regard, Staehr et al. (2012, p.425) noted that ''Despite a large body of ERP research literature from a number of different perspectives, there is not an adequate understanding and explanation about how and why these varying outcomes occur.''

It is evident that there are a number of cases of businesses that have implemented ES and are satisfied from the system implementation, and they become able to realize substantial benefits and hence generate business value from their investments in such systems (Staehr et al., 2012; Leonard and Higson, 2014; Irani et al., 2007). In many cases ES is considered an essential technological implementation that is needed for an organization's survival and growth in the market (Chen, 2009; Hawking et al., 2004; Wagner et al., 2010).

On the other hand, existing research on ES reports many cases where organizations are not satisfied with the benefits gained, and instead experienced considerable difficulties in attempting to realize benefits from the implemented systems (Al-Mashari, 2000; Peppard et al., 2007; Peng and Nunes, 2010; Marchand and Hykes, 2006; Marchand and Peppard, 2008; BCS, 2004; Shpilberg et al., 2007). For instance, Peppard et al. (2007) investigated a case where a bank implemented a CRM system. The implementation went on time, within budget, and according to specifications, but the bank was unable to achieve the expected benefits. Peppard et al., (2007) argued that although the bank had a clear view about what they wanted to achieve from their investment in the system, the bank was unclear on how to realize the expected benefits. Similarly, Pearlson and Saunders (2013) cited a case about Lumber Liquidators that net income fell 45% in the third quarter of 2010, and managers attributed this decline to their new ERP system.

The findings of academic studies are similar to those of industry reports and practitioners. Recent reports conclude that identifying and realizing business benefits from information systems in general, and from enterprise systems in particular, is considered a challenging and complicated matter that still faces organizations (McDonald and Aron, 2013; Panorama Consulting, 2013, 2014). According to a Gartner CIO Report,

enterprises realize only 43% of the potential of technology (McDonald and Aron, 2013). Likewise, over four years of Panorama's independent ERP research from 2011 till 2014, on average about two thirds of respondent organizations received less than 50-percent of the measurable benefits they anticipated from their ERP software initiatives (Panorama Consulting, 2014).

Accordingly, numerous research confirms that while the enterprise systems literature is rich in different perspectives, and while there has been considerable progress in understanding different aspects of ES implementation, realizing business benefits from these systems is problematic and puzzles many organizations, which has motivated the call for further research to address this problem (Staehr et al., 2012; Eckartz et al., 2012; Aslam et al., 2012; Peng and Nunes, 2010; Zhu et al., 2010).

An ample body of research has been conducted to investigate what makes ES implementations more successful and able to provide significant benefits to organizations. These studies construct a useful base to study benefits realization in ES, as they shed light on what makes such implementations more successful and what makes organisations fail in their ES implementations (Somers and Nelson, 2001; Finney and Corbett, 2007). There is also an increasing body of research focused on understanding realizing the benefits after the implementation. Many studies focused on benefits classification in ERP projects (Shang & Seddon, 2000; Eckartz et al., 2009), the achievement of benefits in the post-implementation phase of ES (Staehr et al., 2012; Seddon et al., 2010; Davenport et al., 2004; Willis and Willis-Brown, 2002), and factors that may influence benefits realizations from enterprise systems (Gattiker and Goodhue, 2005; Ross and Vitale, 2000; Peng and Nunes, 2009). However, this thesis claims that while these studies provide a worthwhile foundation for studying benefits realization in ES, but these former studies do not offer enough guidance throughout the ES implementation process to allow realizing benefits from these systems, and they may even experience some limitations to do that.

It has been argued that existing literature about ES success provides lists of success factors that are focused on ensuring the success of the system via its implementation, but these studies do not focus particularly on the post-implementation stage (Gattiker and Goodhue, 2005; Seddon et al., 2010; Doherty et al., 2012; Peng and Nunes, 2009). It is in this stage that organisations realise the benefits of the system; furthermore, this is the phase that enables a company to create the return on the invested amount. The successful

implementation of a system alone does not guarantee its successful use and benefits achievement, especially in the long run (De Loo et al., 2013; Doherty et al., 2012; Gattiker and Goodhue, 2005; Ha and Ahn, 2013). Doherty et al. (2012) argue that the literature on success factors concentrates on the delivery of a technical system, but it falls short after that.

It can be argued that focusing exclusively on the post-implementation stage, to investigate the issues that can improve realizing of benefits after the implementation of ES, does not adequately lead to effective benefits realization and technology exploitation. This is because many contextual factors occur in earlier stages and influence the realization of benefits after the implementation (Nandhakumar et al., 2005; Staehr et al., 2012). Hence, this thesis aims to focus on the whole process, and not only on the post-implementation stage, as this approach, process-based, is more effective to deliver benefits and improve the utilization of ES capabilities.

Reviewing the literature has indicated that there is very limited empirical research that reveals what organizations can do to realize benefits from ES across the entire implementation process. Many existing studies provide great details on different aspects that enable or inhibit realizing the benefits from ES, but there is limited research that provides guidance and compelling explanations about what organizations can do to realize benefits, especially there are benefits emerge in the practice based on the technological possibilities of the ES. Furthermore, this research argues that conducting research, drawing on theoretical approaches devised particularly to realize benefits from the adopted projects, like benefits management, could improve the development of the emerging theoretical constructions that is intended to be articulated in this thesis. This research is undertaken to contribute to the research gap not adequately addressed in previous research.

In this vein, the main purpose of the thesis is to develop clear understanding of the process and efforts that lead to a high level of benefits realization from ES. In turn, this understanding can help to explain why some organizations are able to utilize the capabilities of ES and realize substantial benefits from these systems, whereas others are struggling to achieve their expectations and to utilize the implemented ES in effective ways. Accordingly, the main research question that motivates this thesis is:

RQ: What can organizations do to realize benefits from enterprise systems?

This thesis argues that to provide deep understanding and compelling explanations for the main research question, there is first a need to understand the existing practices and processes applied by organizations that enable them to realize benefits from ES. Second, there is a need to investigate the ways that enable organizations to improve realizing the benefits from ES. Third, after understanding the existing process of benefits realization and understanding the ways to improve this process, it becomes plausible to explore the factors that enable or inhibit the benefits realization process. To do this, three research questions have been formulated:

RQ1: How do organizations manage the realization of benefits from ES?

RQ2: In what ways can organizations improve the realization of benefits from ES?

RQ3: What are the enablers and barriers influencing ES benefits realization?

The research outcomes generated from the above research questions will be synthesised in a comprehensive model. Developing this model will provide a better understanding of benefits realization from ES. It will also provide clear guidance for practitioners to realize the potential of ES, and it will allow organizations to achieve their expectations and obtain significant business value from their investment in ES.

To perform this research, implementations of enterprise systems in two companies were investigated. The study adopted an exploratory case study strategy and is based on qualitative data, primarily collected from a number of interviewees who have roles either in the system's implementation, or in the system's use in the two cases. These methodological choices have been made to address the aim of the study that requires deep knowledge from practice.

1.3. Structure of thesis

After introducing the problem statement for this research and the motivation for undertaking its investigations in Chapter 1, the study continues with a literature review about ES and the benefits gained from these systems, in addition to the factors influencing the implementation and the benefits gained, which all are demonstrated in Chapter 2. Chapter 3 presents the research approach, including the research design, data collection and analysis techniques, in addition to an overview of the context of the research field. Chapter 4 provides an overview of the research papers published. Chapter 5 demonstrates the research contribution, before concluding with recommendations and further research

discussed in Chapter 6. Appendix C demonstrates the five articles published that show the study's results. Every article published is attempting to address a particular research question. These articles (named as Articles 1-5) are referred to in the mentioned chapters to represent the findings. These articles, together with this thesis, develop a coherent contribution to respond to the main research enquiry.

2. Related Works and Theoretical Premises

This chapter provides an overview of the extant literature relevant to the research topic, and it presents the benefits management framework and sociomateriality as the theoretical bases for the research. The following sections will discuss each strand of literature in more detail. A brief summary shows how the different strands are used to address the overall research objectives of the thesis.

2.1. Literature Review of ES Implementation

The existing literature about enterprise systems is vast and diverse. Several studies (Esteves and Bohorquez, 2007; Grabski et al., 2011; Moon, 2007; Schlichter and Kraemmergaard, 2010) have conducted reviews and deep analysis of this literature. These reviews show that ES research has developed tremendously in the last two decades and covered many research topics. For example, Schlichter and Kraemmergaard (2010) reviewed more than 880 peer-reviewed journal publications from 2000 to 2009. The authors found seven main areas of concern in the ERP literature: implementation, post-implementation or the optimization of ERP, organisational change and managerial implications, the ERP market and industry, education and training, supply-chain management, and the ERP system itself.

The topic of this thesis, which is realizing benefits from ES, falls mainly into the second research area above (optimization of ERP), with some interactions with other areas. In order to provide a clear overview of the extant literature related to the thesis topic, a review of the ES literature was carried out. This review shows that the literature provides great details that could help to fundamentally understand how benefits are realized from ES. Before exploring these details to understand how benefits are realized, it is important to understand initially what kind of benefits *could* be realized from these systems (Shang and Seddon, 2002; Staehr et al., 2012; Eckartz et al., 2009). Furthermore, it has been argued in the former chapter (Section 1.3) that benefits are normally realized from ES after the implementation, in a stage called post-implementation, and that many contextual matters occur in the early stages of the ES implementation that can influence realizing the benefits (Nandhakumar et al., 2005; Staehr et al., 2012). It thus becomes important to study the implementation process of ES (Markus and Tanis, 2000; Robey et al., 2002) in order to understand what, when and how different matters play a role that

will impact benefits realization from ES. These research streams will be discussed in further details in the following sections.

2.1.1. Effects of ES and the benefits that could be realized from ES

The literature emphasises the importance of enterprise systems within organizations and demonstrates the impact of these systems on organizations, individuals, and industry. For instance, several studies classify the huge benefits and advantages of these systems. Such studies (Shang and Seddon, 2002; Staehr et al., 2012) identified five groups of benefits (operational, managerial, strategic, IT infrastructure, and organisational) with 25 benefits that organisations can realize from ES. Likewise, Eckartz et al. (2009) have demonstrated results from an extensive review of the literature about ERP benefits. The authors extended the model conducted by Shang and Seddon (2002), and they suggested an additional group named the '3rd dimension', which includes process, customer, finance, innovation, and human resources.

Interestingly, enterprise systems are not only adopted by large enterprises, they are also adopted by Small and Medium-sized Enterprises (SMEs). Several studies (Buonanno et al., 2005; Esteves, 2009; Haddara and Zach, 2011) analysed research about ERP implementations in SMEs, and they found such organizations are widely implementing ERP systems. Thus, the ES's potential is significant, and studying these systems and their consequences cannot be taken for granted, but requires deep investigation to help organisations gain value from their substantial investments in these systems (Grabski et al., 2011; Newman and Zhao, 2008; Nori et al., 2009; Seddon et al., 2010).

2.1.2. ES Implementation Process

Many studies perceive ES implementation as a process-based initiative consisting of interconnected stages over a period of time (Robey et al., 2002; Newman and Zhao, 2008; Sedmark, 2010). Scholars have suggested different models of this process (e.g. Markus and Tanis, 2000; Esteves and Pastor, 1999). Figure 2-1 demonstrates the ES implementation process suggested by Markus and Tanis (2000, p. 189). In general, each of these models recognizes that firms have a planning and preparation stage before the physical implementation, an implementation stage, an operation or a stabilization stage – when people start using the system, and the last stage in which the new system is

maintained and improved and the old systems are retired (Robey et al., 2002). Because not all ES projects necessarily progress through the same life cycle stages though, alternative theoretical constructions can also be considered (Robey et al., 2002).

However, this study adopts a generic life cycle process suggested by some studies (e.g. Staehr et al., 2012). These generic stages are: first, the pre-implementation stage to designate all planning activities that occur before the system installation and configuration. Second, the implementation stage, which includes the system installation, configuration, and other activities until putting the system in use. The last stage is the post-implementation stage, which includes all activities after the 'system go-live' milestone. This stage is also called the operation stage, where the focus is mainly to deal with the system use and to manage the consequences of the underlying changes.

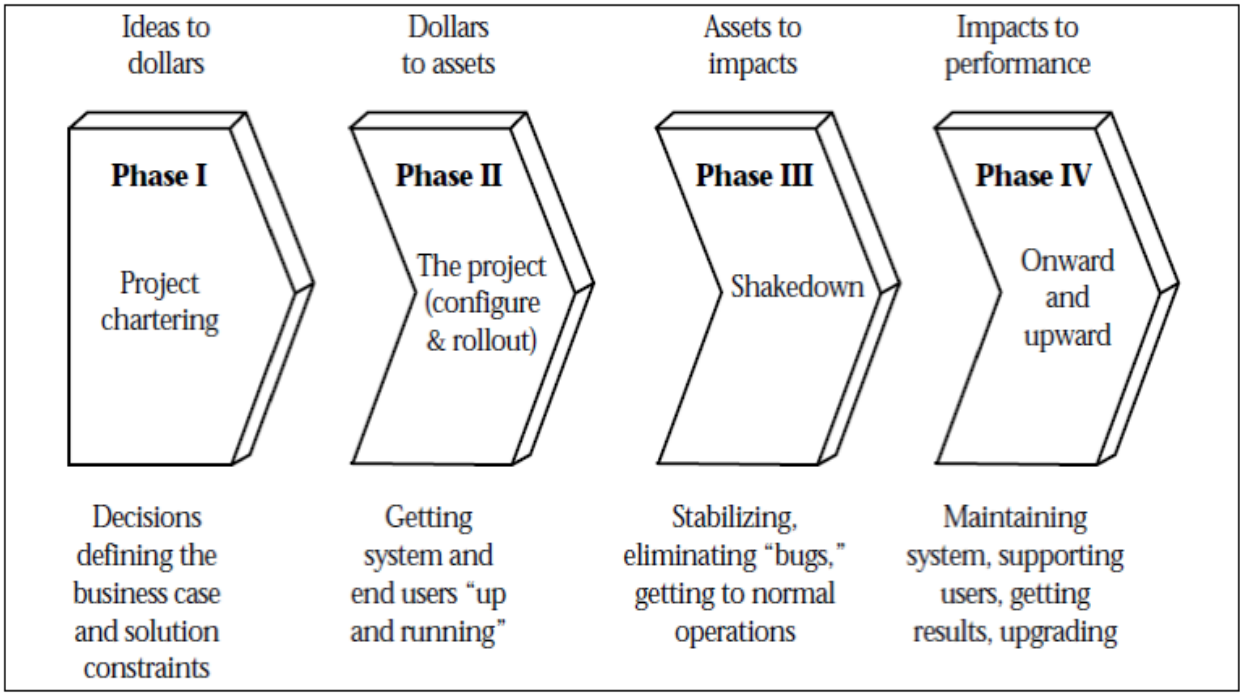

Figure 2-1 ES Implementation Process (Markus and Tanis, 2000, p. 189)

In addition to this view of three main stages, there are many other academic studies and industry reports that suggest ES implementation is a journey comprising two major stages or waves (e.g. Deloitte Consulting, 1998; Willis and Willis-Brown, 2002; Shanks et al., 2003; Rikhardsson and Kræmmergaard, 2006; Hustad and Olsen, 2011). The first stage starts early and continues until putting the system in use, whereas the second stage

starts when the system is rolled out to the customer and goes live (Hustad and Olsen, 2011). These two stages are not necessarily acknowledged in other information systems projects, but they are recognized in ES literature. As illustrated in Figure 2-2, the first wave refers to the actions taken to deliver the system to an organization to start working in; it includes the system acquisition, installations, configurations, and accomplishing changes needed to transform the business. Hence, all activities occurring until the system reaches the 'go live' stage fall in this main stage. Once the system is put into use, the efforts are not yet finished, but this stage or wave is called the second wave/stage.

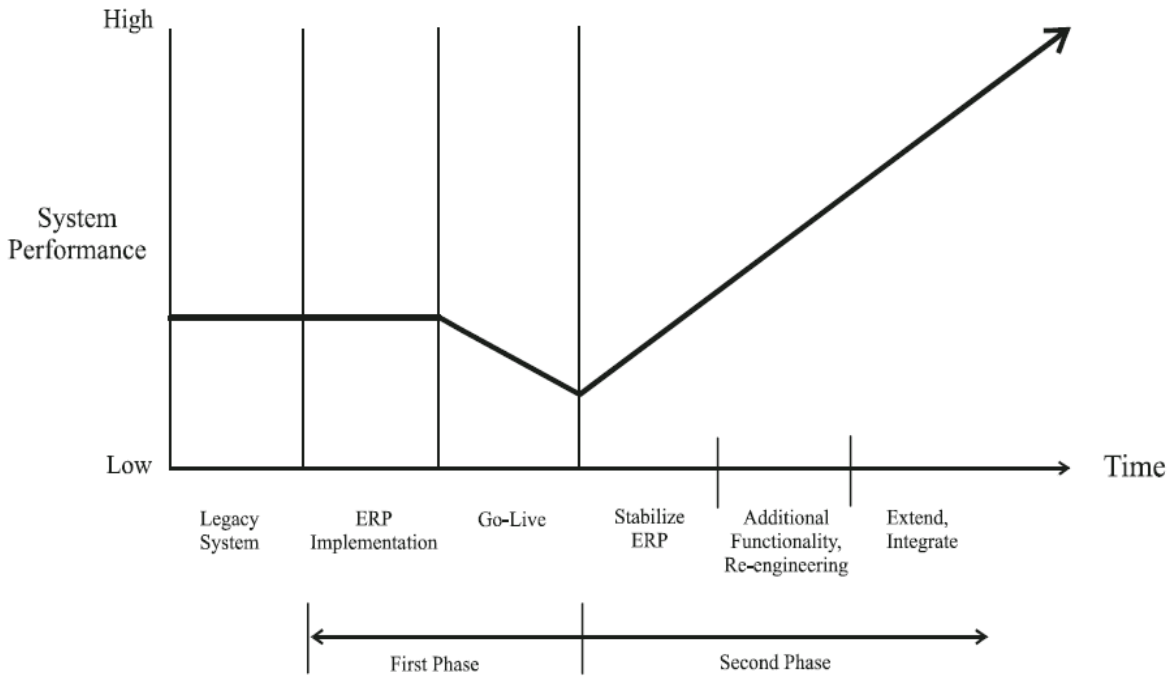

Figure 2-2 - The Two Main Stages or Waves in the ERP Journey (Willis and Willis-Brown, 2002, P.38).

The second wave is also referred to as the 'Post-implementation' stage in a number of studies (e.g. Willis and Willis-Brown; Shanks et al., 2003; Hustad and Olsen, 2011). In this stage, many questions are raised by business managers and executives, who ask about how to manage and enhance the ES implementation to continuously reflect the needs of and improve the business and its structure (Rikhardsson and Kræmmergaard, 2006; Shanks et al., 2003). However, it is assumed by Shanks and others (2003) that "many organizations have now begun to focus on the second wave, in terms of maximizing benefits, making continuous improvements, and taking advantage of new, including web-

based, technologies and new ways of configuring systems in a journey to establish the integrated, extended business enterprise" (Shanks et al., 2003, p.5). An overview of the research efforts on realizing benefits from ES are discussed in the following sections.

2.1.3. Realizing Benefits from ES

Despite claims that there are many benefits that can be realized from enterprise systems, many of which are exemplified in section 2.1.1, many studies have shown that these benefits cannot be easily realized, and not all benefits are valued or have been sought at the same level by all firms. At the same time, scholars and practitioners have documented a low number of cases that are satisfied from ES, compared with a larger number of cases that are not realizing their expectations. However, in responding to this problem, scholars have developed extensive and important research that covers many topics, as discussed below.

Scholars have developed a significant body of research that demonstrates a wide-range of factors that can ensure successful implementation of ERP systems (e.g. Finney and Corbett, 2007; Somers and Nelson, 2001; Skok and Legge, 2002). These factors have been named Critical Success Factors (CSF). However, a number of studies (e.g. King and Borgess, 2006; Staehr et al., 2012; Seddon et al., 2010; Peng and Nunes, 2009) have claimed that lists of critical success factors are not enough to create real success and substantial benefits from the implementation of Enterprise Systems. These studies suggest focusing on the post-implementation stage, when organizations start using the system and the system benefits are being realized. A research review conducted by Garabiski et al. (2011, p.39) noted that "Over time, since organizations are expected to provide a self-evaluation of the relative success of the ERP implementation compared to planned outcomes, the post-implementation phase research area was developed from the CSF literature."

After reviewing a large number of current studies about ES post-implementation and studies about realizing benefits from ES, I found the literature has mainly focused into two main streams. In order to realize benefits from ES, literature has focused first on minimizing or avoiding failure possibilities that may occur when organizations start using the ES. Thus, attention mainly was paid to effectively promote the deployment of the enterprise system to be used without significant trouble. This literature stream suggested a

number of factors that may obstruct benefits realization, and it suggested useful remedies to reduce the negative influence of these factors (e.g. Ross and Vitale, 2000; Robey et al., 2002; Soh et al., 2003; Peng and Nunes, 2009). Secondly, many studies have suggested critical factors or enablers that ensure successful post-implementation, and have suggested ways to realize and improve the benefits (e.g. Davenport et al., 2004; Seddon et al., 2010; Doherty et al., 2012; Staehr et al., 2012). Each of these literature streams is illustrated in greater detail in the following sections.

2.1.4. Barriers Influencing the Implementation Stages of ES

It can be argued that in the first period of time after the implementation, and particularly just after the 'Go-Live' stage, attention and efforts are focused on effective use and deployment strategies, and on reducing the influence of the barriers and challenges that obstruct effective use. In fact, when organisations implement enterprise systems, they are confronted with a wide range of challenges, especially because these systems differ from traditional information systems in a number of areas including scope, scale, complexity, the organisational changes that are implied, and the consequences for business process reengineering that could result from implementing such systems (Davenport, 1998; Somers and Nelson, 2001).

In fact, many challenges become more persistent after the implementation of ES (Peng and Nunes, 2009). These challenges can threaten potential benefits, despite successes achieved in the physical implementation of the system like system delivery on time or on budget. The real challenges show up after the implementation, especially when different staff members from different business units start using a central and comprehensive system serving the whole organisation (Robey et al., 2002). Furthermore, an ES introduces new culture, new processes, and new behaviour. For organizations and people inside these organizations who are not convinced of the new initiative, they may reject using the new system (Robey et al., 2002; Soh et al., 2003; Ward et al., 2008; Wagner and Newell, 2004). Therefore, different studies have focused on the dialectics that can be encountered when organisations with existing systems and working practices encounter new requirements. Variations between old and new practices in turn create cultural and dialectical challenges. Many authors (e.g. Robey et al., 2002; Soh et al., 2003) have argued that an ERP implementation as a dialectical process occurring between

the old knowledge embedded in business processes and practices associated with legacy systems and the new business processes and practices implicit in the ERP. Drawing on dialectics as a theoretical base, Robey et al. (2002, p. 21) have found two categories of knowledge barriers: configuration and assimilation. Two factors are critical for responding to configuration challenges: a dedicated core team that is carefully selected, motivated with incentives, and empowered to act; and effectively managed consulting relationships. Intensive employee education and an incremental pace of implementation are important for succeeding in assimilation challenges (Robey et al., 2002).

Research has uncovered significant barriers that influence the effective use and threaten the stabilization period after the system goes live, and usually they can obstruct realizing the benefits from ES (e.g. Kim et al., 2005; Markus et al., 2000; Robey et al., 2002; Ross and Vitale, 2000; Sedmak, 2010). Accordingly, analysing these barriers reveals the main issues that, if dealt with and managed effectively, can lead to improved benefits. However, if neglected, they could lead to a lack of benefits-realization. In this regard, Ross and Vitale (2000, p. 238) state, "It is not clear how many firms that implement ERPs will actually achieve the benefits. What is clear that there are a number of possible pitfalls that put the benefits at risk, and careful planning can reduce the risk of failure."

There are many aspects related to the management of changes, whether organizational changes or system changes or modifications. Markus et al. (2000) have emphasized the importance of change management, which entails organizational commitment and a high level of functional coordination (Kim et al., 2005; Markus et al., 2000; Ross and Vitale, 2000; Staehr et al., 2012). Many scholars have studied the business benefits derived when organizations implementing ERP systems change their business processes to fit the system. In fact, changes on the organizational side are not limited to changes in business processes and rules, but also include changes in the job design (Ross and Vitale, 2000; Staehr et al., 2012). On the other hand, extensive changes of the ERP product to fit the established business processes could lead to poor benefits, as the organization could lose the benefits of the best practices imbedded in the system (Markus et al., 2000). Most importantly, a large number of requested changes may create conflict with the ERP structure and logic, and as a result, the staff might prefer not to use

the system, leading to marginal benefits (Markus et al., 2000; Robey et al., 2002; Soh et al., 2003). Furthermore, many studies have found that ERP systems were unable to deliver the expected results because the staff did not use the system in effective ways, which can be attributed to a lack of human expertise and a lack of enthusiasm (Markus et al., 2000; Robey et al., 2002). In particular, in many cases organizations were disappointed with the technical features of the ERP system and its ability to deal with historical data and the historical reporting mechanisms (Markus et al., 2000; Ross and Vitale, 2000).

This research stream provides great details about the barriers that obstruct benefit realization from ES. Many aspects have been reported. This thesis, in Table 2-1, provides a summary of the key barriers to benefits-realization from ES that have been suggested in many studies.

Key barrier	**Literature**	**Explanations and findings from literature**
1. Organizational misfit	Gattiker and Goodhue, 2005; Hawari and Heeks, 2010; O'Donovan et al., 2010; Markus et al., 2000; Robey et al., 2002; Soh et al., 2003	Misfit between the existing systems, processes and culture from one side compared to the new ERP system, and the new processes and new ways of working from the other side.
2. Technical misfit	Carton and Adam, 2008; Markus et al., 2000; Ononiwu, 2013; Robey et al., 2002; Ross and Vitale, 2000	Dissatisfaction when the ERP system did not fulfil the needs of the business requirements, management reporting and historical data from the legacy systems.
3. People competence and availability	Boudreau and Robey, 2005; Kim et al., 2005; Markus et al., 2000; Ononiwu, 2013; Robey et al., 2002; Ross and Vitale, 2000; Saraf et al., 2013; Seddon et al., 2010; Staehr et al., 2012; Wagner and Newell, 2007	Weaknesses in dedicated team members, who should be carefully selected, competent, well-educated, motivated and available throughout and after the implementation.

4. Managing system implementation and managing the requested changes	Kim et al., 2005; Markus et al., 2000; Ross and Vitale, 2000; Sedmak, 2010; Somers and Nelson, 2004; Staehr et al., 2012	Ineffective change management or inappropriate software modifications. Modifying extensively the ERP system to implement the existing processes and rejecting the consideration of ERP as best practice. Lack of effective management for the consequent changes that the system entails, such as changes in roles and responsibilities.

Table 2-1 Key Barriers Inhibits Benefits Realization From ES.

2.1.5. Enablers Influencing the Implementation Stages of ES

An ample body of research has been conducted to investigate what makes ES implementations more successful. This research stream has generated lists of factors termed Critical Success Factors (Grabski et al., 2011; Gargeya and Brady, 2005; Finney and Corbett, 2007; Somers and Nelson, 2001). In this research stream, studies have documented a wide range of factors that have proven to be effective to control the system implementation and to deliver the system to be in operation. Somers and Nelson (2001) identified a set of critical factors that can help organisations in each stage of the implementation process. For example, top management support was a critical factor in most of the implementation stages. They found that the most critical part of an ES implementation occurs early on, particularly in the selection of the software package itself and in preparation to make that selection. They also paid attention to the training, communication, team competence, and vendor support among other things. Finney and Corbett (2007) have argued that the success of ERP should include the key stakeholders' perspectives, and they stressed the need to manage the change successfully, which is suggested as a line of enquiry requiring deep investigation to further understand how these matters being employed.

Several studies (King and Burgess, 2006; Gattiker and Goodhue, 2005; Doherty et al., 2012) have criticized the critical success factors lists. They claimed that although ERP systems are delivered on time, on budget, and according to the requirements defined, people may resist using the system, and business firms and business units often encounter organizational and technical obstacles that prevent realizing the anticipated benefits. In

turn, this problematic deployment certainly impacts the return value from the huge investments in these systems. Furthermore, it is also suggested by Coombs (2015, p.363) that "if investments in IT projects are to be considered successful then they have to achieve more than technical targets such as satisfying a project's budget, time, scale and feature requirements." Many scholars (King and Burgess, 2006; De Loo et al., 2013; Doherty et al., 2012; Gattiker and Goodhue, 2005; Ha and Ahn, 2013) asserted that while studies conducted about ERP success factors are welcome, suggesting a list of CSFs is only partially helpful to practitioners who are struggling to understand the implications of systems' implementations, because these studies suggest lists of factors but they provide little further guidance. Thus, the focus should be drawn beyond the system implementation and the successful delivery of the technical system, and extended towards the post-implementation stage, where organizations start using the system, and the technology features and system benefits become real business advantages. Reasonably, many system benefits are obtained when the system is integrated with other systems – the benefits are not exclusively from a particular system that is isolated from the rest of the technological infrastructure (Doherty et al., 2012).

In a number of studies (Marchand and Hykes; 2006; Marchand and Peppard, 2008) there is an assumption that bringing more IT projects on time, within budget, and according to project scope becomes easier with great project management methodologies and practices. The former authors have claimed that despite these developments, organizations are still not able to realize their expectations, because these projects are "designed to fail." The authors further argue that most IT-enabled business projects like ERP or CRM are designed to under-achieve the expected benefits being suggested in the project's deployment plan. The absence of a technique to guide the expectations makes such systems "designed to fail" (Marchand and Peppard, 2008). Likewise, it has been argued that many challenges and risks become more persistent after ES implementation (Peng and Nunes, 2009; Robey et al., 2002; Soh et al., 2003). These challenges need to be identified early and managed in an effective way. Accordingly, an ample body of research has shifted the focus beyond the system implementation and concentrated on the consequences that arise in the 'post-implementation' stage (e.g. Davenport et al., 2004; Gattiker and Goodhue, 2005; Seddon et al., 2010; Schubert and Williams, 2011).

Extensive research has been conducted to ensure successful implementation of ES. This body of research has aimed to define success in terms of either traditional project

management metrics to control the project constraints like time, budget, scope and other requirements, or in terms of delivering business benefits (Robey et al., 2002). Reasonably, project management indicators are very important, and they are considered as indispensable indicators to be achieved to create successful ES implementation. In fact, ES must be implemented and delivered successfully to organizations before they can generate business benefits, and many ES projects have failed to meet these project management criteria before reaching the real business benefits (Robey et al., 2002; Markus et al., 2000).

Recently, Doherty et al. (2012) have argued that the real success of an information system project should not be about the delivery of the project on time, on budget and to specification; rather, it should focus on the time when the information system becomes able to achieve the expected benefits and when the benefits exceed the costs. They suggested that one should focus on the context, which is usually influenced by political and social dynamics, because the suggested list of success factors is not necessarily applicable or may not have high relevance in every project's context. For example, user participation is highly dependent on a number of contextual variables like leadership style or participation climate. Accordingly, it is claimed that implementing an enterprise system in an emerging or developing country influenced by various political, economic and social forces may not necessarily be similar to implementing the same system in a company working in a more stable environment or in a developed country. The same can be said about implementing an ES in a governmental organisation – it may be quite different from implementing the same system in a telecom company. Furthermore, such success factor lists ignore the interrelationships between factors. For example, successful change management and introducing organisational changes requires management support and engagement. However, Doherty et al. (2012) suggest that one should focus on the context and pay attention to issues like the business environment and leadership, management of the transformation, and an ongoing benefits review, among others.

According to Willis and Willis-Brown (2002), the second wave or the post-implementation stage is highly dependent on many critical aspects. They argued that the ES should be stabilized, which requires that people who use the ES understand the system and its features, which requires training and re-training. Irani et al. (2007) have argued that user resistance in the operational period creates instability, and the system becomes unable to deliver the anticipated benefits. To get rid of this challenge in this stage, the

authors (Irani et al., 2007) have suggested training and education, and they differentiate between employee training and education. They state "Employee training is regarded as a strategy for broadening technical skills that can be applied to job functions, whereas employee education is considered closely aligned with developing explicit and tacit knowledge" (Irani et al., 2007, p.2454). Thus, training and education, when combined with other strategies, can contribute effectively to deal with user resistance that can create organizational inertia (Seddon et al., 2010; Staehr et al., 2012; Robey et al., 2002). However, many previous studies suggest that training and education are not only needed when the ES is introduced or implemented, but should continue after the implementation.

Furthermore, establishing competent teams available through and after the implementation that have the ability to deal with unexpected events is a very important factor in creating effective use and real benefits (Newman and Zhao, 2008; Robey et al., 2002; Staehr et al., 2012). Research has paid attention to additional organizational factors that can lead to further benefits such as having a good relation with the vendor, people participation, communication, and commitment, among other proven factors.(Seddon, 2010; Staehr et al., 2012; Robey et al., 2002; Irani et al., 2007; Wagner and Newell, 2007; Ross and Vitale, 2000; Markus et al., 2000).

It has been argued that many aspects occurring in the early stages of an implementation could influence the system use and realizing the business benefits after the implementation (Staehr et al., 2012; Markus et al., 2000). Hence, aspects like customization, gradual implementation, developing metrics, and others are considered key issues that occur before and through the implementation that influence gaining significant benefits (Aslam et al., 2012; Staehr et al., 2012; Markus et al., 2000; Gattiker and Goodhue, 2005; Ross and Vitale, 2000).

However, several studies have suggested ways and strategies that can assist organizations to realize the anticipated benefits and improve these benefits. For example, Davenport et al. (2004) have suggested a model that includes three strategies, which are 'integrate', 'optimize', and 'informate'. The authors argue that in order to gain great benefits from ES, it is important to integrate the ES with other systems inside the organization or with other organizations through activities like consolidation of system instances, use of integration technologies, and standardization of data and process definitions. Taking the great features of the ES that can work across the organization's

business units to integrate these department is considered a very critical factor that helps organizations realize great benefits from the ES (Willis and Willis-Brown, 2002; Seddon et al., 2010; Staehr et al., 2012). Furthermore, Davenport et al. (2004) have suggested that organizations should optimize their business processes by improving them to benefit from the good practices that the system offers. In line with this, other scholars (Seddon et al., 2010; Staehr et al., 2012; Anaya et al., 2015) also advocate this capability and they suggest that organizations perceive high benefits when they redesign their processes and introduce new processes suggested from the system capabilities.

Another important factor suggested by Davenport et al. (2004) that influences gaining significant benefits from ES is taking the data accumulated through using the system to improve the decision making process. This factor is also supported by further studies (Seddon et al., 2010; Staehr et al., 2012; Mathrani et al., 2013). Mathrani et al. (2013, p.382) have asserted that "Access to relevant information through an integrated ES enables competent decision making for optimizing organizational performance, realizing business strategies, and providing value to customers."

After an extensive review of the literature about ES, and after monitoring the implementation results for many years, Seddon and colleagues (2010) have developed a model to explain the variance of ES benefits. They argue that once an ES has gone live, two factors, namely functional fit and overcoming organizational inertia, drive the organizational benefits from ES implementation projects. On the other hand, there are four factors that can drive organizational benefits from ES over the long term. These factors are integration, process optimization, and improved access to information; these three factors are particularly advocated from a study by Davenport et al. (2004). The fourth factor suggested by Seddon et al. (2010) is ongoing major ES business improvement projects.

Recently, Staehr et al. (2012, p.453) have built on previous models, and the authors have found that "the achievement of business benefits from ERP systems during the post-implementation period is the result of a complex web of influences involving the interaction of context and process over time." In their investigations, the authors have demonstrated six factors or themes. Three factors (techno-change management, education and training, and people resources) are found to be enablers that explain *why* some organizations are able to realize business benefits. Whereas the other three factors or

themes (efficient and effective use, business process improvement, and new projects to leverage off the ERP system) are factors show *how* the benefits are achieved. However, as the study was a process-based, the authors stress the importance of the context and the interaction between different factors in different stages. For example, it is important that the active involvement of people to achieve benefits takes place through the efficient and effective use or through business process improvement.

Table 2-2 summarizes the main enablers and ways to improve realizing benefits from ES.

Enabler/Way	**Literature**	**Examples**
1. Organizational and implementation enabler	Seddon, 2010; Staehr et al., 2012; Deloitte Consulting, 1998; Wagner and Newell, 2007; Ross and Vitale, 2000; Legare, 2002; Newman and Zhao, 2008; Irani et al., 2007; Robey et al., 2002; Aslam et al., 2012; Willis and Willis-Brown, 2002; Somers and Nelson, 2004; Gattiker and Goodhue, 2005; Nwankpa, 2015	**Organizational and implementation factors:** -Training and education, -People's competence and availability -Strong relation with the vendor, -People participation, communication and commitment -Customization to address the needs of the different business functions -Stabilization - the system should be stabilized before looking for further benefits -Effective change management -Establishing metrics -Having technical resources
2. Ways and strategies to improve the benefits	Davenport et al., 2004; Willis and Willis-Brown, 2002; Seddon et al., 2010; Deloitte Consulting, 1998;	**Integration:** Many benefits created when the ES is integrated with other systems
	Davenport et al., 2004; Seddon et al., 2010; Staehr et al., 2012;	**Improved access to information:** The system leads to further benefits when organizations able to create value from the data stored by the ES

	Anaya et al., 2015; Davenport et al., 2004; Staehr et al., 2012; Seddon et al., 2010; Willis and Willis-Brown, 2002;	**Process optimization and innovation:** Organizations become able to realize greater benefits from ES when they ensure the system is being used effectively and is capable of providing innovative and improved businesses processes
	Seddon et al., 2010; Staehr et al., 2012; Deloitte Consulting, 1998;	**Extending the system and improving its use:** Benefits are accumulated as a result of ongoing investigations for further benefits and implementing additional projects, modules, and features
	Gattiker and Goodhue, 2005;	**Coordination or Independence between business units:** Improving coordination between departments to make the business tasks interdependent and not differentiated

Table 2-2 Main Enablers and Ways to Improve Benefits Realization from ES.

2.1.6. Critique of ES Literature

As has been discussed in the prior sections, the extant literature about ES provides rich details about benefits realization from ES. This body of research offers lists of benefits that can be realized from ES, demonstrations for the implementation process, and enablers to leverage realizing benefits from ES, including strategies to improve benefits realization and barriers that can hinder benefits realization. Despite all of these details, there is still a lack of studies that demonstrate an integrative guiding tool to help organization realize the benefits from ES and to provide a more developed understanding for this issue. Very limited research has developed process-based models to show how business benefits can be realized from ES, and to provide insights to help organizations to exploit the huge capabilities of ES, especially some benefits emerge in the practice based on these capabilities, and not necessarily be planned or expected beforehand. Several studies (e.g. Eckartz et al., 2009; Staehr et al., 2012) have argued that enterprise systems have huge capabilities to generate business benefits for organizations, but the techniques or processes to realize these benefits are still not adequately investigated. A recent study has developed a process-based model (Staehr et al., 2012) and advocated the need for

further contextual research that provides a clear understanding of the process of benefits realization from ES.

Since I believe that many conducted studies do not provide greater guidance and they experience some limitations to fully understand the issue of realizing benefits from ES, this thesis suggests previous studies can be enriched and developed in different ways. One potential way is through drawing on a benefits management approach. This thesis argues that conducting research, drawing on theoretical approaches devised particularly to realize benefits from the adopted projects, like benefits management, could improve the development of the emerging theoretical constructions that will be developed in this thesis.

In the search for an approach that offers structured practice and effective technique, this thesis considers benefits management (e.g. Ward and Daniel, 2006). Such an approach is useful in focusing on the realization of benefits from IT/IS projects. However, as illustrated in Section 1.1, ES have specific characteristics that are probably distinct from traditional IT/IS development projects. Indeed, these systems are considered to be ready-made packages, delivered through an implementation process. Whilst it is possible to adapt them to a certain extent, they are not like development projects that are started its development from scratch by organizations. Furthermore, such systems equip organizations with best business practices; thus, organizations are interested in exploiting their capabilities. Accordingly, this thesis claims that benefits management delivers promising practice in realizing the benefits of technology projects.

However, this thesis also presumes several complications for benefits management in terms of the realization of benefits when implementing ES. This is because a benefits management approach demands a clear understanding of the benefits early on in the process, with achievement indicators that allow these benefits to be monitored in the later stages. This may not hold true in many ES implementation cases, because not all organizations have a clear understanding of all the benefits derived from ES that early on in the process. Many benefits emerge in practice and are based on the technological possibilities that may be offered by ES; indeed, organizations make efforts to actualize these emerging benefits. For example, newly established firms are organizations that lack, to a large degree, resources and organizational capabilities. These probably include evaluation techniques such as benefits management. In addition, such organizations may

not have a mature understanding of the benefits that can be realized from ES in the early stages. In this regard, existing research put forward enquiries for the application of benefits management in ES. For example, it has been found by Haddara and Paivarinta (2011) that the benefits from ERP systems, particularly in small and medium enterprises, are obvious or 'self-evident', so it does not require formal efforts to be realized.

At the same time, the implementation process, as discussed in section 2.1.2 and in Figure 2-1, consists of interrelated stages to ensure a successful ES implementation. Realizing the benefits from a technological system (Ward and Daniel, 2006; Peppard et al., 2007) or from an ES (Rikhardsson and Kræmmergaard, 2006; Shanks et al., 2003) is a continuous process that entails ongoing efforts. The necessity of these enduring efforts is not fully addressed in the ES process models in the existing literature, as it inadequately tackles the complexity of benefits realization and the ongoing interaction that evolves to realize benefits from ES. Not only are these ongoing needs not addressed; in many enterprises the project team is even likely to be disbanded after the implementation (Robey et al., 2002), which leads to shortage in resources who understand the system capabilities and able to leverage realizing of benefits from ES. Hence, there is a need for a theoretical base or a framework to draw upon that is focused on addressing the anticipated benefits and the efforts that are required to deliver these benefits, and not only delivering the system itself. Benefits management (BM) is suggested as a process-based approach focused to realize benefits to inform this research, but it will also be interesting to explore how such approach can be used to allow realizing benefits from ES. This is motivating to be studied further under the light of assumptions about complications or other research that questioned this approach; especially not so many organizations apply formal methods to realize benefits from the technological products (e.g. Ward et al., 2007).

The interest in BM approach is growing, since it can equip organizations with 'a good practice' or a workable mechanism proven to increase organizations' performance and help organizations achieve the anticipated benefits from IT projects (Braun et al., 2009; Ward and Daniel, 2006; Doherty, 2014; Peppard et al., 2007). Furthermore, different organizations have different needs and therefore different appreciation of the potential advantages that are possible as a result of adopting a technological system. This varied appreciation creates varied satisfaction and definitions of success, and thus it is considered by many organizations that merely delivering the system itself does not mean the system had succeeded (Doherty et al., 2012). Therefore, organizations should have the

ability to define and prioritize their interests and document their anticipated benefits or their expectations before the implementation.

Studies based on a socio-technical approach, which aims to achieve harmony between the two parts, social and technical, encounter challenges when deciding which of these two parts performs better, which makes it difficult to formulate a criterion to optimize the system performance (Doherty, 2014). In the same regard, several studies (Doherty and Coombs, 2013; Ward and Daniel, 2012) have claimed that existing methodologies and particularly change management frameworks do not give attention to the technology exploitation, especially given the huge developments in the Information and Communication Technology (ICT) field.

At the same time, many studies have argued that ES can significantly influence the organizations (e.g. Shang and Seddon, 2002; Rikhardsson and Kræmmergaard, 2006) that implement them. Here, what merits further investigation is the role of ES beyond their ability to provide a positive influence. In other words, it is worth exploring whether ES play a substantial role in the life of organizations. For this reason, this thesis proposes theoretical constructions that deal with ES as fundamental artefacts. As such, they play a significant role in organizations, not solely as technological systems that provide a number of desired effects. For this reason, this thesis suggests drawing on sociomateriality to analyse benefits emerge in the practice based on the technological possibilities, and it can enable the exploration of the role of ES in organizing.

Accordingly, this thesis aims to consider a benefits management approach as an underlying theoretical base to provide compelling explanations and suggestions to contribute to the intended research model to help organizations grasp what to do to realize benefits from enterprise systems. At the same time, it will draw on sociomateriality to enrich the emerge model with advanced theoretical constructions. The following sections will discuss the suggested theoretical premises for conducting the empirical investigation.

2.2. Benefits Management

It has been argued that although organizations determine their needs in the early stages and develop clear expectations, including business cases, they do not take actions and develop capabilities that enable them to actualize the expected benefits (Peppard et al., 2007). Thus, they lack the methods or the techniques that provide guidance towards

achieving the expected benefits (Peppard et al., 2007). Recent scholars, among others, have suggested benefits management (BM) as an approach to guide the efforts to ensure realizing the benefits from a project or an initiative (e.g. Ward and Daniel, 2006; Peppard et al., 2007; Doherty et al., 2012).

To realise benefits from a technological system, many authors have suggested the development of a plan that entails collective work toward the achievement of these benefits within a management process. In this vein, Ward and Daniel (2006; 2012), Doherty et al. (2012), and Peppard et al. (2007), among others, have studied the benefits realization issue in IT/IS projects, and they content that the possession of a technological information system in itself has no inherent value and will not automatically confer the expected benefits to the business (Peppard et al., 2007). Hence, to realise the full value of implementing an information system, these authors recommend that organisations develop benefits management processes to continually work toward desired benefits.

2.2.1. Benefits Management Process and Principles

The approach to manage the benefits from information systems appears to be a context-based life cycle approach (Berghout et al., 2011; Ward and Daniel, 2006). A process-based life cycle approach has been adopted in many former studies to manage benefits and to evaluate the results generated from IT (e.g. Farbey et al., 1999; Ward and Daniel, 2006; Berghout et al., 2011) because success at each stage of the process depends largely upon the details and activities that have occurred at the preceding stages (Berghout et al., 2011).

There are different benefits management frameworks, but one of the most common frameworks is suggested by Ward and Daniel (2006) and is widely used in information system studies, called the ‘Cranfield Benefits Management Model’ (e.g., Braun et al., 2009; Hellang et al., 2013). Figure 2-4 shows the different stages of the benefits management process, which starts with the active engagement and involvement of both business management and users to construct a benefits realization plan that has details like benefits sources and their relations to adoption motives, action responsibilities, required business changes, and timelines for achievements. These sub-processes are called benefits identification and benefits planning. Afterwards, the plan should be executed, the results monitored, and all stakeholders engaged in seeking new benefits within continuing processes (Ward & Daniel, 2006).

Existing studies show that organizations that have developed or implemented information systems have rarely developed benefits management plans, and that there is a very limited number of organizations that have such processes in practice (Ward et al., 2007; Ashurst et al., 2008; Berghout et al., 2011; Hu et al., 2007; Haddara and Päivärinta, 2011). Ashurst and his colleagues (2008) attribute this to the lack of awareness of such practices, a lack of understanding of their importance, and organisations' lack of competence to implement them. Additionally, because this process is proactive, many organisations consider it a waste of money as long as the system has been delivered and people simply started using it (Ashurst et al., 2008).

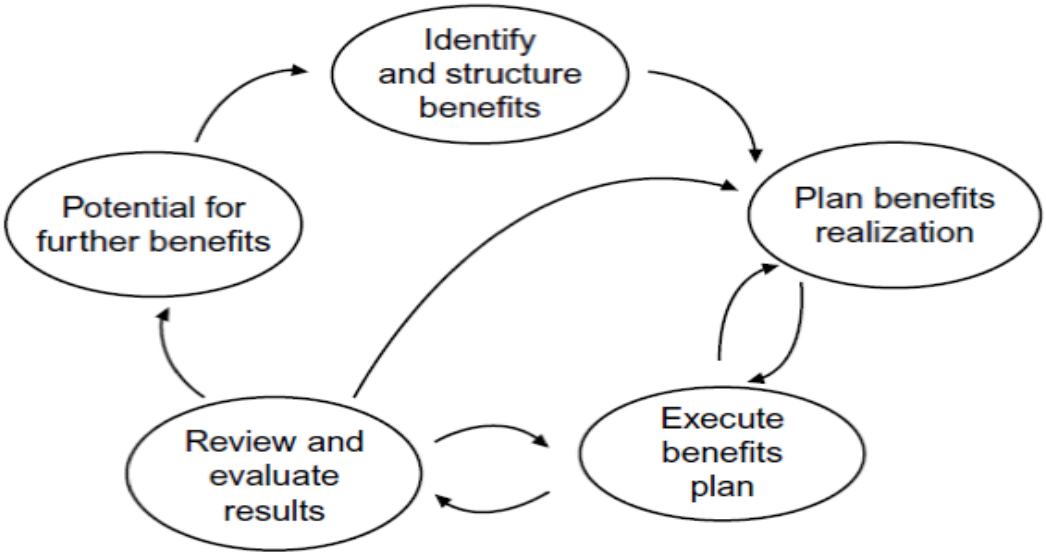

Figure 2-4 Benefits Management Process by Ward and Daniel (2006)

Accordingly, in order to deal with these challenges for the application of benefits management techniques, some studies have suggested the need to raise awareness about benefits management and build strong capabilities to enable organizations to apply such techniques (Ashurst et al., 2008). Other studies have suggested that scholars should develop tailored techniques drawn from the benefits management approach (Eckartz et al., 2012; Berghout et al., 2011). There are many important principles that explain and clarify the logic of benefits management. This thesis summarizes a set of principles suggested in different studies (Doherty, 2014; Doherty et al., 2012; Peppard et al., 2007;

and Ward and Daniel, 2006). Table 2-3 provides a number of these principles that include the following:

Principle	Description
1. IT has no inherent value	Adopting or acquiring a technological system by itself does not create or confer real business benefits.
2. Focus on the benefits	When implementing an IT/IS project, the focus is to determine meaningful benefits that aim to be realized as a system's outcomes, rather than focusing on the delivery of the technical system and enabling its functionality.
3. Benefits realization is an actively ongoing process, so it is a journey not a destination	Business benefits are not outcomes that are automatically generated after the implementation. The benefits likely take time after the implementation, so there is a need to work actively to determine these benefits, and then manage the efforts to realize these benefits. It is also important to work continuously to grasp any opportunity may provide new business benefits, rather than determining the benefits early on, before the implementation. It is also important to conduct a review once the system goes live using the post-implementation review. Benefits management suggests that potential and actual benefits should be regularly reviewed throughout the implementation life cycle.
4.Benefits a rise when IT enables people to do things differently	Benefits are shown when people in organizations use a technological system in an efficient and effective way. This requires improved use of the system and to develop new ways to redesign business processes, both within the organization and between the organization and external entities.

5. Benefits realization is mainly the business responsibility	Realizing benefits from a technological system is not mainly the responsibility of IT and consulting firms. The main responsibility is the business staff. Groups such as IT and consulting companies can help business staff to realize the benefits, but they do not retain the main responsibility. Thus, the active participation of business staff is very important for their intimate knowledge about the business and its needs, consequences and processes, and because these are the people who will use the system afterwards. Furthermore, benefits are highly related to business objectives and corporate strategy, and benefits entail organizational changes, so all of these place responsibilities on business executives.
6. Able to manage benefits that are generated from portfolio of systems/ initiatives	Benefits are not generated from a distinct IT project, but they stem from the complex interactions between a set of related technologies. This view enables people to perceive the business benefits comprehensively and holistically, and on the level of the whole firm. It is also suggested that this conception facilitates organizational learning, as projects teams can learn from previous IT initiatives.
7. All IT projects have outcomes, but not all outcomes are benefits	The project champions should work to avoid the negative outcomes that may be shown as the result of implementing an IT project, as every IT project may generate negative outcomes alongside of the benefits.
8. Benefits realization requires developing supporting culture	The adoption of benefits in an organization's mindset, and then tailoring techniques to realize these benefits entails an organizational culture that transcends and improves the initiative, including developing and empowering staff to suggest further benefits.
9. Develop workable practices	Benefits realization is a practice-based technique, so organizations can tailor their techniques that are appropriate to their context and to their available resources. Hence, applying a benefits management approach does not entail adopting a formal process that must be undertaken; rather, organizations can develop practices help them achieve the benefits.

10. Enable organizations to be transformed	An IT system should enable organizations to transform the business structure, processes, and roles, and not just provide marginal outcomes. Thus, the system can provide deep changes in the business, so the implementation process has to address the needs of the organization to make the system effectively fit within the organization.

Table 2-3 Set of Principles for Benefits Management Approach.

Accordingly, the benefits management approach will be considered a theoretical foundation for guiding data collection and analysis to compare and align the activities taken by organizations, as the data revealed, with the benefits management framework suggested by Ward and Daniel (2006). This comparison helps to understand to what extent organizations are applying benefits management techniques. It can also explain the activities taken by organizations to realize benefits. Furthermore, drawing on benefits management can provide guidance for the stages of the benefits realization process. So benefits management has good practices to enrich the model intended by this thesis with fruitful concepts and ideas.

2.2.2. The Need for A complementary Theoretical Perspective

An increasing body of research is being developed to help firms obtain and improve benefits that can be gained from IT systems. In particular, this body of research, as suggested by Doherty and Coombs (2013), seeks to shift the focus from the implementation of IS projects to the exploitation of these systems in order to create real value for investments in IS projects. It is assumed in the early stages of this thesis, in Article 1, that many benefits from ES emerge in practice based on the technological possibilities of the ES, or from the recent ICT advances connected with the ES. For this reason, this thesis is founded on practice-based theory like sociomateriality to analyse and to explain the benefits that emerge in practice, and to accentuate the role of technology in organizing business work. Benefits that emerge in practice based on the technological possibilities associated with the ES are not all expected, and people may show an interest in technological systems to exploit new opportunities. In this sense, some organizations may find it difficult to set clear expectations, as suggested by benefits management, and

as lately evident in Article 2. This assumption motivates drawing on a practice-based lens, in addition to a benefits management framework, to explain such benefits that are not expected. In this regard, Articles 3 and 1 argued that sociomateriality offers an improved understanding of the benefits that emerge in practice based on the technological possibilities.

2.3. Sociomateriality as an Analytical Lens to Study Benefits in Practice

Many principles from the benefits management framework (see section 2.2) suggest that in order to realize real benefits from the implementation of IT/IS projects, the latter should transform the relevant business and optimize the business processes by instituting organizational changes, rather than just automating the existing processes (e.g. Doherty, 2014). The same matter has been suggested in ES research (Mattila et al., 2011; Rikhardsson and Kræmmergaard, 2006; Newman and Zhao, 2008; Seddon et al., 2010; Staehr et al., 2012; Anaya et al., 2015), which maintains that organizations should deal with an ES implementation as a transformation project or an organizational change initiative, rather than just as a technical project. Accordingly, it becomes very interesting to enquire how an IT system (ES) can transform a business that has a dynamic nature and increasingly experiences business changes. This speculation is arising at the time that technology is dramatically improving, and the ES is needed to be modified to respond to the increasing business demand. The pressing question, therefore, is how to theoretically understand the relation between two parts, the business and the technology, that are both changing? Likewise, the benefits management framework suggests that realizing the benefits is an ongoing process (e.g. Peppard et al., 2007), the same outcome suggested in many ES studies (Rikhardsson and Kræmmergaard, 2006; Staehr et al., 2012; Seddon et al., 2010; Markus and Tanis, 2002). Thus, it becomes also necessary to understand how the ES remains a source of business benefits and is able to continuously offer opportunities after the implementation.

In seeking a theoretical foundation that is able to provide a better understanding for the relation between the two parts that are both dynamically changing, and to provide compelling explanations for the ability of the ES to generate business benefits over time, this thesis suggests drawing upon the sociomateriality perspective, an important contemporary view of technology in organizations, for it deals with practice-based issues.

From this perspective, entities, whether technological or human, have no inherent properties, but what matters is how they are interconnected (Orlikowski and Scott, 2008). According to sociomateriality, technologies have material properties that can provide different possibilities, giving humans the capacity to act upon and exploit the huge capabilities of these technologies in practice (Orlikowski and Scott, 2008). These material properties are not static, but are multiple and dynamic over time (Barrett et al., 2012). This work (Barrett et al., 2012) cited another study (Yoo et al., 2010) to show examples of the material properties for technologies that include programmability, sensibility, and communicability. Thus, in some cases, humans and materials interweave to create or change business routines, whereas in other cases, the human and material components weave together to develop or modify technologies (Leonardi, 2011). These interwoven relationships create the constructed sociomaterial structure, which consists of both sides- the organization and the ES, the capability to act according to the relevant agency that provokes the change. According to Orlikowski (2007, p. 1435) contemporary forms of organizing are increasingly constituted by multiple, emergent, shifting, and interdependent technologies. This means that ES, among other technologies, can produce forms of organizing that are changing and improving over time, and are not static organizational forms.

Sociomateriality, as a way of theorizing research, is a new perspective or a new research stream (Orlikowski, 2007). Sociomateriality can also be viewed as a meta-theory that provides a high level of abstract understanding about the phenomenon under investigation to exhibit a way of thinking about the world, and not as an empirically testable explanation of social behaviour (Mueller et al., 2012). However, sociomateriality assumes that organizations, people, and technology are not self-contained entities but are mutually constituted and entangled (Orlikowski, 2007). This ontological constitution, which underlies agential realism, rejects any kind of separation between the social and the material; therefore, the quest is to understand their existence together (the ES and the organization) in practice. According to this view, the technological system is a technical component that has material properties organized with social life, and they shape each other. Each one changes the other through interactions. The technological system in this case is an integral component of social life, not an incidental or intermittent aspect of organizational life (Orlikowski, 2007). However, when an organization implements a new technological artefact and deals with it as a response to specific organizational needs in

certain circumstances, then the firm loses sight of "how every organizational practice is always bound with materiality" (Orlikowski, 2007). This means that focusing on specific organizational needs and on the expected advantages of an information system makes organizations lose the potentially huge but unexpected opportunities that can emerge from the adopted technological system.

An investigation of the underlying theoretical bases adopted in many studies raises a question about the extent that these studies can clearly explain all types of benefits and the extent to which these studies adequately emphasize the technological facet of the ES in business advantages or in the reorganization. Some of these studies were based on research perspectives or theories that deal with technology as an exogenous and autonomous driver for business impacts (Davenport et al., 2004; Gattiker and Goodhue, 2004). Other studies dealt with technology based on the social actions and interpretations within a process (Staehr, 2007; 2010; Staehr et al., 2012). These studies may underestimate the role of ES in reorganization, or may have had difficulty exploring and explaining all kinds of potential benefits from enterprise systems, especially the unintended benefits that emerge in practice based on the possibilities and opportunities that the technology offers. Sociomateriality can provide explanations of how the material technologies might constitute the reorganization (Barrett et al., 2012). For example, the benefits emerge in practice from an ES integration with other technologies such as mobile services, or an email system, or any other emerging benefits that the technology offers, and that the social agency exploits and puts abundant efforts toward making them real business benefits like the benefits gained from accumulated data. Therefore, scholars have argued that the emergent process perspective underestimates the huge capabilities and affordances of technology that can affect organizational work (Orlikowski, 2010). For more details, further discussion of sociomateriality and its relevance to the research topic is developed in Article 3.

In short, the relationship that can be interwoven between the organization and the ES can continuously produce new forms to organize and re-organize the business according to the organizational needs and the system possibilities. Thus, both the organization and the ES can change each other in order to keep their interwoven relationship. However, the digital materiality is able to produce different uses when the organization becomes able to exploit the possibilities of the technological features.

Accordingly, drawing on sociomateriality can help to explain the relationship that could be constructed between the organization and the ES. In this regards, it can help to understand how a technical system like the ES becomes able to transform the whole business work as a fundamental benefit (drawing on shaping each other). Furthermore, because of the capabilities of the theory of sociomateriality in accentuating the role of technology, it can add theoretical depth to understand the changes on the technological side, which is the ES. Drawing on sociomateriality can also explain the benefits that emerge in practice based on the advances of technology. So these unintended benefits are achieved through technology exploitation, and not based on the initial requirements of organizations.

2.4. Summary of the Theoretical Perspectives

After presenting many of the existing studies and their theoretical perspectives, it is useful to summarize the main theoretical perspectives that this study aims to draw upon. Table 2-4 shows these main perspectives and the role that each can play in this thesis.

Theoretical Perspective	Why and how the theoretical perspective has been used in the thesis
1. ES literature	**Why it has been used:** • Can provide existing answers to the current RQs. • Has rich insight to inform the implementation process for the ES (RQ1). • Can suggest interesting details for the ways that can improve the benefits after the implementation of ES (RQ2). • Covers a wide-range of factors that can influence realizing the benefits from ES. ES literature allows studying these aspects and their interactions in the implementation process (RQ3). **How it has been Used:** • Explains how the results are contributions relative to the extant literature. • Enriches the study investigations and the constructed

	model with many applicable details like the implementation process, kinds of benefits, factors that influence the realization of benefits, among others. - Explains the ways that enable organizations to improve the benefits from ES. - Relying on the factors (enablers and barriers) suggested by ES literature to examine their relevance in the context investigated in this thesis.
2. Benefits Management	**Why it has been used:** - It is considered a good practice to realize benefits from IT investment. - Allows studying benefits on the enterprise-level, and not from a distinct technological system like the ES. - Because the RQ1 aims to understand the process that enables organizations realize business benefits, it was plausible to draw on a process-based theory or framework that can provide explanations for the empirical observations and to analyse the actions taken by organizations within a benefits realization process. **How it has been used:** - Provides guidance for the stages of the realization of the benefits process. So it can enrich the constructed model with fruitful concepts and principles derived from benefits management, which has good practices to contribute. - Explains the activities reported from the empirical investigations. - Guides data collection and analysis. Particularly, drawing on benefits management helps to compare and align the activities taken by organizations, as the data revealed, with the benefits management framework suggested by Ward and Daniel (2006), and incorporate these activities/sub-processes across the ES implementation processes.

3. Sociomateriality	**Why it has been used:** • The aim of RQ2 is to explore the different ways /strategies to improve the benefits after the implementation, so it was plausible to rely on a theoretical base that can provide insights into the technology exploitation, and that emphasizes the role of technology in creating business benefits beyond the social agency. • Because many benefits emerge in practice as unintended or unexpected benefits, it was relevant to draw on a practice-based theory. **How it has been used:** • Explains the relationship that could be constructed between the organization and the ES. In this regards, it can help to understand how a technical system, like ES, becomes able to transform the whole business work, as a fundamental benefit (drawing on shaping each other). Furthermore, because of its capabilities in accentuating the role of technology, it can add theoretical depth to understand the changes in technology, which is the ES. • Explains the benefits that emerge in practice based on the advances of technology. So these unintended benefits are achieved through the technology exploitation, and not based on the initial requirements of organizations.

Table 2-4 A Summary of the Theoretical Premises.

3. Research Approach

The aim of this research, as indicated earlier, is to provide clear understanding of the effective utilization of enterprise systems to realize benefits from these systems. Achieving the research objective and answering the related research questions requires devising a well-suited research approach or methodology to guide the research investigations (Saunders et al., 2009; Mumford, 2006). This research approach includes the research strategy and the methods for data collection and analysis. These methodological choices will be discussed in more details in the following sections of this chapter.

3.1. Philosophical Assumptions

The underlying philosophical assumptions adopted in this study are based on the interpretive approach, which considers that reality is ontologically dependent and exists among people (Denzin and Lincoln, 1998; Walsham, 1995). Business benefits are perceived differently among people, so they are dependent on people's perceptions (Staehr et al., 2012). This approach enables the researcher to study the complicated and interconnected aspects of benefits realization in enterprise systems by accessing the socially constructed knowledge of people who work in these systems. According to an interpretive approach, knowledge is subjective and it differs from one person to another (Walsham, 1995; Klein and Myers, 1999). In fact, an enterprise system is selected, implemented and used by varied social actors like managers, consultants, implementers, developers, and users. However, in such a context where social actors have varied perspectives, are working in different roles, and have different interests, an interpretive approach is appropriate to understand the interactions of these players in different stages of the implementation process, and to understand the subjective perceptions of these different actors (Boudreau and Robey, 2005; Wagner and Newell, 2007; Melin, 2010; Skok and Legge, 2002). To develop a clear understanding from people who have different views about the enquiry under investigation, this research has focused to construct mutual meaning between the researcher and the people who inform about the research topic by using the narratives of events (Silverman, 2001). This understanding can be facilitated by deep discussions with different stakeholders to develop deep knowledge about the realized benefits and to explore the efforts that have been exerted to realize business benefits during and after the implementation process. It is assumed that conducting deep

discussion and developing clear understanding about the research topic needs to focus on language and meaning in order to access people-dependent knowledge and to understand the social world from the viewpoints of the people who have a role in a system's implementation (Walsham, 1995).

3.2. Research Design

This section provides details on the research strategy for this thesis. It next presents further details about the field work, the sample strategy, and the sample size.

3.2.1. Research Strategy

The selection of a research strategy depends highly on what it is known about the topic, and it depends on the nature of the topic, among other factors (Patton, 2002). This study focuses mainly on developing deep knowledge based on practice by exploring varied experiences undertaken by organizations that have realized benefits from an implemented ES. To address such an objective, it is argued that case study research is an appropriate research strategy. To a large extent, the case study strategy is well-suited to conduct research in the information systems field (Benbasat et al., 1987; Walsham, 2006). Particularly, Schlichter and Kraemmergaard (2010) reviewed a great deal of extant research about enterprise systems, and they found the case study strategy has been widely applied for studying the implementations of enterprise systems.

To serve the study's objective and to answer the research questions introduced in Chapter 1, it is argued that a case study strategy is appropriate to conduct exploratory, rather than confirmatory, studies aimed at capturing deep knowledge based on practice, especially when the study's investigations are highly dependent on the context. It thus becomes difficult to separate the phenomenon from the context (Benbasat et al., 1987; Walsham, 2006; Yin, 2009). Therefore, the case study is a well-suited research strategy used to develop emerging theory or to develop theoretical propositions (Eisenhardt, 1998; Walsham, 1995). In this regard, the case study strategy is capable of developing theoretical conceptualization because it can collect rich empirical evidences from different sources (Yin, 2009). This data collected inductively from empirical settings is to be the basis for a new emerging theory or a set of potential propositions (Eisenhardt, 1989).

Furthermore, it has been argued that the case study is an appropriate strategy to address research that aims to explain, explore and describe certain aspects, and to address research that is conducted to generate answers to questions like why, what and how (Yin, 2009). For this reason, the exploratory case study as a research strategy is considered an appropriate methodological choice since the research questions in this project fall under these types of inquiries. Another important aspect is that case study strategy allows investigators to maintain the holistic and meaningful characteristics of real-life events like specific life cycles or organizational and managerial processes (Yin, 2009). In this vein, ES are implemented through a set of interrelated stages that constitute a process (e.g. Markus and Tanis, 2000). Further, realising the benefits from the ES is also a process-based endeavour (Staehr et al., 2012).

In the current research, a multiple case study strategy has been chosen because it helps to identify patterns from multiple cases rather than restricting the generated outcomes to single case. In particular, results generated from two cases can lead to more themes; it can enrich the themes generated from one case to confirm and support the findings across other cases, or it can provide unique themes that may not replicated in another case (Eisenhardt, 1989; Yin, 2009). Hence, studying the implementation of an enterprise system in-depth and in a specific context helps the researcher uncover the distinctive practices or findings that are related to a particular context. Accordingly, using two cases in the current research is to replicate patterns that are similar in the two cases, or to extend the emergent theory by new themes distinctive to a specific case.

3.2.2. Sample Strategy to Select the Cases

Typically, the case study strategy focuses on relatively small samples, and in many studies the focus is on a single case. The cases are usually selected purposefully, not statistically, to permit inquiry into and understanding of phenomenon in depth (Patton, 2002). In fact, the logic and power of purposeful sampling derives from the emphasis on in-depth understanding, and this leads to selecting information-rich cases (Patton, 2002), which are those cases from which one can learn great details that are highly related to the purpose of the research. For this reason, as long the purpose of this thesis is to provide a high level of understanding about the process that enables organizations to realize significant benefits from their implementations of ES, one may learn substantial

knowledge by focusing deeply on particular cases that undertook ES implementation and realized substantial benefits from their systems. This thesis selected two cases that can inform rich details about their experiences of ES implementation.

Choosing a case more randomly or without clear purpose leads to arbitrary results that are most likely not related to the objective of a study (Seawright and Gerring, 2008). For this reason, scholars have suggested different strategies that can facilitate choosing the appropriate cases (Patton, 2002; Seawright and Gerring, 2008). However, the underlying principle that is common to all strategies is selecting illuminative and information-rich cases from which one can learn great details highly related to the study purpose (Patton, 2002). In this regards, the selection decision, or the sampling, is aimed to provide insights about the phenomenon, as well as plausibly non-empirical generalizations from the sample to the population. In this thesis, multiple strategies facilitated choosing the two cases that were the basis for the empirical investigations for this research.

Initially, the 'snowball strategy' or 'chain sampling' (Patton, 2002) was followed to choose candidate cases. In this strategy, experts who are familiar with the implementation of ES in Palestine were involved to provide suggestions for particular cases that could be considered relevant or appropriate. Applying the snowball strategy yielded a nomination list of seven cases. The number of candidate cases was reduced after applying other strategies. Intensity sampling and convenience techniques were applied to restrict the options to the cases that could provide rich insights. After communicating with the most of the candidate cases, a few cases were interested in investigating their own experiences by being part of this study. Furthermore, a homogeneous strategy was undertaken to make the investigations limited to a number of cases that shared contextual characteristics. I chose two cases that had in common a number of contextual variables: both of them worked in Palestine, operated in the same business sector, which is telecom, and both implemented Oracle ES. These common characteristics enabled the researchers to investigate nearly analogous cases. At the same time, it was intended to look for different features that could influence or manifest realizing benefits from ES. In this regards, Patton (2002) suggested a stratified purposeful sampling approach. Interestingly, reviewing the literature showed a lack of studies that demonstrated the experiences of ES in new ventures. Thus, it was appropriate to choose a deviant sampling technique to choose a case that implemented an ES when the business was newly established.

Consequently, in this thesis, two cases have been selected: in one case, the business was newly established when it implemented the enterprise system, whereas in the other case, the business had been established for many years, and it was using many systems when it introduced the ES. Having two homogeneous cases with different variables helps to replicate or extend the emerging theoretical model as suggested by Eisenhardt (1989). Table 3-1 provides a summary for those strategies.

Sample Strategy	**Purpose Justification**	**Cases**
Snowball or Chain sampling	After asking experts working in ES implementation, a number of cases have been identified as candidate cases for study.	7 cases
Convenience and intensity sampling	Using the logic of intensity sampling, the researcher seeks information-rich cases that inform the phenomenon of interest and can allow deep investigations.	Case 1 + Case 2
Homogeneous sampling	To find a small homogeneous sample that has common characteristics between the selected cases.	Case 1 + Case 2
Deviant case sampling	This strategy involves a case that is information-rich and special in particular way(s). Having a case that did not start its business operation until implementing an ES is considered a deviant case, as the literature lacks such type of experiences.	Case 2

Table 3-1 Adopted purposeful sampling strategies

3.2.3. The Sample Size – The number of cases and number of informants

The sample size, like the sample strategy, depends highly on the purpose of the research, the questions being asked, the resources available, and the constraints being faced (Patton, 2002). The main principle that governs determining the number of the cases and the number of the informants in every case is the premise that aims to fairly tackle both the breadth and depth of the topic in the available time. The meaningfulness and insights generated from qualitative inquiry have more to do with the information richness of the cases than the analytical capabilities of the research or the sample size (Patton, 2002). Thus, selecting just two cases was adequate to provide rich insights about the phenomenon that covered different topics. The focus of this study is to provide clear understanding and explanations for the issues that enable organizations to utilize the potential of a technology in a particular organization. The research results thus are to generate understanding, based on these limited cases, and not to provide generalization that requires a significant number of examinations. Interestingly, these two cases are the only companies working in mobile telecom in Palestine, so they represent a business sector in the country. At the same time, engaging into investigations with 23 interviewees from both cases was appropriate to grasp a certain level of breadth besides depth. This breadth has been served by involving interviewees who have different functional roles, and by exploring varied topics in each case. Involving more informants was terminated when no new information related to the inquiry purpose was gathered from people with have same or close functional roles. This limitation was to eliminate data redundancy and to reach what has been called ‘theoretical saturation’ (Eisenhardt, 1989; Patton, 2002).

3.3. Research Context

This thesis conducted its empirical investigations based on two Palestinian companies working in the telecommunications industry. These investigations were undertaken in Palestine, which is an Arabian developing country, as there is a need for more in-depth studies of information systems in developing countries (Walsham and Sahay, 2006). In fact, many Palestinian companies are investing in information and communication technology products, despite scare resources and the difficult political and economic situations that influence the country. Telecom companies in particular are investing heavily in technology, and they consider technology to be the main driver for their business development. It has been reported by ‘Doing Business in Palestine' (2013)

that information and communication technology is the fastest growing sector of the Palestinian economy. Accordingly, the rapid business growth for these companies, besides their reliance on technology to perform their business operation, along with their investments in technology, is what motivates these companies to adopt good practices to ensure what they invest in technology is providing real value for their investments. It becomes interesting to understand from such companies how they utilize technology products and become able to realize business benefits from their investments in IT, and particularly from ES.

However, Palestine is an emerging state and therefore lacks many national pillars that are existent in any fully independent state. This situation has ample consequences for the political, economic and social forces in the business environment in Palestine. This context is quite challenging for organisations undergoing any kind of development. Implementing an enterprise system is not an exception, and this thesis showed several challenges. The country is facing frequent changes in the business rules because of the high level of uncertainty. The country is not a fully independent-state, so it does not have a national currency. Individuals' movements between the West Bank and the Gaza Strip are restricted and could create difficulties for the system training and support. Also, access to international implementation experts, especially from Arab countries, is limited due to travel restrictions to the Palestinian territories. It is interesting to investigate how such companies that experience a wide range of challenges become able to utilize an ES and become satisfied from the implementation outcomes. This outcome has occurred within the same time when most organizations that have already implemented the same systems in different countries have revealed that they have not realized significant benefits from ES, and they are not satisfied from the benefits gained, as has been discussed previously in Chapter 1 (Staehr et al., 2012; Chou et al., 2014; Peng and Nunes, 2010; Al-Mashari, 2000; Panorama Consulting, 2014).

Interestingly, because Palestine is still a developing and evolving state, there are more companies newly establishing there, in addition to the many companies that have already been established earlier and are now growing and developing their businesses. Such companies are looking for their peer-firms regionally and internationally, especially those who have been successful in their businesses, to learn from them. One way that similar firms can learn from each other is by adopting similar practices that have proven to be successful and that can be implemented locally. Such practices encourage a number

of organizations to think about Enterprise Systems as a way to incorporate the global regulations or professional practices imbedded in these systems, rather than just adopting small or local technological systems. The enterprise systems bring what are called 'best practices' in the industry, so these imported practices are introduced to organizations through the enterprise systems. Now the enterprise system, which is a technological artefact, becomes not just a technological tool adopted to facilitate the business work, but it becomes an organizational mechanism regulating the business work across the organization. Such technological systems, which embrace professional and fruitful practices for a specific business discipline, bring to local organizations modern management and world-class organizational routines that are recognized by others. Because these practices are global, they are well-known to many people outside the Palestinian context. Mainly, it is argued in this thesis that conducting the empirical investigations in Palestine represents a new and important business situation to study and understand the experiences of ES implementations in such a business context, especially because the literature lacks knowledge about the implementation of information systems in Palestine in general and in ES implementation in particular. Further details about the cases working in the examined context are discussed below.

3.3.1. Research Sites

As reported earlier, this thesis conducted its investigations based on two Palestinian companies working in the telecommunications industry. These two companies had implemented ES and reported their satisfaction about the system results, and the two systems in these two cases were actively used. Therefore, the system in both cases was considered a very important technological system that the business was highly dependent upon. This thesis aims to understand their experiences when they implemented their enterprise systems, and to analyse the actions taken that led to desirable outcomes. The selected cases can provide a viable setting for answering the research questions of this study, and can provide insights to achieve the study objective. The two cases can thus provide rich insights, especially because the two cases have not failed. Furthermore, these two cases are considered exemplar cases for ES implementation in Palestine. Because these are successful cases, many experts suggest that developing insights from these two cases could attract the attention of organizations interested in implementing new ES, especially in Palestine.

Case 1 – Jawwal Mobile

The first case is a Palestinian telecom company called 'Jawwal Mobile'. The company is the first provider of mobile telecom service in Palestine and started its business operations in 1999. Despite continuing political and economic instability, Jawwal succeeded in consistently growing its customer base from one million subscribers in 2007 to two million subscribers in 2010. By the end of 2012, the company had 2.5 million subscribers in the West Bank and the Gaza Strip. The company has an extensive network of 29 stores, more than 1,000 primary distributers, and 10,000 outlets in the West Bank and the Gaza Strip. By the end of 2012, the company had 950 employees working in different locations in the Palestinian territories. The company began implementing an ERP system in early 2007, and the system was ready to be used in September 2007. This system was viewed as essential for managing the company's expanding administrative tasks. Without an ERP, it became increasingly difficult to deal with the huge amount of work generated by the large number of external parties such as customers, suppliers, and distributers. The data collection was conducted in 2013/2014, and I targeted different interviewees working on different business functions to represent different voices. It was also important to recruit interviewees who had participated in the implementation process.

For many years, Jawwal used an accounting system, which was a small, off-the-shelf system that helped the company registering the accounting transactions, maintaining orders and invoices, and so on. Day after day the business work using that system became difficult. With the ever-increasing business, the accounting work became very huge and more complex. The inventory and assets supervisor mentioned that he alone needed 3-4 boxes of paper weekly. He said that even if the company hired another person to help him do the job, the work itself was becoming more and more complex. So at that time, he was wondering how could other, larger telecom companies outside Palestine manage and organize their work.

The financial director expressed his interest about ES in different ways. He was worried about the management and controlling the jobs as the business increased and became more complicated. He said that the increasing size and complexity of the company's work entailed hiring more staff to manage the increasing tasks. Those newly hired people required hiring more seniors to follow and review the work, and to ensure

the work was done in the right way and with more transparency. The other issue was the organizational structure, or the reporting hierarchy, and how to organize the work at different levels with segregated duties. Previously, the business work was fragmented in many different small systems. Every single system was doing work for a certain purpose, and a lot of details were stored in Excel files, so they wanted a system to be a comprehensive system integrating the work of the overall organization and across the different business functions, and to provide an effective and efficient controlling mechanism to the whole business in the organization.

Case 2 – Wataniya Mobile

The second case is also a Palestinian telecom company, called 'Wataniya Mobile'. This company is the second provider of mobile telecommunication services in Palestine, and it started its business operations in 2009. The company is the third-largest listed company on the Palestine Exchange in terms of its market value, which amounted to approximately $300 million at the end of 2012, representing about 13.8% of the Al-Quds Index. With regard to its customers, within its first three years of business operation, the company engaged about 600,000 subscribers in the West Bank alone. This success was despite the political and economic instability and crises that have been affecting Palestine. Wataniya Mobile has invested heavily in technology; in 2012 alone, the company invested U.S. $21.4 million for network upgrades and operational information systems. By the end of 2012, the company had 419 employees, of whom 397 (representing about 95% of the company staff) had bachelor's degrees and above, whereas the company had only about 150 employees when the system's implementation started in late 2008. The company started the implementation of the Oracle E-business suite, which is classified as a tier 1 global product (Panorama Consulting, 2013). Many fundamental modules (e.g. general ledger, accounts receivable, accounts payable) of this wide and global system were ready to be used in November 2009, when the company launched its services to customers. This system has been viewed as an important component in the technological infrastructure for the company to help in introducing its business services, streamlining business processes, and leading the company towards more growth.

Investigation into such companies is very attractive, as described by Santos and Eisenhardt (2009), because the telecommunication industry represents the emergence of numerous nascent markets, and such organizations are relatively young companies.

Wataniya Mobile, particularly, is an interesting company to be studied due to the following characteristics: First, the company was established in 2009, so it does not have the historical background and traditional cultural misfit that resists modern culture such as organized processes for decision making and a profound reliance on technology and digital means, both of which are embedded in the implemented system. Such cultural conflict has made some researchers (Rabaai, 2009; Rajapakse & Seddon, 2005) argue that enterprise systems are not appropriate solutions for companies in developing countries. In this case, the cultural misfit did not seem to exist. That means that the company was not attracted to traditional working means; rather, it was a new company that needed an enterprise system as a motive for introducing a modern way for doing business work based on international standards. Second, Wataniya Mobile in particular was rapidly growing in the market; the company's operating revenue jumped from $38.3 million in 2010 to $84.1 million in 2012. It will be interesting to study how a fast-growing company implemented its enterprise system. Third, the company employees have strong competencies (for instance, more than 95% of them have a bachelors or higher degree). Competent people are less likely to have problems in dealing with technological systems, which is again related to cultural and technical competencies, and which is one reason attributed to explain the lack of benefits realization from enterprise systems in previous studies (Rajapakse & Seddon, 2005).

Before the implementation, the company adopted the Oracle ERP system to bring global and best practices to the company before it had even begun its business operations. They thought the system would help them regulate their business work and streamline the organizational processes, and they thought that when they implemented such a system in the early business stage, it would institutionalize an important and solid starting initiative for doing business, and would foster potential growth.

After the implementation, people found that the system provided a clear way to conduct their business. In the beginning; they faced many issues, like difficulties in usage, the huge quantity of details needed to set up the master tables, and more staff to work in the system. This increased staffing need was because those who enter a transaction cannot verify it and cannot approve it, and many errors rose. After one year they became more adapted to using the system. The head of the accounting section said that "We trusted the system simply because what we learned in our undergraduate studies is implemented here. So we are confident that we are working in the right way." Many of the interviewees

have reflected this same confidence level about the system. Furthermore, the company is part of an international group working in different countries. So the ES becomes a unified communication system between the company and the group, for the group had implemented the system and encouraged the company to implement this particular system as well.

Table 3-2 provides details for the two cases that are under investigation.

Case Feature	**Case 1 – Jawwal**	**Case2 – Wataniya**
Industry Type	Mobile Telecommunication	Mobile Telecommunication
Business operation started in	1999	2009
The ES went live in	Sep. 2007	Nov. 2009
The firm is Newly or Already-Established when the implementation has started	Well-established	Newly established
Implementation Period	Jan 2007 – Sep 2007	Dec 2008 – Nov 2009
Project Director	Business- Director of Finance Department	Business- Chief Financial Officer
No. of Staff when the system was implemented	≈ 900	≈ 170
No. of Staff at the end of 2012	≈ 950	≈ 420
ES Provider	Oracle EBS	Oracle EBS
People impression	Satisfied and considered Successful	Satisfied and considered Successful
Legacy systems	Financial system, billing systems, other systems.	Basic systems and tools

Table 3-2 A summary for the Two Cases

3.4. Overview of the Research Activities:

In order to conduct this research, several activities are undertaken. A timeline for these activities is illustrated in Figure 3-1. These activities are the following:

- Reviewed a wide range of studies to find areas ignored in the literature, and to develop the theoretical background.
- Developed the interview guide
- Conducted 1st part of empirical investigations from the two companies, then the data analysis – Jul/Aug 2013.
- Wrote papers for publication.
- Conducted 2nd part of empirical investigations, then the data analysis – Dec 2013/Jan 2014.
- Wrote more papers for publication.
- Writing up this thesis.

Research Activity	**Aug-Dec/12**	**Jan-Jul/13**	**Aug -Dec/13**	**Jan-Jul/14**	**Aug -Dec/14**	**Jan-Jul/15**
	1st Year		**2nd Year**		**3rd Year**	
Reviewing Literature						
Developing Research design, approach, instruments						
Data Collection		**Part 1**	**Part 2**			
Data Analysis						
Paper Submission		**1st Paper**	**2nd Paper**	**3rd Paper 4th Paper**	**5th paper**	
Thesis Writing Up						

Figure 3-1 Timeline for the Research Activities

3.5. Data Collection

The choice of research approach and methods is guided by the research questions, objectives and the available resources (Saunders et al., 2009; Patton, 2002). In this regard, the qualitative approach is undertaken in this thesis, because in order to articulate a clear understanding about the role of enterprise systems within organizations, and to deeply understand how organizations exploit the potential capabilities of the enterprise systems, there is a need to understand the interaction between the organizational context and the implementation process. To articulate this understanding, it is necessary to collect rich details to analyse the environment of those organizations and to uncover the actions, factors, warrants, and measures or any other aspects taken through the different stages of the implementation process. However, developing improved understanding of the benefits realization process, and explaining the factors that enabled the organizations to utilize the potential of the ES would be difficult to tackle by quantitative methods. Interestingly, different organizations and even different functional units have different interests in the enterprise systems, so their perceptions toward benefits realization also definitely differ. Qualitative methods can enable the investigator to study such subjective knowledge about benefits realization, and study the interconnected aspects that shape realizing the benefits.

Furthermore, the ontological assumptions, discussed earlier in this chapter, consider that the business benefits exist among people. Therefore, the best way to grasp such people-dependent knowledge is by understanding the social world from the viewpoints of people themselves, through detailed descriptions of their cognitive and symbolic actions, and through the richness of meaning associated with the observable behaviour of social actors (Wildemuth, 1993 cited in Myers, 2000). Such kinds of knowledge can be acquired by qualitative methods that can enable the researcher to conduct deep exploration and record rich details about the phenomena under investigation to generate sufficient information for the reader to grasp the ‘idiosyncrasies’ of the situation (Myers, 2000).

3.5.1. Research Instrument

The adopted philosophical paradigm is interpretive, including ontological and epistemological assumptions, and the methodological approach is the qualitative case study that collects rich details to understand the interactions and relations that can be constructed between the system and the people who use the system. To acquire this

knowledge that is deep, people-dependent and subjective, there is a need for a high level of interaction with people who are working on enterprise systems from different business functions and from different business roles or specializations.

In the case study method, the data emerges from different sources like interviews, observation, documents, archival records and physical artefacts (Yin, 2009). Particularly, the interview instrument is the most common and one of the most important data gathering tools in qualitative research, since it is seen as a relatively straightforward means of gathering data (Walsham, 1995; Myers and Newman, 2007). Walsham (1995, p.78) argues that in an interpretive case study, and when the researcher is considered an 'outside observer,' the interviews are the primary data source because this research instrument enables the researcher to access the informant's views. It is preferred to be face-to-face because this can give the researcher the ability to articulate deep and rich data by following up with interactive discussion (Walsham, 1995). Face-to-face interviews can also provide a researcher with comprehensive information and understanding of individuals' attitudes (Mumford, 2006). Typically, formulating semi–structured questions by the researcher with open-ended answers by the respondents enables the researcher to keep sticking with the research subject and the research focus. At the same time, these options give the respondents the opportunity to offer their perceptions and their behaviour without restricting their answers to pre-defined causes and outcomes (Silverman, 2001). However, the interviews in this thesis were also supplemented with the Observation as a complementary research instrument to triangulate the data collection (Jorgensen, 1989). It is assumed in this thesis that the theory that has been suggested becomes more effective to provide compelling explanations when it is equipped with some direct observations to capture the 'relationality' between social and technical components. The thesis also used the available documents and web-based data from emails and websites, as these documents provided clear details about the cases.

Data collection was conducted in an Arabic country, where people normally speak Arabic. In this setting, the researcher has a background and working experience in these countries and in the technologies that have been investigated. At the same time, the researcher speaks same language and is aware of the culture in these countries. All of these factors can minimize any social dissonance and most likely made the interviews more comfortable and constructive (McCracken, 1988; Myers & Newman, 2007).

During the data collection, the researcher acted as an ‘outside observer’ (Walsham, 1995). Although this role may have prevented access to some sensitive data, it was seen as worthwhile, because it allowed the researcher to maintain a greater distance from the informants. In turn, the researcher was seen to play no part in the organization, and was regarded as having no direct personnel stake in the interpretation of the collected data and the research outcomes (Walsham, 1995). Therefore, even though the candidate had previous experience in the implementation of IS, he showed an interest only in order to understand the perceptions and concerns of the informants. In this way, he could construct valid interpretations that are highly relevant to the real world. For example, at no point did the candidate interrupt the informants, even when they were repeating details mentioned previously by other informants. Indeed, on the contrary, he showed enthusiasm by listening to all of them as they talked of their experiences. Most importantly, the two cases that were investigated are competing companies; therefore, the candidate was aware of the need to keep informants in both cases talking freely, without pressure. In particular, in order to maintain objectivity, he was careful to avoid asking questions or reporting findings that showed comparisons between the cases.

Regarding the reporting media, a tape-recording technique was used which enabled the researcher to capture participants’ views and interpretations in a more effective way. This was supplemented with a note-taking technique to draw the most important interpretations, and to record the tacit or non-verbal implications.

An interview guide was prepared to direct the interviewers to extract clear answers about the implementation process as well as the efforts before and after the implementation. The guide also had inquiries about the benefits and whether they were expected or emerged in practice, and it inquired about the factors that influenced benefits realization like training, support, availability of IT people and their competence, customization, the consulting company that implemented the system, and other such factors. The importance of the interview guide was to ensure the basic and essential lines of inquiry were pursued with each interviewee (Patton, 2002). It is also important to ensure how best to use the limited time available in an interview (Patton, 2002). A copy of the interview guide is enclosed in Appendix A.

In the data collection, I strived to represent different groups of informants. These groups can be classified according to their roles in the system implementation. These groups are the following:

1-Managers (Directors, Heads of departments and sections, Project managers)

2-Company staff that use the system (seniors like supervisors, juniors like assistants and coordinators)

3-IT people (Internal staff provide support and develop programs and integrations)

4-Implementers and consultants (People working in consulting companies participated in the implementation).

There is also another group, derived from a number of external experts knowledgeable about ES implementation in Palestine, and knowledgeable about these two cases. This group of people was not reported as informants, but they are experts consulted in the study to help the researcher make sense of the data and help in the interpretations.

The study's informants are listed in Tables 3-3.

Informant Title/Role	**Duration (minutes)**
Financial director and internal project manager	70
Head of reconciliation and accounts receivable	90
Head of fixed assets and inventory	90
Accounts payable supervisor	80
Head of general accounting	60
Payroll accountant and HR coordinator	70
Functional consultant	60
Techno-functional consultant	70
Finance coordinator	25

Technical team leader	70
ERP implementer	50
E-Business suite manager	80
Total Number	*12 Interviews*

Table 3-3 A: Case 1 - Jawwal Mobile – Informants List

Informant Title/Role	**Duration (minutes)**
Chief Financial Officer (CFO) & project sponsor	45
Head of accounting section & functional consultant	110
Project manager	90
Financial accountant	45
Inventory & fixed assets accountant	50
Technical consultant & application administrator	60
Cash management accountant	40
Head of human resources section	60
HR assistant	40
Solution architect	50
Senior manager	30
Total number	*11 Interviews*

Table 3-3 B: Case 2 - Wataniya Mobile – Informants List

3.6. Data Analysis

The data collection and data analysis were conducted so as to complement each other. From Figure 3-2 it is clear that, in the beginning, the data collection was guided by existing research and relevant previous studies that provided a reasonable starting point for data collection, and the contribution of this existing research was largely represented in the interview guide/protocol. Afterwards, the collected data was analysed at a high level to infer interesting themes from an individual interview. Subsequently, the data collection guide, which was the interview protocol, was improved to address the issues that emerged in the subsequent interviews. Detailed analysis was continuously pursued to extract interesting themes from the empirical interpretations. Data analysis was undertaken in different stages and using different techniques. Greater details for the data analysis techniques are illustrated as follows.

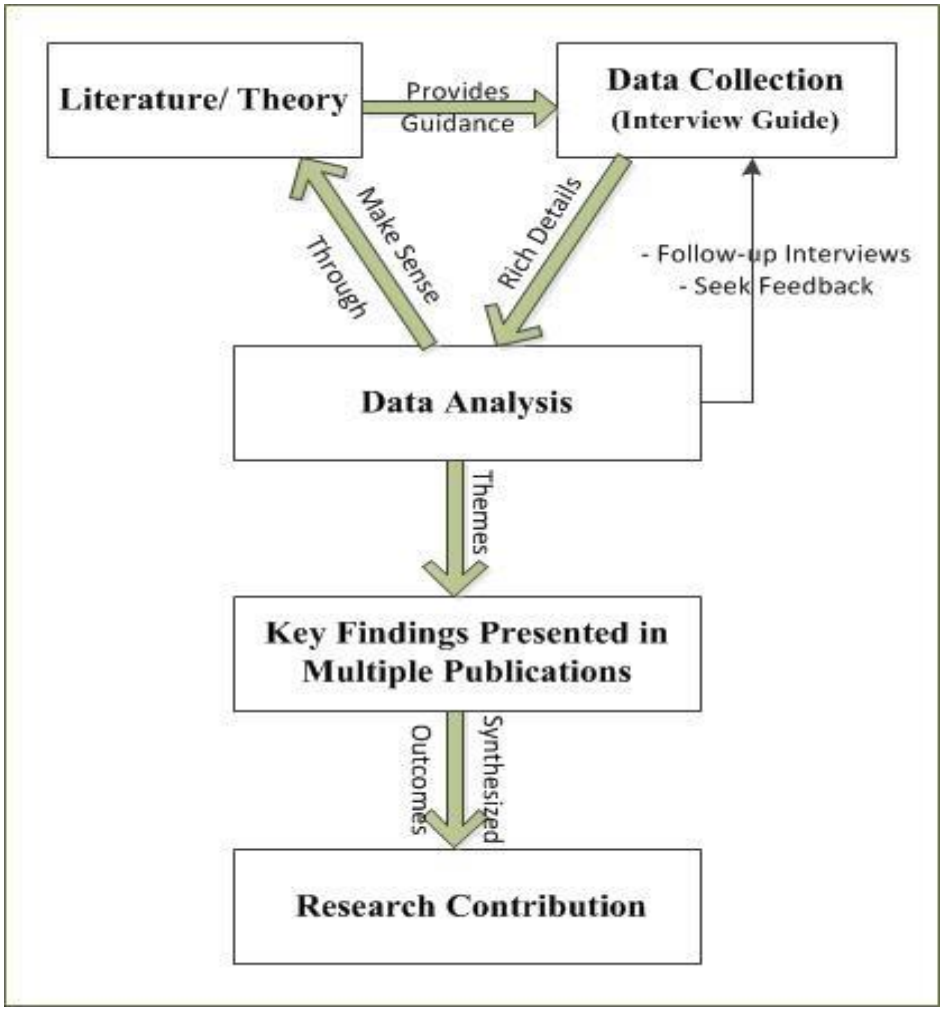

Figure 3-2 Research Process

3.6.1. Initial analysis

Researchers have suggested starting the analysis in the **early** beginning stages of data collection (Miles and Huberman, 1984; Patton, 2002). Such early analysis enables the researcher to understand the collected data and to judge if there is a need for strategies to collect new and most likely more informing data (Miles and Huberman, 1984). For example, the accounting manager talked about benefits generated through integrating the ERP system with the billing system, and at the same time, he was unsatisfied with the reporting schema tool, which was equipped with the system after implementation. These issues, as an example, were not part of the original interview question guide, but they were incorporated later to be asked of the subsequent interviewees.

After conducting the interviews, I outlined or summarized the key issues discussed in the interviews, to be revised with the informants after each interview. The key concepts and main ideas were documented to be recalled when the researcher began the detailed analysis from the recorded data. In this regards, having a summary of the data collected provides many advantages, as suggested by Miles and Huberman (1984). It is considered the basis, or the initial point for the detailed data analysis. Furthermore, the summarizing technique directs the researcher towards further issues recommended to be discussed in subsequent interviews. Summaries also served as resources to quickly access the data.

3.6.2. Detailed Analysis

The collected data in this research is qualitative. To analysis such data, it has been suggested to use content analysis (Eisenhardt, 1989). The main challenge in qualitative research is that the researcher is interested in many things but faced with data overload once beginning the data analysis. This is especially the case when data is collected from different sources and from different respondents, and not necessarily having an inherent structure *(*Miles and Huberman, 1984*).* It thus becomes difficult to retrieve the individual words that are most meaningful from a chunk of words. The technique mostly used to handle such data complexity is the coding technique. The codes can be abbreviations or symbols used as categories that have a relation to the research question, key concepts or important themes; these initial codes are called first-level coding. Clustering the generated

codes can lead to meaningful themes. The constructed themes are called pattern coding, which is a way to group generated summaries into a smaller number of overarching themes or constructs (Miles and Huberman, 1984, p.68). Finally, those patterns present outcomes that serve as the answer to the research question. The next stage of analysis was combining the dominant themes to articulate a set of actions and factors expressed by the participants and provide insights into the research questions or benefits realization from ES. This process is intended to provide descriptive data that was meaningful to the participant and used by them to reflect their experiences of the ES, their perceived benefits from the system, and the efforts they exert to gain such benefits.

In one article developed from this thesis, the Gioia technique has been applied to group the dominant themes suggested by the informants to develop what is called 'first order analysis,' as suggested by Gioia and Chittipeddi (1991). Later, the focus was to derive an explanatory framework to express the full story in a more theoretical perspective using what is called 'second order analysis' (Gioia and Chittipeddi, 1991).

3.6.3. Hermeneutic Technique

This thesis applied hermeneutic technique (Klein and Myers, 1999) to analyse data collected in this research. This implies an understanding of the whole through an understanding of the parts and understanding the parts through understanding the whole. This process of iteration continued back and forth until the parts of the data collected from each source were consistent and understandable with the whole. This cyclical process entailed further interviews, which were carried out to clarify matters raised by many of the initial interviews. Thus, the data collection and analysis were undertaken multiple times. These iterations are intended to ensure that data from all sources are interpreted and compared iteratively, according to the theory/literature. For example, each interview was analysed in the light of the other interviews and the theory. Developing a clear understanding from each interview requires that the context and the overall case be understood, which can also be constructed by understanding other interviews. At the same time, in order to achieve the suggested outcome from this research, each article needs to be reviewed and each case developed. Consequently, I worked back and forth between data, codes, narratives, and emerging theoretical constructions in order to create meanings from the data patterns. These were generated as study outcomes.

Hermeneutics principle can be implied through Figure 3-2 that shows the research process. In this Figure there is a cyclic process between theory/literature, data collection, and data analysis. Extant research and theory provide guidance for data collection, this guidance is represented in the interview protocol, and then responses are analysed through concepts from the theory. For example, in order to develop clear understanding about the importance of the system that is difficult to be separated from the business. The theory, which is sociomateriality, provides guidance to ask about the system, and its importance (See the interview protocol in Appendix A). The responses for every informant were analysed through the concepts suggested by sociomateriality. Responses for each informant were compared with other informants' responses, and with the whole understanding being developed about the implementation. At the same time, repeating this process allows constructing a more improved understanding. In this example, the whole is to construct a clear understanding about the system implementation and how it is important or can constitute with the business an interwoven or intertwined structure. On the other side, the parts are words and phrases, concepts, metaphors, quotations, and observations. Now for every informant a certain level of understanding that entails understanding the company, the implementation, and the context, and in turn improved understanding about the whole implementation is being accumulating from different sources.

3.6.4. Triangulation

Triangulation can be used as multiple sources, such as different places or different times and people, or as multiple methods, such as observations and document analysis in addition to the interviews (Miles and Huberman, 1994). Most importantly, analysing data collected from different sources or methods provides a high level of consistency and supporting evidence that is synthesised in such a way that valid findings are shown (Miles and Huberman, 1994). Thus, having data collected from interviews in addition to data collected from documents and observations can enrich the findings, because they confirm or corroborate each other, and can explain differing interpretations.

The data from the interviewees were analysed in the light of on-site observations, along with other data collected from documents and websites. Furthermore, the researcher used memos and summaries about the interviews which were written early on in the initial analysis. This technique was highly beneficial, because it facilitated a detailed analysis

(Miles and Huberman, 1984; Patton, 2002). Referring to details from the memos was very helpful, especially for examining stories, metaphors, and expressions: phrases create meaning when they are seen and analysed by the chosen theoretical lens (Miles and Huberman, 1984).

During many visits to both companies, it was easy to observe that the staff offices did not perform much manual work; for example, there were no manual accounting booklets. Thus, the system has replaced manual work with new electronic practices or has introduced new ways of organizing business without paperwork. Such observations, together with the different perspectives taken by different staff members with different roles (shown in Appendix B), all confirm claims about the importance of the system in both organizations and its intertwined role with the business carried out.

3.6.5. Synthesis of the Outcomes

Creating and developing scientific knowledge from the empirical investigations, where the data is the basis of these investigations, is considered a fundamental contribution of scientific research (Walsham, 1995; Mueller and Urbach, 2013). In order to develop this knowledge, after the data has been collected and after the two levels of analysis, it was synthesized, integrated and compared with other existing knowledge. However, analysing the data was also based on theoretical premises to make sense of the collected data and to develop theoretical contributions in the literature, or even to provide suggestions to practice communities that are motivated by the underlying theoretical base. Therefore, adopting a clear theoretical basis when a researcher embarks to investigate a research problem is very crucial because the underlying theory can serve as a basis to describe and explain empirical observations (Mueller and Urbach, 2013).

3.7. Data Validity

Put simply, the aim of most research is not just to create and accumulate knowledge, but it is largely to inform practice (Silverman, 2001). Now in order to create scientific knowledge that is valuable to practice as well as to academic communities, the work that generates the scientific knowledge should be developed using an appropriate method that should be rigorous, critical, and objective (Silverman, 2001). One central concept that ensures the credibility of scientific research is data validity (Silverman, 2001).

Data validity is concerned with the confidence level, which reveals if the research findings are really reflecting what they appear to be about (Saunders et al., 2009). The validity issue is problematic because of the subjective nature of qualitative data and its origin in a single context. It becomes difficult to apply conventional standards of reliability and validity, because contexts, situations, events, conditions and interactions are to a large extent dissimilar. Generalization is also difficult to make to a wider context (Walsham, 2006). However, this thesis followed premises suggested by many scholars (Walsham, 2006; Bygstad and Munkvold, 2010; Klein and Myers, 1999; Guba and Lincolin, 1989). Many strategies taken in this regards follow.

3.7.1. Reporting Details

Providing clear and careful reporting details is important for establishing confidence and trust with the reader, and this can be accomplished by clear and persuasive presentation of many aspects of the research (Walsham, 1995). These details include the philosophical approach, which is interpretive, and the research strategy used, which is the case study, because this will enhance the credibility of the research to the reader, so the reader will be prepared to grasp the investigator's interpretations of people's views and become aware that she/he is not going to read scientific facts (Walsham, 1995). It is also recommended to report the data collection details including the chosen research sites, the reasons for this choice, the number of people who were interviewed, what hierarchical or professional positions they occupied, what other data sources were used, and over what period the research was conducted (Walsham, 1995, p.79). The research also reports details about data analysis and how the iterative process for the data analysis took place and evolved over time. As it has been discussed before, reporting these details can enhance what has been called 'authenticity' – making the text show that the researchers have been there in the field (Walsham, 2006, p.326). Furthermore, reporting rich details about the context can enrich the transferability of the findings by giving the reader an opportunity to assess the transferability of the study findings to another context.

3.7.2. Research Protocol

Before starting data collection, a research protocol was designed to guide the investigator throughout the interviews. This protocol included appropriate procedural steps and some objective queries that can help in understanding the context and can provide evidence that the researcher has been there as one way to provide data validity,

which is ‘authenticity’ (Golden-Biddle and Lock, 1993 cited in Walsham, 2006). Having an interview guide to represent the basic lines of enquiry to be raised in every interview can enrich the research dependability, which in turn enhances the validity of the findings (Patton, 2002; Guba and Lincoln, 1989). In this protocol, there were many issues to remember for every interview. These issues include the following: before the interview, the researcher explains the purpose of the research and informs the interviewee that he or she can refuse to answer any question. Gathering some basic information like the interviewee role, nature of work, background, experience, and age is important. The researcher also introduced some information that related to academic research. Collecting such details is in line with the contextualisation principle that has been suggested to enrich the quality of the research (Klein and Myers, 1999). Furthermore, these issues were suggested as tactics to make the interviewees more relaxed and to situate the researcher as well the interviewee in a social interaction setting. Reporting these details can help the reader to assess the validity of the research findings (Myers and Newman, 2007). In this setting, the researcher has the background and the working experience in this country and in the technologies that are under-investigations. At the same time, the researcher speaks the same language and is aware of the culture in Palestine, so all of these details minimized the social dissonance, and most likely made the interviews more comfortable and successful (Myers and Newman, 2007).

3.7.3. Participants Involvement

This thesis applied a suggestion by Bygstad and Munkvold (2010) that argues for involving the participants through different stages in the research by constructing and interpreting the case narrative. This involvement specifically starts with the data collection to collect feedback from participants, as this may increase the quality of the documentation to produce verified knowledge. Further, these involvements through later stages like data analysis and study dissemination can increase the findings’ relevance and validity. Therefore, inviting the key informants to review the study findings is also considered an effective strategy to ensure construct validity (Yin, 2009). Feedback is useful for ensuring that “the case description and researcher’s interpretation were considered factually correct and meaningful to the organizational actors” (Bygstad and Munkvold, 2010, p. 6).

3.7.4. Summary for the Validity Tactics

Table 3-4 provides details of the actions taken to keep the study findings valid, and gives some insights that enriched the study to ensure the method undertaken is reliable. To provide a high level of quality research, many quality issues are undertaken under the light of different suggestions cited in literature (Primarily in Guba and Lincoln, 1989; 1994; Klein and Myers, 1999; Biddle and Lock, 1993; Walsham, 2006; Bygstad and Munkvold, 2010). Table 3-4 illustrates different actions or tactics taken that are relevant to the four principles, suggested in Guba and Lincoln (1989), which are trustworthiness, transferability, dependability, confirmability. At the same times, these actions also are aligned with the seven principles suggested by Klein and Myers (1999).

Action/Tactic	**Criteria/Principle**
- Multiple data sources (interviews, observation, and documents including digital resources). - 'Member check' with key informants to review what they have reported. - Discussion of the findings with experts in enterprise systems implementation in Palestine. - Incorporating in the published papers many quotations from informants. - Discussing the research results in multiple events like workshops and consortiums. - The researcher himself is a subject-matter expert and had an in-depth understanding of enterprise systems (by working for many years in the field). - The above issues entail interaction between the researcher and the respondents, on one side, and the researcher and the subject of inquiry. - Representing varied views by engaging informants who have different roles in the system implementation. Four categories of informants provided the research data.	-Trustworthiness and Credibility (Equivalent to Internal Validity): Establishing the match between the constructed realities of respondents and those realities presented by the researcher. -Drawing on the interaction principle, principle of multiple interpretations (Klein and Myers, 1999)

• Providing rich description of the research context and to the activities, factors and people interaction in different stages. • Choosing Purposeful/theoretical case-sampling strategy with the cases. Having one typical and other deviant case. • Reporting the name of the cases in some works to give the reader the ability to look for further details that may not reported in the published work.	-Transferability (Equivalent to External Validity): Providing details to allow the readers to judge how the findings can be transferred to other settings. -Drawing on the contextualization principle (Klein and Myers, 1999)
• Documenting/transcribing the collected data. • Intensive use of quotations for the key findings. • Documenting and presenting the research procedure, details about data collection, data analysis, justifying the options chosen . • Designing an interview protocol to guide the interviews and to ensure the basic inquiries are raised in every interview. • Iterative analysis between the data collection and data analysis, and between the data and the theory. Understanding the parts from different data sources through the whole that was synthesized in this research, and from the whole to understand the parts. • Developing the research outcomes, propositions, and the developed model were from different stages, and from different papers. These theoretical preconceptions underwent discussions and amendments.	Dependability (Equivalent to Reliability): Ensuring that methodological choices and the interpretive process are documented so that a reader can follow the choices made by the researcher. -Drawing on the hermeneutic circle principle (Klein & Myers, 1999).
• Using the theory to explain the empirical data. • Role of an outside observer helped to interpret the findings in a less biased manner. • Making the research process explicit to experts and to the readers and reviewers. • Involving the participants to do a member check. • Engaging external experts to help interpret the data. • Triangulating the interviews with other sources like observation and documents analysis.	- Confirmability (Equivalent to Objectivity): Ensuring that the data and the interpretations are grounded in the context and are not just a result of the researcher's imagination -Drawing on the principle of multiple interpretations and the principle of suspicion (Klein & Myers (1999).

Table 3-4 A Summary of the Tactics Taken to Ensure Data Validity

4. Research Publications

This chapter provides an overview of the research publications undertaken by the current thesis. As illustrated in Table 4-1, the list of articles developed provides an improved understanding of the research problem discussed in Chapter 1. This chapter will provide the focus in addition to the key findings for each article, whereas the complete text of the articles is enclosed in Appendix C.

No.	Title
1.	Anaya, Luay Ahmad. (2013). Towards An Improved Understanding for the Benefits Realization from Enterprise Information Systems. *Paper presented at the CONFENIS - 7th International Conference on Research and Practical Issues of Enterprise Information Systems, Prague - Czech Republic. Published by Trauner.*
2.	Anaya, Luay Ahmad. (2014). How A newly Established Company Realizes the Benefits of ERP Implementation: A Palestinian Case Study. *Paper presented at the Annual Conference of the UK Academy of Information Systems (UKAIS), Oxford, April 2014, UK.* http://aisel.aisnet.org/ukais2014/21/
3.	Anaya, Luay Ahmad (2014). Developing business advantages from the technological possibilities of enterprise information systems. *International Journal of Information Systems and Project Management, Vol. 2, No. 2, pp. 43-56. Available online* http://www.sciencesphere.org/ijispm/archive/ijispm-020203.pdf
4.	Anaya, L. and Olsen, D. (2014). Implementing ERP in a Challenging Environment: The Case of a Palestinian Telecom Company. *Paper presented at the 8th European Conference on IS Management and Evaluation (ECIME),* Ghent, Belgium, September 2014. Published by ACPIL.
5.	Anaya, L., Flak, L. and Olsen, D. (2015). Start-up company? Get your ERP system ASAP! *European, Mediterranean & Middle Eastern Conference on Information Systems (EMCIS), June 2015, Athens, Greece.*

Table 4-1- Overview of research publications

4.1. Article 1: Towards an Improved Understanding for the Benefits Realization from Enterprise Information Systems

Focus: This was the first article developed in the early stage of the research process. This article aimed to introduce the essential components, key concepts and assumptions that form the base of the present thesis. Particularly, it sought to formulate the research problem and to provide a discussion of the application of the suggested theories. This article also argued for the appropriate methodological choices that are viable for this research. The research gap, the research design, and the expected contribution were the main outcomes articulated in this article.

Key Findings: This is a conceptual paper, so when the paper was developed, the empirical work had not been started yet. The article provides preliminary conjectures that are suggested to be investigated in subsequent academic works of this PhD thesis. Thus, it showed the need for studies about ES implementation at the post-implementation stage, when organizations normally gain the benefits from the implemented systems. However, the study showed the increasing attention of research focusing on the impact and consequences of ES after being implemented, but it conjectured about many factors or issues that are discussed more thoroughly in the overall thesis.

Initially, after reviewing many previous studies about ES, the article noticed the limited research that engaged benefits management in the studies conducted to investigate the benefits of ES. In this regards, benefits management has been suggested to be used as a theoretical base to explain the empirical observations and not to examine organizations that have already implemented such practices. Furthermore, it is suggested to draw on sociomateriality to understand how organizations can exploit the technological features and possibilities of a system to create real business benefits. Thus, the paper provides a short discussion of the notion of sociomateriality. Finally, after exploring the influence of the context on IS implementation in general and on ES in particular, the paper highlighted the insufficient contextual studies in some areas.

4.2. Article 2: How a Newly Established Company Realizes the Benefits of ERP Implementation: A Palestinian Case Study

Focus: This work is designed as an inductive case study using a retrospective investigation to understand the process that allows a newly established company to obtain considerable benefits from the implementation of an ERP system. This article was focused to provide an improved understanding about what is happening when a new venture implements an ERP system and attempts to realise benefits from the system.

However, the benefits management approach is used in this article as a theoretical base or a sensitizing device for guiding data collection and analysis. This approach is undertaken to frame and explain the efforts that the company undertakes to realise business benefits from the implemented ERP system. The paper draws on a benefits management framework suggested in Ward and Daniel (2006).

Key Findings: The main contribution of this work is an improved understanding of the process that enables an organization to successfully implement an ERP system and realize benefits from the system. The paper showed how a successful implementation of the ERP system that incorporates some activities of a benefits management framework, without explicit adoption of these benefits managements techniques, can help organizations realise substantial benefits from the system. The results of this study also suggest that enterprise systems are important for new ventures, and can help them create considerable benefits for organizations. However, these benefits may not be clearly identified with detailed specifications in the early stages of implementation; rather, an organization may have broad expectations and wide-ranging objectives that are determined in the early stage and which motivate the implementation of an enterprise system. Developing planning and management processes based on broad expectations and motives can also lead to effective benefits realization as the benefits can be generated as outcomes after the implementation stage.

4.3. Article 3: Developing business advantages from the technological possibilities of enterprise information systems

Focus: The literature indicates that many business benefits can be obtained from an implemented ES. It is conjectured that many of these benefits may not be expected beforehand, but they are shown as opportunities in practice. Therefore, to understand how some benefits can be realized by many organizations while other benefits are not apparent to all organizations requires paying attention to the use of technology in the practice, and not only via social agency. Benefits that emerge in practice largely spring from opportunities or possibilities offered by the technological products. Therefore, focusing on the practice to accentuate the role of technology in organizing is very critical to create real benefits for organizations. ES, with its increasing innovations and technological enhancements, would generate abundant business advantages if organizations succeeded in exploiting these opportunities. The investigation in this work draws on the sociomateriality perspective, using the notion of imbrication to examine how organizations can exploit the technological possibilities of an ES to create business benefits after the implementation. The research question that motivates this work is: how can an organization exploit the technological possibilities of the enterprise system to create business advantages after the system is implemented?

To answer this research question, this article developed a conceptual framework based on a discussion of sociomateriality and based on arguments derived from the extant literature, mainly by Leonardi (2011).

Key Findings: This paper discussed the sociomateriality perspective to provide an improved understanding of exploiting the potential benefits of an ES. The sociomaterial structure or the imbrication between the enterprise system and the organization allows the business's work to become an integral part of the materiality of the technical system. This articulation enables researchers to understand how the ES can shape organizations' work and be shaped by social adaptations, according to the organizational needs and the system possibilities. The relationality between the organization and the ES illustrates how the benefits from enterprise systems are not inherent in the systems' material properties, but they are actualized based on the dynamic relationship between the people who experience their agency changing and adapting the enterprise systems for their needs, and the materiality of the system. This materiality provides new opportunities for exploitation by

humans to develop new practices or to change existing routines. However, to answer the afore-mentioned research question that seeks to explain how organizations can exploit the technological possibilities of the ES to create business benefits, the research found that the potential benefits of ES can be exploited or realized (1) When the ES as a technical system is imbricated or interwoven with the organizational work in which both are dynamically shaping and changing each other in practice (not from the technical features of the system). For this reason, both (the business and the ES) should be flexible to be interwoven together in the practice. From this foundation, the system becomes an integral part of the business, and thus doing business without the ES becomes difficult. The ES does not just only create impact on to the business, but it shapes the business. (2) When the system affords interesting and beneficial technological possibilities, based on the materiality of technology, that an organization values or interested in. (3) When a firm has the organizational capabilities, it can translate these possibilities into real business benefits. The paper developed a model that can provide insights and add theoretical depth to understand how benefits emerge in practice based on the technological possibilities.

4.4. Article 4: Implementing ERP in a Challenging Environment: The Case of a Palestinian Telecom Company

Focus: It has been argued that the existing literature about ERP success factors provides lists of success factors that are most likely focused on ensuring the success of the system via its implementation, but these studies do not focus particularly on the post-implementation stage (Peng and Nunes, 2009; Doherty et al., 2012). It is in this stage that organisations realise the benefits of the system; further, this is the phase that enables the company to create the return on the invested amount. The successful implementation of a system alone does not guarantee its successful use and benefits achievement, especially in the long run (De Loo et al., 2013; Doherty et al., 2012; Gattiker and Goodhue, 2005; Ha and Ahn, 2013). Doherty et al. (2012) argue that the literature on success factors concentrates on the delivery of a technical system, but it falls short after that. Many system benefits are obtained when the system is integrated with other systems – the benefits are not exclusively from a particular system that is isolated from the rest of the technological infrastructure (Doherty et al., 2012).

The success of ERP implementation is highly dependent on context (De Loo et al., 2013; Robey et al., 2002; Schubert and Williams, 2011). Doherty et al. (2012) argue that the success factors of IT projects ignore the dynamics of the social, organisational and political contexts. The success factors cannot be implemented as independent variables to enhance the success of an information systems project, and not all factors have a genuine impact on every kind of system and in different organisational contexts (Doherty et al., 2012). Against this backdrop, this article was undertaken to investigate the different success aspects that enabled a company to realise the potential advantages of an ERP system after implementation in a non-typical and challenging context.

In general**,** this article contributed to the understanding of ERP implementation in the context of Palestine, and of key aspects for the success of these systems in the post-implementation stage in particular. The paper found six key success enablers that can be better understood within the given context.

Key Findings: The article showed that the existing success factors are not adequate to achieve significant benefits from the system, and this work agrees with many scholars in this regard (e.g. Doherty et al., 2012). An extended list of factors should be suggested to ensure successful benefits realization. Most importantly, in particular cases the factors for systems implementation are not necessarily the same factors for successful benefits realization. For example, a number of previous studies have showed that a low level of customization and a wide-range of people involvement were important for successful delivery of ES, whereas such factors are not so critical for successful benefits realization from ES. This article reported six enablers were important to secure the potential benefits from the enterprise system. First, the company's management was technologically proficient and able to understand the obstacles to realising the potential benefits. Second, the implementation proceeded with well-managed changes. Third, the company established a long-term business partnership with the implementation company. Fourth, the company surveyed similar companies' experiences implementing ERP in several countries in the Middle East. Fifth, the company allocated significant time and resources for motivating employees. Sixth, the company allocated ample time for end user training. Most importantly, the context played an effective role in determining which factors are critical. This article described the examined context and showed why it was challenging. For example, one challenge was instability in the business environment due to political and economic forces, besides the issues that are related to not having a national currency

and requiring specific customizations. These special characteristics may not necessarily exist or may not have the same influence in other contexts. Furthermore, many factors have greater influence when they are combined with other factors. That means, the interactions between different factors are important to leverage the influence of these factors or enablers. For example, the company management was technology-proficient; this is related to the context, as the telecom industry is a technology-based business (interaction between the context and the enablers). Further, because the management was technology-proficient, there was an effective change management that dealt effectively with user resistance, the management encouraged developing a partnership relation with the vendor, and the management facilitated other factors like user training and motivation (interaction between different enablers).

4.5. Article 5: Start-up company? Get your ERP system ASAP!

Focus: Scholars and practitioners consider the ERP system to be one of the most important technological products in an organization. Such systems have the potential to support organizations in their business operations and business growth, and can provide powerful solutions for integrating business processes. While there are a number of studies on ERP system implementations and use in general, little is known about the ERP experience of newly established companies. The literature shows many challenges that face organizations when they start using an ERP system after it has been successfully delivered. Examples of these challenges are usage resistance, poor change management especially in the case of extensive customization or extensive organizational change, poor technical competence, and misfits between the culture including the new processes introduced by the system compared with the existing organizational culture and the old way of working, in addition to other challenges. This article aimed to explore several barriers that inhibit realizing benefits from ES, and it follows to examine whether these barriers suggested in the existing literature may not be applicable to newly established firms. This is because newly established firms have contextual characteristics that differ from established firms. Thus, there is a need to develop theoretical conjectures that address these deviations and can explain the extent to which barriers discussed in the literature are encountered by newly established firms. Developing these conjectures can show how different contexts are not facing similar challenges when they attempt to realize benefits from ES.

Key Findings: The article's findings contribute to the growing literature on ERP implementation by studying an implementation of an ERP system in a newly established company. In this article, a set of propositions for further research has been developed to explain how implementing an ERP system in a new venture differs from implementing the same system in an established firm. However, findings suggest that new ventures can experience fewer challenges in realizing business benefits because they can more easily adopt business processes that match the software features. Investigation of the original barriers that face already-established companies shows that these companies have existing systems, entrenched working practices, and staff members who have historically worked in certain ways. On the other hand, new ventures do not have entrenched business practices, historical business processes, or persistent culture, factors that have been found to impede ERP benefits realization. This study recommends that new ventures, especially those who have adequate resources and expect to consistently grow in the market, should consider implementing ERP systems in the early stages, because such systems can help in establishing business operations and can support business growth. Further, many of the known barriers that obstruct benefits from ERP systems do not seem to occur in newly established firms.

4.6. Articles Summary

The afore-mentioned articles showed how the benefits from ES can be realized through the interactions of activities influenced by certain conditions and situations. Many issues make some organizations more able than others to the benefits from ES. Thus, in each of these published articles, there are some aspects that provide insights to the key research question that aims to understand what organizations can do to realize benefits from ES. By extension, the research can provide explanations to understand why particular organizations are more able than others, despite these organizations implementing the same technological system. Table 4-2 provides a summary of the five articles, the findings from each one, and the issues or the focus that have been investigated in each work, in addition to the research question that is addressed in each article.

Article	**Contributes to which RQ**	**Article's Findings**
Article # 1 CONFENIS	Conceptual work	The article showed the research design, uncovered the research gap, and drew the theory use and the expected contribution.
Article # 2 UKAIS	Mainly to RQ1 Partially to RQ2 & RQ3	It helped to build a process-based approach to realize benefits from ES through incorporating activities from benefits management. It also showed that benefits can be generated as outcomes after the implementation, but this requires planning to ensure such positive outcomes, as benefits are not evident automatically. It showed that organizations that undertake a planning/management approach and set measures to realize benefits, without necessarily being formal practices, would realise substantial benefits from ES.
Article # 3 IJISPM	Mainly to RQ2, Partially to RQ3	It contributes explanations on the benefits emerge in the practice that not necessarily anticipated. It revealed that ES can provide greater advantages to an organization when it becomes interwoven with the business work, and not only when the system does particular tasks (Importance of inseparability between the business and the ES). The work also showed that the organizational capabilities that enable an organization to exploit the technological possibilities of an ES are not the same in all organizations. The matter that explains the

		varied level of technology exploitations among different organizations. - It argued that benefits can be realized when both sides are changing (the business practices or/and the system- customization) to shape each other. This entails examining the relation between both sides.
Article # 4 ECIME	Mainly to RQ3 Partially to RQ1	- It argued that success factors for the delivery of the system implementation are not necessarily leading to successful benefits realization. - It demonstrated six enablers that are not necessarily pertinent in every context, but they were revealed by the implementation in a Palestinian telecom company. Thus, organizations that apply such enablers are more likely to realize benefits from the implementations of ES in the examined context. - It showed the importance of the interaction between many factors to leverage benefits realization.
Article # 5 EMCIS	Mainly to RQ3 Partially to RQ1	- It outlined four main barriers that inhibit benefits realization. Taking these barriers under account will reduce the probability of the lack of benefits realization from ES. - It highlighted that not all organizations face similar challenges. A new venture was not considerably struggling to realize benefits from ES, since many of the aspects that cause the lack of benefits realization are largely absent from that context.

		□ It developed a number of propositions that can be pursued in further research. These propositions provide explanations for the ability of start-up companies to realize benefits from ES. Hence, this article suggests that new ventures, especially those that have resources and that are expected to grow rapidly, should implement ES as soon as possible.

Table 4-2 Articles' Summary

5. Discussion and Contributions

The purpose of this thesis is to investigate the research question: *What can organizations do to realize benefits from enterprise systems?* In order to answer this question, exploratory research, based on case studies of two companies, has been conducted. The research investigations have been published in multiple articles, as presented in Chapter 4. This chapter focuses on discussing the overall research findings and the four main contributions.

- First, it provides an improved understanding of the process that has enabled organizations to realize benefits from ES. By extension, the study provides insights into the relevance of benefits management practices to ES implementation.
- Second, the study contributes with detailed knowledge about strategies that can help organizations improve and develop further benefits from ES. By extension, this thesis provides insights into our understanding of the central role of ES in organizations and its importance to businesses that transcends positive effects. It also shows how ES are interwoven with businesses so that it becomes difficult to separate the two, both in practice and afterwards.
- Third, it is evident that the benefits realization process is influenced by many factors that can improve or inhibit the process. This study has contributed to the literature by illuminating a number of these factors.
- Fourth, insights have been developed from the aforementioned contributions and synthesized into one model that is intended to answer the main research question. The outcome is a multi-stage process model that is proposed to demonstrate what organizations can do to realize benefits from ES.

In addition to these four theoretical contributions, the thesis also offers practical contributions. This chapter continues to discuss the main contributions in more detail in the following sections.

5.1. The process that enables organizations to realize benefits from ES

The first objective in this thesis is to provide an understanding of the process that enables organizations to realize benefits from ES. Therefore, the first research question was:

RQ1: How do organizations manage the realization of benefits from ES?

This thesis, mainly Article 2, suggests a process-based model that incorporates a set of activities at every stage to provide guidance for benefits realization from ES. The study draws on a benefits management framework as a theoretical base to provide explanations for the actions taken by organizations to realize benefits from ES, and furthermore to provide suggestions for improving the benefits realization process.

In this thesis, especially in section 4.2 and Article 2, it is clear that organizations are able to realize benefits from implementing ES without the use of formal benefits management techniques. However, Article 2 has shown that activities and concepts from benefits management practices were used implicitly, even though they were not formally adopted. In this regard, Article 2 aligned the activities undertaken by organizations with the benefits management framework. Thus, the critical issue is to adopt a planning approach, without it necessarily being a formal method or technique. In planning for ES, benefits may not be completely identified with detailed specifications in the early stages of implementation; rather, an organization may have broad expectations and wide-ranging objectives that are recognized in the early stages and which motivate the initial adoption of an enterprise system. In ready-made complex packages that are designed based on 'best' or 'good' practices, such as ES, the development of planning and management processes based on broad expectations and motives, and not necessarily on detailed benefits, may lead to effective benefits realization. This is because the benefits can be generated as outcomes after the implementation stage of ES.

Planning can address the expectations, measures, or any criteria needed to assess the expected performance, resources (both of implementers and users), responsibilities, and distinctive requirements and business challenges of an organization in addition to the exploration of the features and the possibilities that could be exploited from ES to create benefits for their businesses. These issues are critical in the later stages of the

implementation process. The planning or management approach therefore plays an effective role not only in the initial stages, but also throughout the whole implementation process. It is important to stipulate that this approach is not just to provide a justification for investment, but also to provide a comprehensive approach that serves all of the implementation stages. This point has also been made by the benefits management literature (e.g. Ward and Daniel, 2006; Peppard et al., 2007; Ward et al., 2007), which recommends that for any evaluation approach to be successful and to provide fruitful results, it should have a follow-up mechanism should be put in place to pursue what has been planned.

In fact, the findings suggested in this thesis are in line with a number of ES studies (e.g. Staehr et al., 2012; Seddon et al., 2010; Robey et al., 2002; Ross and Vitale, 2000) which argue that the realization of benefits from ES requires planning efforts, especially to manage the consequences of the implementation and to accumulate more advantages from the system. However, these results are not supported by other research studies which assume the benefits from ES are obvious or inherent in the system features (Haddara and Päivärinta, 2010). This thesis contributes to the application of benefits management in ES. Particularly, it supports many previous studies (Ward et al., 2007; Ashurst et al., 2008; Berghout et al., 2011; Hu et al., 2007) which have argued that benefits management as a formal practice is still not widely used by organizations. Thus, this research proposes that benefits management practices can be implied within the ES implementation process to improve the realization of benefits from ES and that the focus would rest on benefits delivery rather than system delivery.

This thesis suggests that three aspects should be clarified to understand the absence of formal benefits management practices in the investigated organizations. First, the data revealed that these organizations were not aware of benefits management techniques: the informants stated that they had not heard about such techniques. Second, the data collected revealed that these organizations were using an implementation process for the ES life cycle. Thus, it can be concluded that it becomes difficult for organizations to adopt two process-based models: one to manage the delivery of the implementation project, and one for benefits realization to manage the delivery of the benefits from ES. Two process models may create redundancy, inconsistency and confusion in their application or in terms of their responsibilities. Third, formal benefits management can be applied effectively in the development of ICT projects (Doherty et al., 2012) or public-

service ICT investments (e.g. Hellang et al., 2013), because stakeholders can identify the expected benefits and build the ICT product in the development stage to accomplish these expected benefits. However, with regard to enterprise systems, many organizations, especially start-up companies and probably SMEs, may not have a mature understanding of these systems, so they may find it difficult to define the expected benefits in the early stages, as reported in articles 2 and 5. They likely focus their efforts on exploiting the system's functionality and features, whether or not they were previously anticipated.

In short, this thesis suggests that to help organizations realize benefits from ES, even when they do not apply formal benefits management techniques, it is viable to incorporate activities, concepts and principles from benefits management in the implementation process of ES. The afore-mentioned findings provide insights for the first research question (RQ1), which aims to understand the processes that enable organizations to realize the benefits from ES.

5.2. Ways or strategies to improve the realization of benefits from ES

In order to help organizations improve the benefits being realized from ES, this study investigated the different ways that organizations are able to create more benefits. The study aimed to answer the second research question, which was:

RQ2: In what ways can organizations improve the realization of benefits from ES?

Initially, the findings of this study, mainly in articles 4 and 5, supported many previous studies (e.g. Peng and Nunes, 2009; Robey et al. 2002; Soh et al. 2003; Ward et al., 2008; Wagner and Newell, 2004), which showed that delivering ES to organizations and putting them into operation is a critical and challenging endeavour. This is because there are many significant obstacles that influence a system's use and threaten its operation after the 'Go-Live' stage (e.g. Kim et al., 2005; Markus et al., 2000; Robey et al., 2002; Ross and Vitale, 2000; Sedmak, 2010). Therefore, achieving the effective use of the system and stabilizing its usage is the first step after system implementation. The investigations of the cases in this study revealed that it took about two years for them to reach the stabilization stage. Afterwards, organizations can assess what was expected in the earlier stages, and whether this has been actualized or needs further efforts. Subsequently, organizations can improve the benefits using suggested strategies in the long term. In this regard, Willis and Willis-Brown (2002, p.38) argued that, "ERP must be

extended beyond the traditional bounds of the first phase to reap the true value of the system". The authors stressed that before ES are extended, their foundation or backbone should be solid (Willis and Willis-Brown, 2002). Thus, in the post-implementation phase, once the system has been delivered and the organization has started using it in the operation stage, the organization should ensure that staff are using the system effectively and that there are no real hurdles, thus ensuring a stable environment. This is an essential prerequisite for benefits improvement, as reported in articles 2 and 4.

In fact, the investigations carried out in this thesis, mainly in Article 3; suggest that improving the benefits and realizing significant benefits both require a shift in the focus beyond effective use, directing the attention towards technology exploitation. This same point has been suggested in recent studies (Doherty and Coombs, 2013; Doherty, 2014). Majchrzak and Markus (2013) assumed that using a technological system does not mean exploiting all the potential of the technology; rather, organizations can exploit the potential of technology over time. In order to enable organizations to exploit the technological possibilities of ES, as suggested in the previous step, the system should be stabilized first. Afterwards, organizations can review the expected benefits and work appositely to extend the system and improve the benefits by undertaking the suggested strategies. Many of these ways are discussed in the literature, (see Table 2-2 in Chapter 2; Willis and Willis-Brown, 2002; Davenport et al., 2004; Seddon et al., 2010; Staehr et al., 2012). This thesis supports these strategies and provides empirical evidence and illustrations, documented in different articles, and reported by the cases' informants. This section outlines the strategies reported from the cases in Table 5-1.

In addition to the empirical evidence for ways to improve the benefits realization from ES, this thesis contributes to the literature by shedding light on the relationship between organizations and ES. Gattiker and Goodhue (2005) studied the relationship between the business units inside an organization. They found that by improving coordination between departments, the business tasks can be made interdependent and not differentiated, thus improving the benefits from the enterprise system. Drawing on sociomateriality, this thesis studied the relationship between the organization that implements an enterprise system and the system itself. The results of this thesis suggest that organizations realize greater business benefits when the enterprise system becomes an integral part of the business. This becomes clearer when the organization that

implemented an ES finds it difficult to operate without it. At this point, the ES becomes a fundamental organizational player and is used extensively, rather than intermittently to facilitate the job execution. At this stage, after the implementation, the system becomes interwoven with the business in practice and it is difficult to separate the two.

Integration:

- Many benefits were created when the ES was integrated with existing systems, such as billing systems, point of sales systems, archiving systems, and others.
- Activated the integrations between the different modules equipped or requested within the package or the suite (e.g. HRM, Project Management).
- Developed integrations with new systems designed to do certain tasks (e.g. a system to carry out automatic consolidation between the system records and the details from banks).
- Created integrations with the suppliers to share details about the inventory.

Improved access to information:

- Staff members on different levels were able to access the authorized details in a timely manner. Further, the system provided accurate and comprehensive reports and financial statements.
- The system led to further benefits when organizations were able to create value from the data stored by the ES (using existing functions offered by the system or other external tools that aided data mining and exploration).
- The system offered the ability to access details, using electronic devices to access information, and to enable the managers to monitor subordinates' tasks.

Process optimization and innovation:

- The system was used effectively by covering most of the business functions and minimizing the manual work.
- The system continued to support organizations with good practices and continued to re-engineer and to improve the existing processes.
- The system offered new functionality based on the systems' features, like sending automatic emails to ask particular staff members to do certain jobs, or to inform them of certain details.

Extending the system and improving its use:

- Sought to implement further projects, like Business Intelligence (BI) solutions to improve data access and analysis, and to capitalize on the data stored by ES and other systems (such projects could be specialized analytics solutions to serve the whole business, and not just the enterprise system in particular).
- Implemented recent upgrades with advanced features.

- Developed new programs to do certain jobs and integrated them with the system to become extensions of them.
- Provided snapshots or data objects that contain details that are useful to other systems (e.g. performance management systems).
- Offered ongoing investigations for further benefits – for example, further investigations for interesting uses, modules, features or even external systems. Some features are add-on features based on requests and needs.

Coordination and interdependence between business units:

- Improved coordination between business units to make the business tasks interdependent and not differentiated.
- For example, implemented 'procure-to-pay' cycle to enable many sections/business units (purchasing, general ledger, accounts payable, budget, stock control) to jointly execute a single transaction, thus influencing many business functions.

Drawing on sociomateriality, this thesis proposes that one important way to realize benefits from ES is by constructing an entwined structure between the organization and the ES in a way that makes it difficult for the latter to be separated from the business after use. When ES play a central and indispensable role in the organization of businesses then, in turn, they can provide great benefits to these organizations, without which it is not easy for them to go about their daily work. (Article 3 provides further discussion about such a construction.)

- Benefits from ES can emerge when an ES is interwoven with an organization so that they dynamically change each other in practice. As a result, the good practices of an ES can shape a business, and the distinctive needs of an organization can shape the system. In this regard, the system does not just create a positive impact on the business, facilitating its operations, but it can shape the business, itself. Indeed, after interwoven, it becomes difficult to separate the system from the business.
- An ES can become an integral part of an organization. Based on this foundation, it is likely that business operations carried out without ES are more difficult to perform. Thus, ES have become used extensively to transform business organization. However, they may not be used intermittently or occasionally to do certain jobs.
- Materiality of ES can provide opportunities to develop new practices or to change (improve) existing ones, thus creating benefits in practice.
- This research puts forward four aspects of the interwoven relationship between an organization and an enterprise system: flexible business structures; flexible technology, especially through configuration and adaptation; technological opportunities that are of interest to such organizations; and organizational capabilities that enable opportunities to be translated into real benefits.

Table 5-1 Ways to improve benefits realization from ES

This research has contributed a new model that is underpinned by concepts from sociomateriality, as demonstrated in Article 3. Through this model, we can understand how an enterprise system is interwoven with an organization. This model can add theoretical depth and explain the benefits that emerge from the technological possibilities. This thesis suggests that four factors are required to successfully interweave a business and an enterprise system, and, thus, improve the benefits realization from ES. First, flexible routines or a business structure are required in order to realize business benefits from the recent advances in the ICT field in general and ES in particular. These advances can offer opportunities for organizing new ways of doing business, which could replace existing ways; for example, these could include changes to underlying routines and organizational structures that are more flexible and can appropriately accommodate changes in these structures. Such flexibility is critical; indeed, there is increasing evidence that the nature of organizational work is taking on new forms as a result of the application of ICT (Blok et al., 2011; Chou et al., 2014). Second, it is important that the implementation of ES remains flexible by capitalizing on the many options and equipped features in the system's configuration, and by developing additional programs (see Article 3) to handle the dynamic situations faced by businesses. Business challenges include uncertainty, increased demands from people and organizations, and changes in rules and regulations to respond to market pressures, among others. Therefore, it is likely that flexible routines and flexible technology will be needed to handle the ongoing changes from both sides and keep ES interwoven with organizations. In turn, both organizations and ES can shape each other in practice. Third, the integration of ES with other technological products can provide huge exploitation opportunities for organizations; however, these opportunities need to be relevant to businesses, or valued by them, and organizations should show that they offer some benefit. Fourth, to exploit these opportunities, organizations should have sufficient capabilities to translate the potential of technology into real business benefits. In Article 3, these four issues are proposed in a model that seeks to explain how organizations can improve the benefits from ES. It can also explain any unintended benefits that emerge in practice, after implementation.

Most importantly, it can be argued that suggesting an initial need for both stability of the system and flexibility to improve benefits creates a paradox between these two strategies. Stability, as discussed at the beginning of section 5.2 and in articles 2 and 4, can be defined as "holding a fixed position – not likely to move or change". Likewise,

flexibility to improve benefits, as suggested in Article 3, can be defined as "able to change or be changed easily according to a situation" (Melin, 2010, p.182). It must therefore be recognized in this thesis that the stabilization stage is just to solve any issues and problems raised after implementation and to ensure that staff are using the system effectively. In other words, maintaining a stable stage strengthens the foundation of an enterprise system and keeps its backbone strong, as suggested by Willis and Willis-Brown (2002). In later stages, organizations can utilize and benefit from the flexibility incorporated in the technology and designed into business routines to improve benefits.

On this basis, it could be concluded that organizations that aim to achieve stabilization and reject further developments, and which do not promote modifications to the system or changes to business routines simply because a stable environment exists, are unlikely to gain more benefits from the system. This conjecture, therefore, provides insights into why some organizations are more able to realize benefits from ES than others. On the other hand, and as reported in articles 2 and 4, organizations that are interested in creating a stable environment and which start to gain benefits on a gradual basis are probably those who are most able to achieve substantial benefits from ES.

By the time an organization's needs are met by an enterprise system through ongoing benefits realization, and that organization is able to exploit the technological features of the system, it becomes difficult to do business without the system. Thus, both the organization and the system can shape each other and the system becomes a fundamental organizational pillar in that organization. At this time, the organization perceives the value of the system and benefits are increasingly accumulated. In this regard, the results of this thesis are highly supported by findings suggested by Rikhardsson and Kræmmergaard (2006), who claimed that, "… the impact of ES implementation and use are seldom fully predictable by management. The ES can be seen as an organizational actor in its own right; to a large extent, it influences values, culture, behavior, processes and procedures of other actors in the organization. Given the complexity, size and organizational embeddedness, the ES implementation never ends and the ES becomes a significant variable in the future direction of the organization" (p.36).

5.3. Factors influencing the realization of benefits from ES implementation

The third objective for this thesis is to explore the factors that influence realizing the benefits from ES. For this objective, the third research question was:

RQ3: What are the enablers and barriers influencing ES benefits realization?

After understanding the process that enables organizations to realize benefits, and after understanding the different strategies that enable improved benefits realization from ES implementation, it becomes necessary to understand the factors that influence the process across different stages. These may be factors that leverage and support the process, called enablers in this thesis, or factors that inhibit the process, that have been termed barriers.

5.3.1. Enablers influencing the realization of benefits from ES implementation

This study's results suggest that many enablers are important in helping organizations realize benefits from ES. The investigations carried out, particularly in Article 4, showed many of these enablers, which include the following:

- Technology proficiency by the organization's management
- Active engagement of the management across the implementation stages
- Effective change management
- Partnership or the development of longer relations with the vendor or the implementer
- Learning from other companies that have already implemented ES
- Staff motivation
- End user training
- Customization of the system to address distinctive needs
- Engaging the key persons in different stages of the implementation

- Ensuring that the implementation of ES is not solely an IT issue, and emphasising that the business units also play a critical role and must take responsibility

Although many of these enablers are already reported in the 'critical success factors' literature (Finney and Corbett, 2007; Somers and Nelson, 2001; Skok and Legge, 2002), we have focused on these in particular, because of the role they plan in ensuring the successful delivery of benefits and not just the successful delivery of a technological system. In this regard, this thesis advocates suggestions that have also been put forward by studies (e.g. King and Burgess, 2006; Doherty et al., 2012), namely calls to modify the traditional success factors so that they are more explicit about the successful delivery of business benefits. Doherty et al. (2012, p.12) have stated that, "while the successful delivery of a new piece of software might be seen as an important milestone, it should not be viewed as the primary objective of a new IS project". Furthermore, it is important to note that these factors cannot be theorized as static or independent variables applicable to any ES implementation; rather, they are dynamic factors that interact with the environment or the context, and are influenced by social, political and economic forces, as discussed in section 4.4 and in articles 4 and 5. The same matter has also been raised in several studies (e.g. Nandhakumar et al., 2005; King and Burgess, 2006; 2008; Doherty et al., 2012); these have argued that the implementation of a technological system may differ from one organization to another, and that what makes these projects more successful is highly related to the context. However, the thesis found evidence, mainly in Article 4, for the interaction between the different factors, and the interaction between the factors and the context. Examples of these interactions are illustrated as follows.

The examination of the business sector in which these cases operate, namely the telecoms industry, provides great insights into the interaction between the context and the delivery of benefits from technology projects. This industry, particularly mobile telecoms, is relatively global in nature, dealing with many international providers, and entered into different business alliances (Scalera, 2012; Imtiaz et al., 2015). This sector is also involved in merger and acquisition business strategies, and the buying and selling of companies (Ghosha and Dutta, 2014). In particular, the sector is dynamic and new; thus, it has been found in this thesis that many of the company staff are young, motivated to use technology innovations, willing to learn, and willing to change the existing business practices. Such companies are less exposed to a traditional corporate culture that exerts a

higher level of resistance to new technology applications. This is particularly relevant when the system attempts to change its business regulations or routines, which means changing the identity of the company (Soh et al., 2003; Ross and Vitale, 2000; Wagner et al., 2010). Further, young people are enthusiastic in their use of new technologies and innovations. These factors play an effective role in career development, and in turn lead to new and better job opportunities for these young people. Thus, many factors found in this dynamic context do not necessarily exist in other contexts and most likely do not have the same influence. Therefore, this thesis advocates previous studies (e.g. Nandhakumar et al., 2005; King and Burgess, 2006; Doherty et al., 2012) that have argued for the development and improvement of critical success factors in order to ensure the delivery of benefits, and for an understanding of them within a particular context. These enablers should be tailored to the context under investigation; they are definitely not static independent variables.

Furthermore, this thesis, especially Article 4, emphasises the role of top management in realising benefits from the enterprise system. This same finding has been highlighted in many previous studies (Peng and Nunes, 2010; Staehr, 2010). The role of top management can be seen well beyond the early stages, when it facilitates the adoption of an enterprise system and allocates funds for it. The issue is thus to have continuous and active engagement of the management from inception through implementation and into the evaluation of the system's use. It also involves supporting efforts to enhance use of the system by promoting benefits exploitation from technological features that may arise in later versions of the system, or later adoptions of technology products that are highly influential on its use. Staehr (2010) investigated the role of management in realising the business benefits of ERP systems in the post-implementation stage. She found that managerial agency was very important in delivering system benefits. Furthermore, Doherty et al. (2012) considered the active engagement of the top management and leadership roles throughout the project to enhance the ability to realise the maximum benefits. They conjectured that the traditional success factor, top management support, would not be enough. Management should actively engage in the project work and show a leadership role, taking on the responsibility of facilitating organisational change. In this study, the top management’s leadership was very clear. Because the telecoms industry is highly dependent on technology, the company management had a comprehensive understanding of the role of technology, the need for advanced business systems, and the

impact of such systems. In fact, the active engagement of the company's management, beginning at the start of the implementation process, was critical in the success of the cases' implementations. This was instrumental in ensuring successful implementation of the changes requested, as the study's findings showed that essential changes were needed in particular to facilitate the organizational changes that were related to regulations or to the new business processes and jobs. Active involvement of the management throughout the implementation process, rather than just formal support, facilitated the change management and subsequent successful cultivation of benefits.

5.3.2. Barriers influencing the realization of benefits from ES implementation

It is argued in this thesis, mainly in Article 5, that in order to gain significant business benefits from ES, organizations should be aware of the many barriers to benefits realization. Further, they should work to manage the effects of these potential barriers. Article 5 has classified these barriers into four main groups: organizational misfit, technical misfit, shortage in competence and availability of people, and poor management of the whole system or the changes suggested. Taking the last barrier as an example, Article 4 showed that many staff members in Case 1 used to work in certain ways, but when the enterprise system was implemented and had been put into use, these staff members showed resistance to using the system because it was new for users and many of them had not been used a system before.

One of the interviewees, an assistant, stated that when the system was introduced, it was very difficult for her to use it effectively, especially because she had not used an enterprise system in her work before. She said that other people from different departments were asking her to input information into the system, because the system is a complete process and every staff member can input details in order to accomplish a single process. However, the matter was not clear for her, so she confirmed that she was not interested in using the system because of its complexity. Although this barrier was only revealed after implementation had taken place, the company dealt effectively with the problem. Firstly, extensive and scenario-based training was found to be highly beneficial in helping people become familiar with the system. Another strategy involved motivating the management and requiring the department and section managers to work jointly with the staff who had resisted using the system. These staff members were informed that the

enterprise system was the management's choice and that they would be persistent in promoting the system for use throughout the entire company.

Drawing on the management framework suggested by Ward et al. (2005), the company's management included the implementation team, who tried to achieve a balance between the interests and benefits of the company and those of the staff. They explained to the staff who had shown resistance and were not interested in using the system how beneficial it was for both them and the company. They allowed other staff and their respective line or section managers to work with their subordinates using the system. According to Ward et al. (2005), the management took the *Interest or Coalition* approach. Furthermore, the project manager in Case 1 said that one of the store keepers refused to use the system, even though he sat with him personally. Afterwards, the project manager explained the case to the top management. They also met with the store keeper to explain to him that the enterprise system is the company's choice and that he cannot, therefore, refuse to use it. In this case, according to the framework put forward by Ward et al. (2005), the management took the *Power or Top-down* approach to dealing with the conflict showed in the case.

At the same time, many staff members said that the system was difficult after the implementation, but because they were motivated to use the system, they handled that situation easily. Other staff members expressed more details about staff frustration, as the old system was easier than the new one, huge details needed to be entered in the beginning, massive errors, and staying at work till late time. These two different aspects show contended perceptions for the staff motivation to use the system. External staff member who is considered as expert provided more details helped to interpret the two different perceptions. He said that "there were meetings with the management that always stressed the importance of the system success, the management warned that the alternative for the system success may reflect on the staff and on the company. Many issues should be taken competition and the reputation of the company that can make negative effect on the whole company and in the staff themselves". Involving an external expert was critical to understand the different perspectives about staff motivation. The details revealed from the expert person showed that it was possible to say some staff members were not motivated in the beginning, but through different meetings and the messages from the management, such staff members became motivated to use the system.

In Article 5, it is claimed that the barriers are also context-based factors, as is the case for the enablers illustrated above; thus, some barriers have a greater influence in a particular context than others. For example, Article 5 showed that many of the barriers found in the literature are not applicable in newly established companies. The findings of this thesis contribute to the growing literature on ES implementation by studying an implementation of an enterprise system in a newly established company. The results provided a set of propositions for further research, which have been developed to explain how implementing an enterprise system in new ventures differs from implementing the same system in established companies. The findings also suggest that new ventures may experience fewer barriers to realizing the business benefits of ES because they can more easily adapt their business processes to match the software features. New ventures do not have entrenched business practices, historical business processes, or persistent culture; these are all factors that have been found to impede the realization of benefits when implementing an enterprise system. This study proposes that new ventures, especially those that have adequate resources and are expected to grow consistently in the market, should consider implementing ES in the early stages. This is because such systems can help in streamlining business processes and can support business growth. Further, many of the known barriers that obstruct the realization of benefits from these systems do not seem to exist in newly established firms.

The thesis investigations were conducted in Palestine, a developing country. The results show that the organizations are using the enterprise systems effectively. In fact, there are claims that ERP systems inscribe 'Western practices' that are not appropriate for organizations working in non-Western countries (Soh et al., 2003; Rajapakse and Seddon, 2005; Rabaa'i, 2009; Dezdar and Ainin, 2011; Ngai et al., 2008). Thus, the thesis results do not support studies that assume that implementing enterprise systems may not be a proper solution for companies in developing countries because of cultural barriers (Rajapakse and Seddon, 2005). Conversely, the findings of this thesis are similar to those shown in a study of Chinese SMEs (Newman and Zhao, 2008). In this thesis, it is believed that organizations are interested in using the good practices with which ES are equipped. Furthermore, they have the ability to adapt ES so that they address their distinctive needs; thus, they are unlikely to face the cultural barriers found in a number of previous studies. Interestingly, the recent releases of ES are more flexible and can be

configured to meet most needs. Such flexibility was probably not available in older releases, when many former studies were conducted.

To sum up, both enablers and barriers are highly influential in the process of benefits realization, either positively or negatively. The relevant factors are different from one context to another; thus, taking them into consideration can help organizations realize more benefits and reduce the probability of poor benefits realization. Understanding these factors within their respective contexts can certainly provide organizations with enriched guidance about what to do to realize benefits from ES. They can provide insights that help to explain why some organizations more than others realize the benefits from ES.

5.4. BRES - A new model for Benefits Realization from ES

The main research question for this thesis was: *What can organizations do to realize benefits from ES?* Answering this question is achieved by integrating the previously discussed analysis of the research sub-questions into a new process-based model.

This thesis supports the arguments put forward in the literature: that to effectively realize benefits from a technological system, it is important that organizations not only focus early on to define their adoption motives and the expected benefits from the system, but that they work continuously to pursue and execute these expectations (e.g. Ward et al., 2007; Peppard et al., 2007). Many organizations do not take this approach, but instead concentrate merely on the expected returns from the technology investments from a limited perspective, in order to justify the investment decisions. Approaches that develop business cases without continuous follow-up to proactively manage the whole endeavour will encounter difficulties in achieving significant benefits from the adopted technology systems, and they may not succeed in realizing the potential of the technology (e.g. Peppard et al., 2007). This issue in particular is a central concept in benefits management literature, but it is not clearly or explicitly addressed in ES literature, which is more focused on system delivery. Accordingly, this thesis suggests a process-based model for benefits realization, underpinned by concepts from benefits management to enable organizations to define their expectations in the early stages, then execute these expectations and exploit the technological features. Afterwards, organizations can monitor and improve the benefits continuously.

Obviously, ES implementation is a process-based endeavour, so organizations undergo different stages during the process (e.g. Markus and Tanis, 2000; Robey et al., 2002; Newman and Zhao, 2008). Hence, in the theoretical model that is being developed in this thesis it becomes plausible to align the suggested activities for benefits realization across different implementation stages in a process model. Another important issue is that many problems occurring at the post-implementation stage are consequences of many matters or events that occurred before and throughout the implementation (Markus et al., 2000; Nandhakumar et al., 2005; Peng and Nunes, 2009; Staehr et al., 2012). Thus, it is not enough to identify critical factors that influence the post-implementation stage, where variance models are inadequate in addressing comprehensively the realization of benefits from ES. In fact, as shown in section 5.3 above, there are contextual interactions in every stage of implementation. These interactions influence the subsequent stages. Furthermore, as long as the implementation undergoes different stages, some aspects may change during and after the implementation process. At the end of the process, many aspects may change and become different from what had been planned or expected in the early stages, such as emerging new technologies or new modules and features, new business needs and regulations or changes to them, or conditions that affect the context, such as problems related to the vendor or the staff. The aforementioned issues thus merit the development of a process-based model, known as BRES, to guide expectations, and to manage proactively the whole endeavour in order to deliver considerable benefits from the ES.

The BRES model demonstrates the benefit-realization process for ES, and, in the main, is developed on the basis of empirical findings collected from the case studies, and articulated with theoretical underpinnings, namely ES literature, benefits management, and sociomateriality perspective. Most importantly, Ward et al. (2007, P.215a) stated that, "… only a minority of organizations have adopted a comprehensive approach to managing benefits from their IS/IT investments. Nearly three quarters of the surveyed organizations express the need for significant improvements". This expressed need is in addition to other recent research that has called for the development of process-based models to help organizations realize business benefits from ES (e.g. Staehr et al., 2012). Accordingly, the BRES model contributes by addressing the need for an overarching approach that can help organizations realize benefits from the implementation of ES.

5.4.1. Structure of BRES Model

The results from this thesis suggest that the benefits from ES occur as a result of interconnected stages, and that these stages are influenced by many factors and various situations. These stages and factors are represented by five main themes that make up the BRES model. As demonstrated in Figure 5-1, these themes can help organizations to gain the knowledge necessary to realize benefits from ES. Furthermore, these five themes improve our understanding of why some organizations are able to gain substantial benefits from ES, whereas other firms struggle, despite them implementing the same system. As Figure 5-1 shows, the first three themes are related to the implementation process, whereas the last two themes are related to the factors that influence the process.

These five themes are as follows, shown in the order given in the figure:

1. Adopt a planning approach: this step is undertaken in the early stages of the ES implementation, particularly before implementation begins and then in the later stages. This approach allows organizations to prepare and plan for implementation and for the expectations they have, whether these are high-level adoption motives, expected detailed benefits or even potential benefits expected from the features and possibilities offered by ES. Identifying these expectations can be posited in addition to organizations' requirements and concerns. In this stage there is no direct interaction between the organization and the ES, as still the organization prepares for the implementation, therefore the line that connects between them is dotted (Ref. Section 5.1; Article 2).

2. Exploit the system's possibilities: this refers to the activities that organizations can do to make use of the technological possibilities of the system in order to address expectations, requirements and concerns throughout implementation. These issues are usually executed in the development or configuration stage during implementation, but further exploitation and technological changes can be suggested after implementation, in the operational stage. In this stage there is direct interaction and exploitation efforts between the organization and the ES, therefore the line that connects between them is solid (Ref. Section 5.2; Articles 2&3).

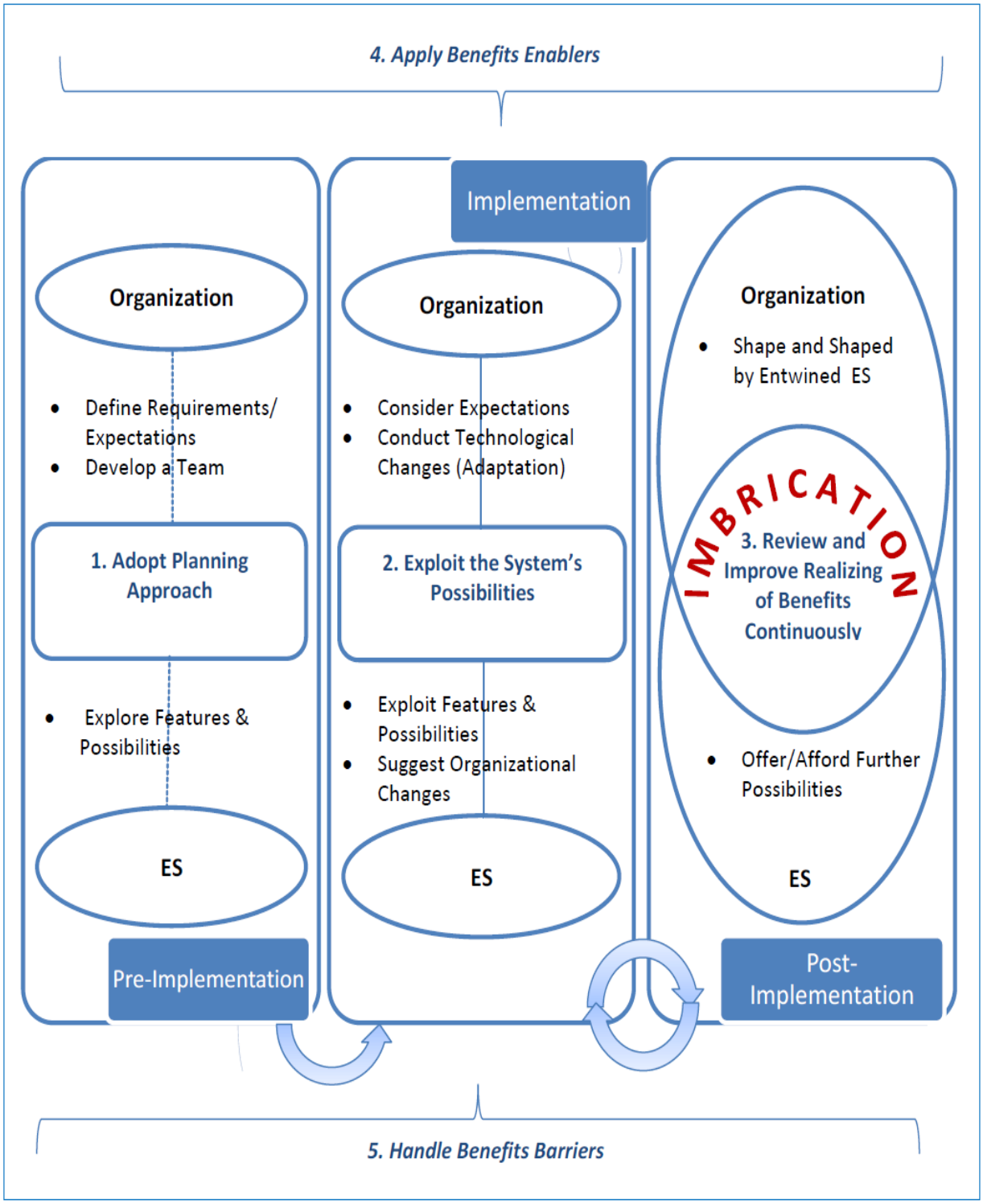

Figure 5-1 Benefits Realization for Enterprise Systems (BRES) Model

3. Continuously review and improve benefits realization, and engage in the activities and strategies that can enable improvements to benefits. Normally, these activities can take place after the implementation of an ES, in the operation stage. In this stage there is imbrication or the organization and the ES are together interwoven in the practice. Suggested improvements likely entail further planning and work in the development or implementation stage, and then the benefits generated from these further developments can be monitored in the operation stage. This proposed cyclic process first identifies or suggests new benefits; second, exploits and develops further; and third, monitors and keeps looking for benefits on an ongoing basis (Ref. Section 5.2; Articles 2 and 3).

4. Apply benefits enablers: apply the factors that can enable organizations to realize the benefits from ES (Ref. Section 5.3.1; Article 4).

5. Handle benefits barriers: support the ability of organizations to handle the barriers that obstruct the realization of benefits (Ref. Section 5.3.2; Article 5).

The proposed BRES model is different from other models, because it integrates three streams of theoretical premises to provide a unique and improved approach for benefits realization from ES. In particular, this thesis suggests that organizations that do not have established techniques in place to realize benefits from IT/IS projects (e.g. benefits management) can benefit from the BRES model, after being validated. This is because the BRES model incorporates activities and concepts from benefits management into the ES implementation process. In particular, many newly established organisations may not have formal or established techniques for benefits realization, because they probably lack some organizational capabilities. In this regard, the BRES model can provide further guidance for the activities relating to benefits realization at every stage of the ES implementation process. As discussed in earlier chapters, benefits management is focused on realizing benefits from IT/IS projects in general. This thesis claims that benefits realization from ES may differ from that found in other projects. Organizations

that implement new ES may not have a complete understanding of the benefits in the early stages; this may only be realized after implementation. Furthermore, it is clear from Chapter 1 that organizations implement ES through management processes designed for ES implementation (e.g. Tanis and Markus, 2000). Therefore, proposing a model based on ES implementation processes and enriched with activities or concepts from benefits management can be considered a starting point for the development of an improved model to realize benefits from ES. This model integrates two processes: one for ES implementation process and another for benefits management. At the same time, ES was found to be more than just a technological system with positive effects and a facilitator of business operation; rather, it was seen to be a fundamental part of the social structure and a new way of organizing. Hence, the BRES model relies on sociomateriality to accentuate the technological role of ES in organizing and instituting businesses. To this end, the BRES model aims to respond to the need for an integrative model that covers the different stages of the ES implementation process and is empowered by concepts and activities from benefits management and sociomateriality. Such a model can be used, after validation, by both practitioners and scholars to better understand the different actions at different stages that can lead to the successful realization of benefits from ES. However, this model accentuates the ongoing efforts between the implementation or development stage and the post-implementation or operation stage; this is a matter that is rarely addressed in other ES models. LePine and King (2010) suggested that one way to develop a novel contribution is by integrating theories or theoretical perspectives to provide a theoretical structure that did not exist before. In this sense, the BRES model has been developed by drawing on additional streams of literature other than ES literature, such as benefits management and sociomateriality. Combining processes and principles from different streams of literature can be considered a novel contribution to addressing the research problem, which has not been previously examined in the ES literature. The rest of this chapter will explain the BRES model, and will argue how the underlying theoretical premises were critical for developing this model.

5.4.2. How the Model has been Developed

Initially, Article 2 introduced a preliminary process-based model that was inductively developed from a single case to demonstrate the activities or actions taken to realize benefits from the implementation of ES. This process model mainly consisted of three stages that are aligned to the first three themes (themes 1-3). Other articles provided greater details to enrich the model. Article 3 largely contributed to the enhancement of themes 2 and 3. Articles 4 and 5 contributed details to develop Theme 4 and Theme 5, respectively. The model's themes and empirical evidences that support each theme are illustrated in Table 5-2. The BRES model is made up of three stages to inform the main research question (MRQ). In the main, it focuses on the provision of insights into what organizations can do to realize benefits from ES. Actions are aligned to three generic stages. Firstly, the pre-implementation stage presents all actions that are to be taken before implementation (preparation stage). The second stage is the implementation (development) stage, which shows the suggested actions to be taken through physical implementation, including the installation, configuration and adaptation of the system. The third stage is the post-implementation (operation) stage, which presents all actions that are to be taken after putting the system into use, when many benefits are realized. In this vein, the process proposed in the model consists of three generic stages; different actions are shown in each stage. If the BRES model had been based on only two stages, then it may have provided less of an insight, as some stages would have had to be combined. Therefore, organizations would be given less detail about when to do certain activities. At the same time, Huang and Yasuda (2016) presented 26 models for ES implementation processes. They classified these models into one generic model that covers the pre-implementation, implementation and post-implementation stages. Therefore, it is not proposed that the BRES model extend any one ES implementation process in particular; rather, it aims to contribute to the ES implementation processes in general.

Empirical Instances	Concepts	Themes
-"If we want a system to serve and integrate the overall business units, and to provide a unified, flexible system to enable all people working in the system simultaneously and to meet our future needs, then we don't have many alternatives other than an ERP" (*Chief Financial Officer (CFO) & project sponsor, Case 2).* -Key informants were given a framework suggested by Shang and Seddon (2002) to mark the realized benefits. From both of the cases most of the benefits were re-marked as realized. -Informants revealed that these benefits are being realised now, but when they started the implementation of the system, they did not expect or think about them in this way *(Financial Director and Internal Project Manager, Case 1; Chief Financial Officer (CFO) & project sponsor, Case 2).* -"We had decided first which modules to start upon in the implementation, according to the analysis of our needs. So our needs decided which modules to start with, and later on we implemented further modules, whenever we had the need for them (we took the advantage of the system as it is modular" *(Financial Director, Case 1).* -"We have some specific issues that are required and they may be special to Palestine or special to our company (for example, currency complications, differing tax rules from one location to another, considering the old data we have, the active or online system between West Bank and Gaza including the stores across cities in Palestine). So we want to ensure these issues are addressed in the system, and after that we want to see how the system can help us improve and develop our work*" (Head of general accounting, Case 1)*	-Define requirements, expectations, challenges, and responsibilities	Theme 1 - Adopt a planning approach (Pre-implementation) **Further Details in:** Article 2 , 4 & Section 5.1

-"Before the system implementation, I wondered how big companies manage their volume and complexity of work because we were not able to do all the business work regularly, so we assigned specific dates to receive invoices, but now everything is done in a timely manner" *(Head of fixed assets and inventory, Case 1).* -Before the system implementation started, representatives from Case 1 visited many peer telecom companies in the region to learn from their experiences and to understand how the enterprise system could help in handling the increasing volume and complexity of a business. -Developing a competent team in each case considered a very important aspect needed to plan for the implementation. For example, this team in Case 2 was consisting from a project director, project manager, two functional and technical consultants working inside the organizations in addition to an external consultant. Such team members have hybrid expertise in business, IT and in ES implementation. Members of this team were available early before the implementation and they are aware of the system implementation and involved in the subsequent stages of the implementation.	-Explore system features and previous experiences -Develop a competent team	Theme 1 - Adopt a planning approach (Pre-implementation) **Further Details in:** Article 2 , 4 & Section 5.1
-The team was involved in the system configuration, and adaptations. For example, in Case 2, implementers from the implementation company configured the chart of account according to the existing one. Afterwards, the developed team informed the implementers that in the future it is expected to have different branches and they wanted the structure of accounts to be changed. Therefore, the implementers have modified the system to reflect the potential growth in the branches. -In Case 2, each morning a meeting was held between	-Involve the team to address the requirements and to exploit the system's possibilities or the features	

the internal project manager and the project manager from the implementer side to discuss the course of action, especially for the special requirements and how they were to be handled. Further, they discussed any issues or resources needed for the implementation so that they could report to their managers if interventions were needed. -The business was flexible enough to accept suggested changes. Examples of these business changes are given below: -The budget process has been completely changed. Instead of giving the head of the budget section the authority to approve a purchase order, the ES now automatically generates approval if there are enough funds in the budget for the department that has submitted the purchase order. -Creating new rules (e.g. now not possible to pay in a currency different from the invoice currency, a practice that was acceptable before the ES). Not possible to enter an invoice if it does not have a reference in the purchasing module). -Doing the full cycle procure-to-pay is introduced by the system, but was not exist before. Some changes in the structure like transferring staff from one department to another. For example, to follow procure-to-pay cycle, it was required staff knows about purchasing to be transferred to the accounting section. -The store keeper becomes important player in the cycle, and becomes more than just a person delivers and receipts inventory items. -The correspondence with the suppliers regards the documentation was the fax, but as the result of the system implementation, it becomes the email. This is an example to the changes related to the communication.	-Ensure the expectations, and requirements are considered, then appropriately incorporated and addressed -Utilize flexibility -Suggest changes in the current business practices	Theme 2 - Exploit the system's possibilities (Implementation) **Further Details in:** Article 3, 2 & Section 5.1, 5.2

-The system was flexible to adapt organizations' needs. The informants did not raise issues that reveal the system prevented them to do their requirements. For example, because there is no a national currency for Palestine, Case 2 was initially giving the staff salaries based on Israeli Shekel. Later on the company decided to change the whole structure (the grades, pay limits for every grade, allowances, discounts, etc.) beside the monthly payroll to be in Jordan Dinar.	-Conduct appropriate technological changes by adapting the system	Theme 2 - Exploit the system's possibilities (Implementation) **Further Details in:** Article 3, 2 & Section 5.1, 5.2
-In both cases, the system took approximately two years to become stable without errors; after this happened, the staff felt comfortable. The informants revealed that the first six months after implementation, when the system was put into use, were very tough. They spent a significant amount of time entering and modifying the reference tables that influence how the system is used later on. -All informants from both cases reported that they were at least 70% satisfied with the system outcomes. -Different staff members were assigned responsibilities for different modules, as a way of monitoring the implementation results and to help resolve problems in the relevant module. -Case 1 conducted review sessions, including a health check, with the main vendor in Jordan. -The management requested a weekly status report and a monthly presentation to the steering committee of the project throughout the implementation process *(Financial Director and Internal Project Manager, Case 1).* -Reviewing the financial statements and payroll results with other reports ensured the system gave accurate results. -"I cannot imagine the company without the system,	-Stabilize the system use and then review the expectations	Theme 3 - Review and improve realizing of benefits continuously (Post-implementation **Further Details in:** Article 2, 3 & Section 5.2, 5.1

because the system brought international and world-class business practices to the company, so now we can say that we have a modern way to organize the business and this is because of the system's implementation" *(Financial director and internal project manager, Case 1).* -"The system now is very important to the business work. If there is no system, there is no financial statements, no staff payments, and a salesperson in any store in our sales points will struggle to sell a mobile using the points of sale system, because everything is integrated now" *(Head of reconciliation and accounts receivable, Case 1).* -Appendix B provides further examples to express a difficulty of separating the business and the ES. -"When it became difficult to reach the company office, and I came into the office the next day, I might find a significant number of the system transactions that were pending and required approval." After the system was upgraded with additional developments, some services became possible to be online and even using the mobile phone. Now I receive an email by the mobile phone and I can review, approve, or disapprove entered transactions" *(Financial director and internal project manager, Case 1).* -During many visits by the candidate to both companies, it was easy to observe that the staff's offices did not perform much manual work. That means the system replaced the old manual work with new electronic practices. -Table 5-1 demonstrates several ways in which the two cases were able to improve and develop further benefits. -Using the email system and mobile devices, managers now can monitor whether an employee used the ES to do something different from what was	-Ensure the system is extensively used to fully transform and shape the business -Difficult to separate the business and the ES after use -Keep looking for further benefits using appropriate ways, and strategies	Theme 3 - Review and improve realizing of benefits continuously (Post-implementation **Further Details in:** Article 2, 3 & Section 5.2, 5.1

defined for him or her. For example, if an employee entered a transaction with amount above the allowed limit for her/him, a warning message could be sent to her/his manager. This benefit was very important for people who work from home or attend many meetings outside the company. -When some staff showed resistance to use the system, their managers communicated with them to solve their concerns. When the resistance continued then the top management engaged to enforce them.	-Allow the system to offer further possibilities -Use different approaches including engaging the management to apply business changes and to sponsor new developments	
-Both companies conducted strong, long-term partnerships with the implementer of the system or another consulting company. -Both companies appointed many people experienced in ES implementation, both during and after implementation. The CFO in Case 2 said that it is now a requirement that applicants have experience or good knowledge about ES. -The management is technology-proficient. -After the system was upgraded to a newer version, additional training was given to key staff members so that they could learn the new features and help their colleagues. -Visit peer-companies to learn from them. -Many staff members said they received appreciation letters from the management and financial rewards for their contribution to implementation. When the managers stayed with their staff beyond working hours, which happened during the early stages of implementation, staff considered this a motivating aspect. -Effective training, including scenario-based tasks. -After implementation, the staff themselves continued to look out for and suggest ideas to exploit features.	-Partnership with an external company that has extensive experience in ES implementation -Hire competent staff -Visit peer companies to learn from their experience in ES -Keep staff motivated and educated	Theme 4 - Apply benefits enablers **Further Details in:** Article 4 & Section 5.3.1

-A number of staff members were resistant to using the system because of its complexity. -A number of managers had concerns about the full automation of some processes; for example, for the creation of purchase orders, they preferred signed paper-based documentation rather than that which has been automatically generated. -A number of users said many transactions could be done easily using the old system; for example, deleting an invoice, or paying an invoice without a purchase order because of missing documents. The enterprise system enforced new restrictions.	-Handle user resistance -Handle variances or tensions between the old and new system/way of organizing business	Theme 5 - Handle benefits barriers **Further Details in:** Article 5 & Section 5.3.2

Table 5-2 Themes of BRES Model with Relevant Concepts and Empirical Instances

5.4.3. Explanation of the BRES Model

The BRES model, which combines ES implementation processes with sub-processes from a benefits management framework, in addition to concepts from sociomateriality, is considered an important tool that can help to realize benefits from ES. In this model, organizations can define their expectations, requirements, and measures, in addition to context-related business challenges, and any explored features and ES capabilities. Such elements can be planned before implementation is initiated, and taken into consideration during implementation, itself. They can also be monitored and improved following ES implementation. At this point, both the organization and the enterprise system may shape and change each other in practice, resulting in the construction of a new sociomaterial structure. Accordingly, instead of focusing on the successful delivery of a project, this model focuses on all stages of implementation to enable the delivery of business benefits, as well as suggesting a new way of organizing business. A brief generative mechanism can then allow benefits realisation from the enterprise system using the proposed model. This process is illustrated below.

- In the early stage, before implementation, organizations can define all relevant details that are known to them. Examples of these details include their expectations, objectives and measures, organizational structure, policies, job structures, staff competence and the resources available, business needs and

business processes, and the concerns that are informed by previous experiences of implementation projects. Benefits that relate to a portfolio of systems, in which ES are a part, can be considered. For example, Case 1 raised issues regarding the existing systems, especially the old accounting system that was used by the company outlets in addition to the billing system. Although Case 2 was recently established, and thus did not have any legacy systems, the need to integrate the enterprise system with the billing system was stressed from the beginning. Both cases documented many aspects that motivated them to implement ES, and considered such motives as their initial expectations (Article 2 presents examples of these motives for Case 2, whereas Article 4 presents examples for Case 1). At the same time, organizations can explore the features or possibilities that may be offered by the system. For example, Case 1 visited peer companies operating within the telecoms industry in the Middle East, whereas Case 2 relied on the expertise of the staff and the consulting company that advised the management on the system features. Potential benefits that may come from an analysis of the organization's needs (i.e., adoption motives) and from ES-related opportunities can represent expectations from the system.

- Organizations can form an internal implementation team to participate in the process. The team is made up of the key persons working in different business functions, in addition to the project director and the project manager. These team members should be available and have a business background, or be referred from business units. They should not be solely IT professionals, and should preferably have had experience in ES implementation. The internal team members can engage with the implementers (usually they are external staff from the vendor or from a consulting company) through physical implementation. They can work with other staff members (users) to assist them in using the system effectively after implementation has taken place. In both the cases reported in this thesis, teams were developed to include varied skills and backgrounds from the beginning.
- Staff engagement in the early stages can allow an organization, through the work of the implementation team, to participate in the implementation stage to ensure that issues raised *before* implementation are taken into consideration *throughout* implementation. The internal implementation team, together with the external implementers from the consulting company or the vendor, may agree on the methods, or the course of action, to ensure successful execution or effectively address the issues raised. Case 2 reported that the internal project manager conducted daily meetings with the project manager from the implementer side to discuss these issues and how to address the organisation's requirements.

- In this model, it is proposed that different types of stakeholders be assigned responsibilities (e.g. different staff members from the cases were responsible for different modules). In this way, the team members can become more interested in the benefits and less interested in the delivery of the project. In particular, the vendor or the implementers from the consulting company should have an interest in the delivery of benefits. Staff can be given the responsibility of keeping track of the implementation project and any outcomes.
- In the proposed model, it is assumed that business benefits can be realized by appropriate changes on both sides – the system and the business – or by suggesting new processes. These include: (1) technological changes on the system side (adaptation or customization) by carrying out the appropriate modifications and configurations to address the distinctive business needs of an organization and to overcome any system limitations. These changes occur largely through the implementation stage, but possibly will also be required after implementation (e.g. system changes may be needed to address the consequences of changing the basic system currency, or changing tax rules); (2) organizational changes on the business side by changing existing practices, including business rules and processes (e.g. changing the budget processes; more examples are shown in Table 5-2); and (3) new processes that were not available before the implementation of the system (e.g. procure-to-pay cycle). These are normally suggested in the implementation stage, but are used by people after implementation. Thus, this thesis suggests that changes are experienced by both businesses and ES; thus, both sides should be flexible in order to create a harmonious, interwoven structure.
- Using the proposed model, it may be possible to define enhancements and improvements to a system's use after implementation by offering further developments, integrations, upgrades and investments in related technological products. Section 5.2 provides many options for improving benefits realization from ES. In particular, Table 5-1 presents empirical examples for these options, which were found to occur in the cases. Furthermore, both section 5.2 and Article 3 explain the imbrication that can be constructed between an organization and an enterprise system to illustrate a new way of business organization that entails the interweaving of both the social structure (organization) and the technology (enterprise system). In this way, the ES becomes more than just a system that provides positive effects; it also becomes a constitutional player in an organization. Staff in both cases talked about the difficulty of doing business without the system.
- After the implementation stage, when the system is being used, it can become a fundamental player that forms part of the business. At this time, further benefits

can emerge in practice, which the organization, itself did not think about beforehand. For example, Case 1 revealed that after the system had been put into operation, and based on a possibility of integrating it with the email system, and accessing some services using the phone devices, they started developing new programs, which would offer new benefits to the company. The Financial Director in Case 1 said that, “it is now very important for me to approve some transactions using my mobile, and even monitoring the staff if they are doing the transactions according to the aligned rules”.

- BRES model proposed an ongoing process between the implementation (development) stage and the post-implementation (operation) stage to exploit and implement any opportunity shown in the post-implementation stage. Therefore, there is a mutual interaction between the implementation stage and the post-implementation stage to deploy new improvements that emerge after implementation, and to address any deviations or modifications needed, or even corrective actions to improve the process of benefits realization. For example, additional modules, integrations, features and developments acquired after implementation will need technical implementation and development.
- According to the proposed model, the success of the benefits realization process can be leveraged through the application of a number of enablers. Section 5.3.1 suggests a number of enablers found in this study that can leverage the benefits realization process.
- According to the proposed model, handling the barriers that obstruct the realization of the benefits can influence the benefits realization process. Section 5.3.2 reported a number of barriers that organizations can address in a given context. For example, user resistance or tensions between staff members or different managers could be managed properly.

5.5. Theoretical Contribution

This section summarizes the main contribution suggested by this thesis in general and by the proposed model in particular. Further, it argues how the reliance on different theoretical premises, mainly benefits management and sociomateriality, was critical for the contribution of this study. The proposed BRES model, as explained in previous sections, along with the thesis investigations and the published articles, all contribute to the literature in many ways.

5.5.1. Contribution Related to Benefits Management

This section will show how the benefits management (BM) literature has informed this thesis, and will then examine how, in turn, this thesis has contributed to the benefits management literature. Initially, drawing on benefits management as a theoretical framework, it can be seen to contribute to ES literature as follow.

Principally, the implementation of ES is seen as a temporary project that starts early on, before implementation is even begun, and is finished when the system is delivered to organizations, ready to use. The focus of the process is on delivering ES and putting them into use, not on delivering benefits (e.g. Markus and Tanis, 2000). This temporal undertaking can also be seen to be completed when the project team that implemented a system is disbanded (Robey et al., 2002). On the other hand, benefits management is focused to deliver benefits to organizations, not only delivering a technological product. In this regard, BM suggests structured processes that can inform or improve the emerged model to incorporate concepts and processes in order to keep the focus on benefits realization.

However, it is evident in this research, notably in section 5.2 and in articles 2 and 3, and from former studies (Staehr et al., 2012; Rikhardsson and Kræmmergaard, 2006) that realizing benefits from ES is an *ongoing* process; it is not limited to a specific time, and benefits are not fully realized once the system is delivered, but instead require ongoing development. Therefore, the implementation process falls short if no further developments, changes, resources, and commitments are made available to deal with the issues and benefits that usually emerge after implementation. For example, the Markus and Tanis model (2000) illustrated in section 2.1.2 shows no explicit recursive interaction between stages. In this regard, the BRES model, especially the mutual interaction between Theme 2 and Theme 3, deals with benefits realization as an ongoing effort (drawing on BM principles 2 and 3 in section 2.3). The model does not consider system delivery to be the main outcome; rather, it considers benefits that in many cases require further developments and enhancements, and are certainly not finalized once the system is delivered. A sub-process within the BRES model addresses the emergence of new benefits. In this sub-process, organizations are engaged in a strategy (suggested in section 5.2) to improve benefits. They then accomplish the tasks needed to execute these benefits, and, afterwards, review or evaluate these accomplishments on an ongoing basis. This continuing interaction is critical in the realization of benefits, and is not completely

addressed in the ES process. Furthermore, the BRES model suggests that an internal team be developed in the early stages of the implementation so that they can participate and know what is happening throughout the process. This team should continue working after implementation has taken place. A strong relationship with the implementer or vendor also helps the team to realize benefits after implementation.

Furthermore, ES literature is primarily focused on ES as the core system. Thus, benefits generated at a company level that are derived from a portfolio of systems, where the enterprise system is just one system in a portfolio, have not been significantly tackled in existing studies (drawing on BM principle 6 in section 2.2). Benefits could be related to business strategy, for example, and may not be directly achieved by a single enterprise system, such as digital transformation for the whole business or organization. In this regard, Ashurst et al. (2008) argued that when organizations develop their capability to realize benefits from technology projects, they have to focus on a portfolio of systems, and not on an individual system. In the BRES model, in Theme 1, organizations can establish their expected benefits, whether they are directly related to an enterprise system, or whether they are related to multiple systems or even to any other organizational initiative related to ES. Such articulation has been highlighted in the benefits management literature (e.g. Doherty et al., 2012; Ashurst et al., 2008), but has not been directly addressed in the ES literature. The two cases, from the beginning, discussed with the implementers to have integrated systems, even the systems that were under development like the billing system in Case 2, or even the systems that Case 1 was using in many outlets. The project director in Case 1 said "we raised with the implementers the future for the systems that we had". He and other informants acknowledged that the old system that was used by staff is considered a point-of-sale system that is now fully integrated with the ES.

On the other side, this thesis contributes to the benefits management literature by showing that formal benefits management techniques may not be seamless for ES implementations, because ES differ in some characteristics from IT development projects. However, it is concluded in this thesis that applying formal benefits management to benefits realization from ES may reveal some obstacles, as shown below.

First, the findings of this study suggest that the investigated organizations did not apply formal techniques, such as benefits management, to realize benefits. This study revealed that such organizations were not aware of such techniques and the role they could play, because the interviewees stated that they had not come across such techniques. A lack of awareness of such techniques is also indicated in the existing research (Ashurst et al., 2008; Ward et al., 2007; Hu et al., 2007; Haddara and Päivärinta, 2011). In particular, organizations expect ES to bring best or good practices to their businesses, and because of this merit, they wonder why they need to implement techniques for benefits realization. In this thesis, these issues are handled by the BRES model, which incorporates the core of benefits management without the formal adoption of these methods.

Second, the practice of benefits management, as discussed in section 2.2, suggests that organizations should define the expected benefits and define measures or indicators to evaluate the performance level for these benefits. However, it has been argued, mainly in Article 2 and section 5.1, that some organizations face difficulty in the early stages when defining the detailed benefits that are expected, and may not even be ready to define the measures needed to monitor the performance level for these benefits. For example, start-up companies or some small- and medium-sized enterprises (SMEs) do not have a full understanding of ES, their potential, and how they can clearly benefit from these capabilities. It is difficult for such start-up companies or SMEs to define the benefits and the performance indicators for these benefits. Apparently, they are interested in adopting the functionality of ES and their embedded logic. Section 5.1 shows the empirical findings of this study; namely, that organizations consider detailed benefits to be desired outcomes for the effective use and exploitation of the opportunities offered by ES. However, it is difficult to identify these benefits completely in the early stages. Hence, in the BRES model, organizations can either establish a clear set of benefits or can define their broad needs and high levels of expectations. The model does not stipulate that detailed benefits be defined with their relevant achievement measures in the early stages, as has been suggested by benefits management.

Third, as illustrated by the previous points, many organizations do not set in place formal techniques to realize benefits, either because they are not aware of such techniques or because it is difficult for some organizations to apply them. However, organizations that are aware of such techniques and are keen to implement them alongside the ES

implementation process should be aware of some concerns. For example, having management processes such as formal benefits management applied simultaneously with the implementation process may create conflict or inconsistencies between these two different processes, which call for different tasks and different responsibilities.

This thesis thus argues that having two distinct management processes, one for the implementation process, and another for the realization of benefits, may not be appropriate to the realization of benefits from ES. Alternatively, the need for a comprehensive and unified process that combines both the ES literature and benefits management is considered in this thesis as a viable solution to the issue of benefits realization from ES.

5.5.2. Contribution Related to Sociomateriality

This thesis has drawn on sociomateriality as a theoretical lens. Relying on such a theoretical premise has enabled the thesis to propose three theoretical constructions.

First, existing ES literature has identified different theories and frameworks through which ES benefits realization can be studied. Many of these theories are exemplified in Article 3. In this thesis, sociomateriality has also provided a unique lens through which we can study benefits realization from ES. Sociomateriality emphasizes that social and technical aspects are intertwined (Orlikowski and Scott, 2008; Leonardi, 2011). This conceptualization is fundamental to theorizing the importance of the role of ES for organizations. For example, a number of previous studies have suggested that ES can provide significant outcomes to the business (e.g. Shang and Seddon, 2002; Davenport et al., 2004; Gattiker and Goodhue, 2005; Seddon et al., 2010). Other studies have argued that organizations interact with ES in a change process to bring about business benefit from them (e.g. Staehr et al., 2012; 2007). On the other hand, this thesis proposes that ES are first and foremost technological products; thus, it is important, even essential, that they be entwined (imbricated) with businesses or the social aspects of organizations. Indeed, both can shape each other in practice, and can be difficult to separate. Thus, technology does not only influence the social structure, but also complements it. In this case, ES may become more than technological systems that facilitate or provide the desired effects to businesses; rather, they may constitute a fundamental part of a business, or a new organizational form or structure that is difficult to separate. In the absence of an enterprise system, then, an organization may struggle. For example, in Case 2, the start-up

company commenced its business operation once the system was ready for use. Both the business and the system were intertwined, allowing the company to begin its business operation based on practices suggested by the system. In this regard, it can be difficult to differentiate or separate the incorporated business processes suggested by the company and the processes suggested by the enterprise system. On the other hand, the company in Case 1 was established many years before ES implementation. Many informants in the case stated that it had become very difficult to isolate or separate the enterprise system from the business itself, as the system had now greatly transformed the way that the company was organized. They confirmed that the majority of their tasks were carried by the system. Furthermore, the candidate observed that, when he was visiting the company to carry out the interviews, tasks were no longer carried out manually by office staff; thus, the system encapsulates the work carried out by the company and provides a digital way of organizing this work. The informants themselves confirmed such observations, particularly the inextricable way the business and the enterprise system are organized. Appendix B provides further details and examples of the data collected from informants that led the candidate to conceptualize upon sociomateriality, and to suggest that ES can act as constitutional components in organizations and not just as systems that facilitate business operations.

Second, Article 3 in this thesis discusses our understanding of the changes needed from both sides (the business and the ES) in order to realize benefits from ES. Introducing changes to organizational structure and routines on the business side, in addition to changing or modifying ES on the technology side, requires flexibility from both sides. Thus, it is proposed to create a structure whereby organizations and ES are intertwined. In this case, both the organization and the ES can shape each other in practice. On the one hand, this conceptualization conforms to the benefits management literature (e.g. Peppard et al., 2007; Principle 4 and 10 in Section 2.2), in which new benefits are seen to be created through the development of new ways of doing business, namely through organizational changes and process re-design (Peppard et al., 2007). On the other hand, conceptualization gives theoretical depth to any changes or modifications on the technology side, particularly in terms of theorizing the customization of a system, or system changes as a way to realize benefits, not just make changes to the business. Many previous ES studies, explicitly CSF studies, have suggested that changes be eliminated on the system side to avoid future problems and inconsistencies, and avoid conflict with

other modules that may be created (Gargeya and Brady, 2005; Finney and Corbett, 2007; Somers and Nelson, 2001). Articles 3 and 4 of this thesis, however, support the limited research (e.g. Aslam et al., 2012; Nandhakumar et al., 2005) that has adopted a different perspective. Here, this thesis suggests customization as a way of emphasizing the business benefits, especially when an organization wants to maintain existing proven or distinctive practices. In order to respond to the technological affordances made possible by a system's technological capabilities, organizations may adapt or accommodate these technologies to create additional benefits that favour the business. For instance, Case 1 gives an example of the ability to monitor, validate and approve some business transactions using mobile phones. Such technological developments equip the case with a benefit that emerged in practice. In many cases, there are occasions when managers are unable to access information, leading to delays in some aspects of business. After introducing such access, managers were able to read the details entered. However, in order to enjoy these benefits, modifications in the technology are needed, as are changes in some of the rules, in order to separate out the duties and increase transparency.

Third, ES literature suggests two consecutive stages in the implementation process: one stage for the physical implementation and the technical developments, and the other stage for the realization of benefits, which occurs after implementation, called the post-implementation stage. According to the thesis findings, discussed in section 5.4, this distinction between stages is not effective for realizing benefits from ES. This thesis, which draws on benefits management alongside of sociomateriality conceptualization, recursively connects the development or implementation stage with the operation stage after implementation. This thesis advocates findings put forward by Leonardi (2009), who proposed crossing the artificial empirical and theoretical divide between the technological developments and modifications on the one hand, and the use or operational stage that involves organizational changes on the other. When organizations cross this divide and deal with technological and organizational aspects as two integral parts that are mutually constitutive in practice, then they are more able to realize the potential of technology. Conversely, viewing technological and organizational changes as discontinuous or intermittent events that are separated by the act of implementation diminishes our perception of the important role that organizations play in the development of technologies. Also diminished are our perceptions of the material features of technologies, which play a part in the process of organizing business (Leonardi, 2009).

For example, both cases revealed that further systems, modules, and features were developed after ES came into use to create further benefits. Therefore, in the BRES model, there is a cyclical process that occurs between the implementation and post-implementation stages. Accordingly, benefits realisation may not occur spontaneously at the post-implementation stage. Further benefits may be gained after implementation through the procurement or development of new systems or modules.

5.6. The Implication of Context

It is essential to reflect on the role of the context in the findings of this thesis. In particular, this section will explore the implications of newly established firms, as Case 1 was newly established when it implemented an ES. At the same time, the two cases operate in Palestinian Territories, so this section will provide further exploration to such context on the study's findings.

First, as noted in Article 5, different terms (e.g. newly established, new ventures, start-up companies) have been used to denote organizations that have been established in the last five or seven years. Similarly, ES in new ventures means that companies that implement ES within the first five or seven years since their establishment. Improved understanding about ES implementation in new ventures has been implied using hermeneutics approach (Klein and Myers, 1999). Iterative analysis between the whole, ES implementation in new ventures, and various sources of knowledge (parts) has helped to uncover many interesting findings. In the beginning, it was very little known about ES in new ventures, but noting informants frequently highlight details about ES in such firms motivated the candidate to deeply look for this subject. The informants stated different details that were relating back to what has been understood for the whole subject to further understand it and to refine the knowledge being developed. Improving the emerged understanding for the whole subject (ES in new ventures) in turn entails further investigations from same or other informants and from the literature.

Such types of organization have different characteristics and experience a variety of challenges. For example, they do not have existing practices, so the organizational culture, business operations and processes are all under development. Furthermore, it is likely that many new ventures will grow in the future. At the same time, however, these organizations do not have solid experience of how the business operates, as corporate knowledge is still under development. This entails frequent changes in the processes,

hierarchies and rules. With regard to the implementation of ES in such organizations, Article 5 revealed that a company's growth stage, industrial characteristics, and information technology capabilities are critical aspects. These factors were revealed in Chen's work (2009) and, as advocated in this thesis, are interacts on ES implementation in such companies. However, different considerations are as follows.

- New ventures that operate in particular industry may have experience about technology implementation differ than others. Case 2 operates in the telecom industry, which is based on the technology, and the management believes in the role of technology to build strong capabilities. CFO said "our capital is technology products". Businesses in other industries may not have the same belief, and not pay attention to technology products early. Even if this company was newly established, the data (from interviews and reports) revealed that the company hired 150 employees in the first year. The company also allocated a great deal of investment to implement technology products. This issue is most likely absent in many small and medium enterprises that lacks the resources and usually do not give priority for investment in technology products, especially in early times (Malhotra and Temponi, 2010). Therefore, newly established firms that work in certain business industries that heavily depends on technology to do their businesses, like banks, the management can have better understanding about technology implementation, and therefore such businesses are proposed to be more able to realize benefits from technology products.

- New ventures are expected to grow in the market. This potential growth will most likely need technological systems to foster and facilitate it. New ventures work with a high level of uncertainty; furthermore, business complexity increases over time. Thus, they do not know precisely the way in which the company's organization will develop in the future. Implementing an ES in the early stages of a company, just after its establishment, can give new ventures a healthy base right from the beginning (as it is based on best or international business practices, and many global or local companies are implementing such systems). For example, Case 2 experienced consistent growth, with the data shown in the company reports revealing a three-fold increase in staff numbers and revenue amount in the past

three years. Thus, ES can help such businesses in the future to support business operations when they become more complex.

- Organizations that do not have rooted capabilities and well-established methods to implement and evaluate IS projects can benefit from the proposed BRES model, after its validation. Examples of such organizations include new ventures. These firms are recently established, so their organizational capabilities are under development, and they may not have evaluation methods in place, such as benefits management or other formal techniques, to help them realize the benefits from ES implementation. At the same time, they may do not have, in early stages, a mature understanding for the benefits that can be realized from ES.

- Entrenched practices and historical culture may impede the development of new systems. Thus, their absence means that newly established firms may experience fewer challenges in this respect. This thesis recommends that such organizations, especially those with adequate resources and which are expected to grow steadily in the market, consider the implementation of ES in the early stages. Thus, this thesis enriches the ES literature with a set of propositions for further research, as suggested in Article 5. Such theoretical constructions provide an insight into understanding ES implementation in start-up companies, and instigate further implications. Start-up companies may not have the same needs, capabilities and resources as companies that are already established. At the same time, established companies experience difficulties that differ from those found in newly established firms. These relate to capabilities, resources, and challenges, which are combined with a different appreciation of benefits and different attitudes to benefits realization (see articles 2 and 5). Such an improved understanding of benefits realization in new ventures is not adequately tackled in the ES literature.

- When implementing ES, new ventures also experience some challenges. Such companies may change their business rules and regulations frequently, because of the immaturity of the business. For this reason, it is suggested that system configuration be flexible enough to allow further changes and development. Furthermore, ES are modular, so organizations, especially new ventures, can add or implement further modules and features whenever the need arises. Other challenges are related to resources. The implementation of ES requires significant

resources, both in terms of finances and personnel. More funds are needed to facilitate implementation, as are personnel who are competent to participate in the implementation, both in the early stages, and post-implementation. Therefore, new ventures that do not have adequate financial resources are more likely to allocate any available funds to the development of business growth, rather than the implementation of an enterprise system. A number of staff is also required to work in various business units and at different levels. This is because in order to comply with the segregation of duties, different people have different roles in which they execute a single process. Furthermore, new ventures do not have many stable relationships with external parties (Baun et al., 2000). In the early stages of a company's development, they are working hard to attract customers; thus, they are not focused on developing trusted relationships with vendors. For this reason, new ventures may not be confident in dealing with ES vendors and may be uncertain as to how to ensure a successful relationship with regard to implementation, one that extends beyond physical implementation. New ventures may need support for longer periods of time in order to guide them and help them deal with more complex and changing needs. In Case 2 in this thesis, the company made a contract with a local company in Palestine, and asked that competent resources from the local company be allocated to the implementation, to work alongside other internal staff members. All of them were familiar with the implementation process, even when the external company from outside Palestine had finished the implementation stage.

On the whole, implementing ES in such organizations may not be too dissimilar to the implementation of ES in other businesses. However, some considerations should be taken into account to understand this study’s findings.

At the same time, both cases studied are operating in Palestinian Territories. In section 3.3, some details were given to describe the Palestinian context. Palestine can be described as an emerging state, because it lacks many of the national pillars that exist in any fully independent state. Several political, economic and social challenges influence business development and technology implementation. For example, the country is not a fully independent state; thus, it does not have a national currency. Furthermore, access to

international implementation experts, especially from Arab countries, is limited because of travel restrictions to the Palestinian territories. Such issues, among others, may have considerable implications for the implementation of ES. This thesis has shown that both companies under investigation developed a strong and long-term relationship with the vendor and with a specialized local company that provides professional services and has experience in ES implementation. Such specialized companies have the expertise needed to help the companies being investigated in this study. In particular, they can handle any implications that lead to further developments and customization, and ensure there is always local-implementation experts who are available close by to provide support for them.

In this context, the role of the vendor/implementer was vital in interacting with the implementation process and enabling the companies to realize the benefits of ES. However, the role of the vendor/implementer may not the same in other contexts, because the relationship is usually built more formally in other contexts. For example, the Director of Case 2 said that, "We want a local company to help us when the main (foreign) vendor finishes its services". He continued to say that, "by the time the company was increasingly being developed, huge changes and integrations were needed to fully benefit from the investments of other technology products. To carry out such time-consuming and difficult tasks we were in need of professional services from a consulting company that has many specialists in different areas. That company was always responsive and usually met our needs". Literature (e.g Robey et al., 2002) considered that team is disbanded when the implementation is finished, and this usually obstructs organizations from gaining of the benefits from ES.

Drawing on the framework put forward by Ward et al. (2005), used to analyse the management approach taken during the implementation, the company's management in Case 2 and the vendor were using a 'coalitions' or interest approach. This is because the subsequent interviews with other informants from the vendor revealed that they discussed the requirements needed, and later on decided on the financial implications; however, the contract was not the main reference for every request. It is important to note that, for both cases, the implementation took place many years ago (see Table 3-2, Case 1 in 2007; Case 2 in 2009). Nonetheless, they still maintain active relations, and, furthermore, the candidate carried out several interviews with informants working in the consulting/implementer companies that participated in the implementation in both cases.

Accordingly, this thesis hypothesizes that organizations that have strong relations with vendors, and maintain the vital interaction and support needed to implement ES, may have more opportunities for realizing benefits from ES. Implementing ES in other countries may not be the same as implementing them in Palestine. According to this thesis, organizations in Palestine tend to have a good relationship with the implementer or consulting company during ES implementation, as was seen in both cases. Together, they managed to solve many problems related to their unique context, including a lack of a national currency, a non-stable environment with economic and political problems, and difficulty in accessing international experts from Arab countries. Therefore, the role of the vendor in this study was critical, an issue that is not necessarily present similarly in other contexts. This aspect may have implications for other companies working in Palestine, or even for other companies operating outside Palestine, that experience such challenges as complex business operations, which entail wide ranging developments, integrations and enhancements for the systems being implemented. The need for such strong relations with the vendor or the implementer may become more essential when such companies do not have enough resources or expertise.

Furthermore, by observing the employees in both cases, it was revealed that most of the staff members are young people. The interviewees confirmed such observations, acknowledging that some employees were hired after graduation directly from the universities. A number of informants from Case 1 also confirmed this. Young postgraduates are likely to be more interested in learning new systems and less likely to have a technology barrier than older people. Furthermore, informal chats that took place between the interview sessions or at coffee breaks, and discussions with external experts who are not working in the two cases but are familiar with the implementation of IS projects in Palestine, revealed that some young staff are highly motivated to gain expertise in global ES products. In particular, working on ES that are global can enrich their experience or even open up opportunities for them to work both inside and outside Palestine. Therefore, it is conjectured in this thesis that companies that hire younger people may have greater opportunities to realize benefits from ES implementation.

5.7. Summary for the Contribution of this Thesis

This study is exploratory in nature; thus, it is expected that the findings will inform certain contexts and that they will not necessarily be confirmed in all contexts. This aspect is discussed further in the limitation section in the next chapter. This section aims, however, to summarize the main contributions made in this thesis.

Table 5-3 shows how the thesis contributes to the theoretical bases that underpin its investigations.

Stream of Literature/Theory	**Contribution**
ES Literature	ES implementation processes lacked some aspects that are essential to benefits realisation from ES. In particular, this thesis: • Incorporates activities/concepts from benefits management to enrich the ES implementation process. This was accomplished by proposing BRES, which combines ES with other theoretical premises. • Highlights the importance of ES for start-up companies, including the opportunities that new ventures gain when they implement ES early on. This was accomplished by suggesting a set of propositions for further research.
Benefits Management	• Drawing on benefits management that has structured processes and tools to realize benefits from technological systems, this thesis contributes improved understanding for the application of benefits management to some kinds of IS projects, which is ES, and to contexts like new ventures. • Organizations that do not set in place formal techniques to realize benefits, or experience difficulty to use such techniques for ES can benefit from BRES model, after its validation, as it incorporates processes and concepts from benefits management.

Sociomateriality	• Sociomateriality provides a unique lens with which to study the importance of ES in organizations. Different socio-technical theories, including BM, have shown its importance and the interaction that is necessary between the technical and social aspects. They have also shown the importance of organizational change in enabling businesses to realize benefits. However, sociomateriality does not just show how social and the technical aspects are important to each other; they also show how it is difficult to separate one from the other. This means that carrying out business operations without ES becomes very difficult. For example, in this study, the start-up company did not commence business operations until the system was ready for use. Here, the enterprise system institutionalized the business process, making it difficult to separate one from the other. In this sense, ES provide more than just positive effects for organizations; they also become fundamental players in business formation, leading to new ways of organizing business. • By drawing on the role of sociomateriality in ES implementation, this study lies at the forefront of research that argues for imbrication between social and material/technical aspects in ES implementation. Imbrication is seen as more appropriate than entanglement because it argues for two separate aspects that are interwoven together, whereas entanglement argues for two aspects (social and technical) that exist together.

Table 5-3 Summary for the Theoretical Contribution

6. Conclusion

As introduced in Chapter 1, although organizations are increasingly adopting enterprise systems, realizing benefits from these systems is still problematic and puzzling to many organizations. This thesis contributes an improved understanding to suggest what organizations can do to realize benefits from ES. This research also provides suggestions to the practice community to improve the benefits realization from ES. Finally, this chapter summarizes the answers for the research questions stated in Chapter 1 and explains the implications of the current research.

6.1. Answering the research questions

This section summarizes the answers to the three research sub question, and it follows to conclude an answer for the main research question.

6.1.1. Answering the first research sub question:

RQ1: How do organizations manage the realization of benefits from ES?

The first research question is to understand how do organizations manage realizing the benefits from ES? Answering this research question entails understanding the process that enabled the investigated cases to realize benefits from ES. The thesis's investigations inductively developed a process-based model to demonstrate the activities or the actions taken by organizations to realize benefits from the implemented ES. Research findings indicate that the investigated organizations did not apply formal techniques to realize benefits or to exploit the potential of ES, which is the same outcome that has been suggested in the literature.

This thesis showed that organizations implicitly incorporated activities, concepts, and principles from benefits management into the implementation process of the ES, without formal adoption of any kind of these techniques. Section 5.1 provides more details about this process. The critical issue thus is to adopt a planning approach, and it is not necessary to be a formal method or technique. In this planning approach, when it is possible, benefits can be identified with detailed specification and clear measures. However, when it is difficult to identify clear expectations, benefits may not completely

be identified. Instead, organizations may have broad expectations and wide-ranging objectives that are recognized in the early stages and that motivated the adoption of an enterprise system. These objectives serve as expected benefits. Ready-made complex packages, like enterprise systems, are designed based on 'best or good practices'. Hence, developing planning and management processes based on broad expectations and motives, and not necessarily detailed benefits, can help organizations utilize and benefit from the incorporated practices. They can afterwards improve the benefits according to their needs and according to the recent advances of technology. In this process, the benefits can be generated as outcomes after the implementation stage of ES. Although benefits are considered outcomes, they are not obvious or evident to all organizations, thus there is a need for a planning approach to ensure delivering these outcomes.

In short, this thesis suggests that in the absence of any kind of formal evaluation or governance methods like benefits management, organizations can realize benefits from ES by incorporating the activities, concepts and principles of these methods into the implementation process of enterprise systems. These findings provide insights for the first research question (RQ1) that aims to provide understanding for the process that enables organizations to realize benefits from ES.

6.1.2. Answering the second research sub question

RQ2: In what ways can organizations improve the realization of benefits from ES?

In order to help organizations improve realizing of benefits from ES, this study investigated the different ways that enable organizations create more benefits. The study aimed to answer the second research question, which was in what ways can organizations improve the realization of benefits from ES?

The thesis investigations suggest that improving benefits realization necessitates shifting the focus beyond the effective use, and directing attention towards the technology exploitation. Accordingly, once the system has been delivered to an organization to start using it in the operational stage, the organization should initially ensure that staff members are using the system effectively without real obstacles. This is an essential prerequisite before the benefits improvement. Using the system, without troubles, does not alone lead to effective exploitation, for the potential of technology requires serious efforts to be exploited. However, in order to enable organizations to

exploit the technological possibilities of the ES, organizations can review the expectations and work appositely to extend the system and improve the benefits by undertaking several strategies that are revealed to improve benefits realization. These strategies are demonstrated in Table 5-1.

Ways or strategies to improve benefits realization include the following: First, integrating the ES with other existing systems. Integration between systems leads to unified processes and a consistent data repository. Second, enabling the system to provide rich, accurate, timely, and relevant details about the enterprise, to respective people and entities. Capitalizing on such assets (stored data) to utilize it in order to create business value can lead to many business benefits. Third, optimizing business processes by making sure the system covers most of the business work and enables the business to be served by good practices that are visible or known to external parties and that are instilled with controlling mechanisms. This method also includes working to develop standard processes across the whole enterprise and to minimize manual work. Fourth, extending the system by developing new programs or applications to do certain jobs or address the distinctive needs of an organization that are not covered by the system. Furthermore, organizations can adopt new systems; new features or new modules may be equipped by the system by separate requests. Fifth, by implementing mechanisms and approaches in the system to make the different business units work jointly in a single unified process. Unifying processes can enhance the coordination and dependency between different business functions, and at the same time, it can ensure that the logic of the ES works to combine the different tasks across the organization centrally and not differentiated into distinct parts in distinct business units. Sixth, the staff are recommended to use the ES extensively, and not just to do specific tasks or use the system intermittently. This can enable the system to shape the business and to impose its practices on the organization. Similarly, the system should be adapted to address the unique requirements of the organization. The overall goal is for the system to become integral to the business and not just enhance it.

6.1.3. Answering the third research sub question

The third objective of this thesis is to explore the factors that influence realizing the benefits from ES. For this objective, the third research question was:

RQ3: What are the enablers and barriers influencing ES benefits realization?

The study's results suggest many enabling factors that were important to enable organizations to realize benefits from ES. Section 5.3.1 and Article 4 discussed many of these enablers. These include the following: Technology proficiency for the company's management, effective change management, partnership with the implementation company, learning from other companies that have already implemented ES, motivating staff, end-user training, customizing the system to address the distinctive needs, engaging the key persons in different stages of the implementation, ensuring that the implementation of ES is not solely IT's responsibility, and emphasising that the business units have a critical role and responsibility. Although many of these factors have already been reported as 'critical success factors' in the literature, they are focused to ensure successful delivery of the benefits and not just successful delivery of a technological system.

This thesis argues that in order to gain significant business benefits from an ES, organizations should be aware of the barriers that obstruct benefits realizations. These barriers are vast; in Article 5 there is a classification of many of those barriers. Four main groups of barriers were illustrated, including organizational misfit, technical misfit, shortages in staff competence and availability, and poor management for the whole system or for the changes suggested.

To sum up, both enabling factors and barriers highly influence the process of benefits realization, either positively or negatively. Taking the relevant factors, which are different from one context to another, under consideration can help organizations realize more benefits and can reduce the probability of the lack of benefits realization. Understanding these factors, in their respective contexts, can certainly provide guidance to organizations about what to do to achieve benefits from ES, and can provide insights to explain why some organizations are more successful than others in realizing the benefits from ES.

6.1.4. Answering the main research question

MRQ: What can organizations do to realize benefits from ES?

Answering the main research question is achieved by integrating the aspects discussed in the afore-mentioned research sub questions into an integrative model.

The BRES model, which combines ES implementation processes with activities from benefits management processes, is considered an important method or a mechanism to help organizations address their expectations, requirements, and measures, in addition to the business challenges that are related to an individual case. All of these elements in addition to others are planned before the implementation, taken under consideration through the implementation, and monitored and improved after the implementation of ES. Basically, instead of focusing on the successful delivery of a project, this model focuses on the overall stages of the ES implementation that allow organizations to take the appropriate actions at every stage. This thesis has thus discussed five themes of actions that organizations can undertake to realize benefits from ES, which are illustrated in Figure 5-1 along with their details.

This thesis contributes to the ES literature the idea that ES models for implementation processes are unlikely to lead to an optimized method able to deliver business benefits, but they can ensure successful delivery of the ES itself. Consequently, the thesis showed that the benefits from ES are not obvious or evident. Different organizations have different interests in a system's outcomes, thus they need to devote efforts to develop a management process to help them plan what they want and to actively look for and exploit the opportunities that can lead to real business benefits that are relevant and have meaning to them.

6.2. Practical Implications

Through different articles, this thesis has suggested many practical contributions. Further, the proposed BRES model (Figure 5-1), after being proven, suggests practical contributions, for it can provide guidance to practitioners to help them realize improved benefits from ES.

However, as a result of these thesis investigations, much empirical evidence underpinned by the extant literature can be recommended to organizations interested in implementing a new ES, or to organizations that have already implemented ES and are looking to improve realizing the benefits from ES. These recommendations consider lessons that can be learned from the study investigations, and can be carefully transferred

to a situation or to a context that shares many of the characteristics represented in this study. A number of these lessons and suggestions are the following:

- Active engagement of management, business executives and managers in different business levels is critical to promote benefits realization, and to improve realizing of benefits from ES.

- Acknowledging the responsibility of realizing value or benefits from the investment in ES is a business responsibility. IT as a business function within an organization, alone, should not be accountable for the lack of benefits realization. The top management has also a responsibility by providing guidance, support, and commitment, and by exerting power and facilitating further investments related to ES.

- Obtaining business benefits does not arise from a solely IT solution, like the ES, but from a subset of technological solutions that create a unified portfolio of systems or products able to provide valued benefits.

- Modifying the ES to address the local or the distinctive needs of organizations is very important to realizing business benefits, especially when the organization has strengths in the business processes, or when the ES offers admired technological features relevant to the business but requires special configuration or tailoring to be applicable.

- At the same time, changing the existing processes to embrace the good practices that are equipped with the system, especially when the business processes are suffering and experience problems, is vital to develop effective business practices and to create benefits.

- Organizations become able to gain more benefits when they maintain the stability period. Afterwards, they can improve the benefits using many strategies suggested in this thesis.

- It is recommended to assign a project manager from a business background who has IT professionalism or is versed in technology rather than assigning an IT person. This person can communicate more effectively with business people, and should be able to grasp business benefits, but s/he should be empowered to exert greater influence and power upon the stakeholders or at least upon the business users who show resistance to use the system.

- Organizations should adopt a planning/management approach to realize benefits from ES, as the benefits may not be evident or able to be realized automatically. Furthermore, the benefits are context-based, and the barriers and the enablers including the capabilities and resources are also context-based and not present in all contexts. Therefore, organizations plan what they want to achieve based on what they have and what they are willing to do in order to reach their objectives.

- It is preferred that, before the implementation, organizations learn and gain adequate awareness about the system implementation, features, capabilities, consequences, and requirements. This preparation can equip them with adequate knowledge to prepare and plan for their implementation projects, instead of relying only on the vendor, for organizations know about their own needs and concerns more than a vendor does. A number of techniques can be used to acquire such knowledge that include the following: Employing staff who have prior expertise and participated formerly in an ES implementation, preferably in a close situation, such as the same country, same industry, and same product. Another technique is by visiting a peer-company or any company who implemented the system previously and is willing to share its experience with the system implementation. Furthermore, it is appropriate for some organizations to consult the main vendors like SAP, Oracle, and Microsoft to attend learning sessions about the system capabilities. Organizations can also participate in ‘health check’ workshops, for example, to review their needs compared with the system capabilities. Finally, organizations can acquire knowledge from existing research about ES and from industry reports.

6.3. Limitations

Developing knowledge as explanations of and rich insights into particular phenomena, derived from empirical interpretive research in specific settings, is a valuable contribution to other organizations and contexts in the future (Walsham, 1995). In this sense, the findings revealed in this study can be seen as 'tendencies', which are valuable in explanations from the cases reported in this research, but they are not wholly predictive for future situations. Therefore, the study findings provide useful insight into other organizations and contexts, but they cannot be generalized to all organizations. Developing clear understanding about a topic is unable to be undertaken in the absence of understanding the context that was studied in the research (Walsham, 1995). Understanding the research findings within their studied contexts enables transferring or adapting the findings to new settings (Patton, 2002). Accordingly, the study can inform not only the Palestinian context, but it may be transferred to other settings. For example, the study findings may inform other implementations of enterprise systems in growing organizations or organizations working in technology-based industry. The thesis also provides insights into the implementation of enterprise systems in other newly established firms, especially those expected to grow rapidly and that have adequate resources to implement promising practices. These examples involve generalizing from specific empirical findings towards theoretical contributions pursued in further research.

With regard to the generalization issue, Walsham (1995, p.79) suggested four types of generalization from interpretive case studies: the development of concepts, the generation of theory, the drawing of specific implications, and the contribution of rich insight. The outcomes of this study imply that such types of generalization do exist. For example, this thesis provides rich insights into understanding benefits realization from ES in two different cases. From this research, the reader can develop an improved understanding of the issues involved, which may be valuable in other settings when implementing IS. At the same time, the thesis brought clarification to concepts such as imbrication between an organization and the implementation of ES. Furthermore, the thesis developed theoretical propositions and proposed a new model that can be developed and examined in further research.

Furthermore, conducting the thesis investigations was based on retrospective case analysis. Although real-time investigations can lead to a high level of richness in addition to accurate understanding, as all the details of the process are available, the investigation requires a significant period of time (Langley and Stensaker, 2012). This time is not only because it demands from the researcher a significant number of hours, but also because some processes spread over a long period of time, which is the case with benefits realization. The business benefits from ES especially take a long period of time to be realized (Peppard et al., 2007; Ward and Daniel, 2006). In this regard, Langley (2009) argued that whenever there is a possibility to conduct temporal chronological investigations from archival data along with extensive interviews, then performing retrospective studies becomes a viable approach. At the same time, conducting retrospective studies should make the researchers always aware of their limitations in terms of memory and rationalization, as not all details may still be available, and the respondents may show rational reasoning for their undertaking decisions, as the process outcomes are known (Langley and Stensaker, 2012).

6.4. Critical Reflection

Existing research and practice communities have revealed that realizing benefits from ES is challenging. The research in this thesis was carried out to provide an improved understanding of the nature of benefits realization from ES. It has certainly made an important contribution by developing our understanding on this topic. However, further research is still needed to follow up what has been discussed in this study. Further developments and improvements, such as carrying out engaged or action research to influence practice or mixed methods to test and validate the suggested findings could serve the topic well. However, the current time limitations and difficulties in retaining wider access to the field meant that these improvements were difficult to accomplish in this study. Nonetheless, drawing on an interpretive case study was appropriate for this research. Indeed, it yielded a significant contribution to the development of emerged theoretical constructions. The approach and method used enabled the investigation of varied aspects. Despite this, it would be better if studies included more cases that were obviously struggling in their implementation of ES.

This thesis drew on the benefits management approach, which is known to introduce good practice in benefits realization. However, it did not explore BM as a practice adopted by the investigated organizations. Thus, a comprehensive examination of benefits management was not undertaken. For example, this research did not illustrate some tools and BM techniques, such as a 'benefits dependency network'. Benefits management has been used as a theoretical perspective to inform the practice of ES and to improve the emerging theoretical construction, such as the proposed BRES model. Furthermore, sociomateriality has been used as a reference theory to explain the empirical findings and examine the importance of the ES in organizations. This is considered a new lens in the IS field, used to show how contemporary business organization cannot be separated from technology. Drawing on sociomateriality has provided a novel contribution to this thesis, leading to the theory that ES are important and entwined with businesses. Furthermore, ES are more than just technological systems that provide positive effects to organizations. Although the application of this new lens enriched this thesis, it gave rise to many challenges. It was not an easy job to grasp the empirical evidence to observe the real entanglement or imbrication between ES and the organizations. For example, when the candidate designed the interview protocol to examine sociomateriality, he was uncertain as to which aspects in particular reflected sociomateriality, and whether there was a need for a more dedicated method than interviews to explore the intertwined relationship between the companies and the implemented ES. A lack of research into sociomateriality exerts a certain level of difficulty when investigating whether there is strong sociomateriality, weak sociomateriality or even no sociomateriality at all, but rather a sociotechnical premise.

6.5. Research Implications

The analysis by this thesis illustrates the need for further research in several areas.

First, Figure 5-1 presents a model assumed to be useful and practical to realize benefits from ES. Thus, further studies on enterprise system implementations can utilize and validate this model to study its relevance in other contexts and its applicability in practice.

Second, since the existing research on enterprise systems has not adequately studied the implementations of such systems in newly established firms, further research is needed to study deeply this context. Especially, longitudinal studies can provide great

insights to examine the implementation of an ES in the early stages, and follow the investigation over a longer period of time to study the influence and role of the enterprise system in the business development and growth. In the same regard, further research is needed to investigate the relevance of this thesis's propositions in other contexts and determine whether they are supported, or even extended by further insights.

Third, this thesis has reported that one way to realize benefits from ES is by adopting and implementing new projects related to the ES implementation. One solution was the implementation of a Business Intelligence (BI) solution, and not just relying on the data analytics tools that analyse data partially from a single system. One of the companies studied in this thesis has already started the implementation of a BI solution, whereas the other case was considering the implementation in the near future. BI solutions mainly aim to develop a comprehensive data repository for all of the systems implemented in one organization. Case 1 thought of several systems like the billing system, point of sales system, and external data sources and statistics, beside the ES. Conducting further studies to develop rich insights into how organizations that have already implemented such solutions along with the ES are able to realize significant benefits becomes an interesting enquiry for further research.

Fourth, recently many organizations have adopted the enterprise system as a service or software in a cloud, where organizations may experience some limitations especially in the system customization. Accordingly, it would be interesting to study how such organizations realize the benefits, and to what extent they are satisfied from the gained benefits from these systems.

Fifth, after conducting this research, it becomes stimulating to investigate the organizations that have already adopted formal evaluation and governance models at the enterprise level, and not just for a specific system. Examples of these models are Benefits Management, Enterprise Architecture (EA), maturity models, or any such kinds of methods and approaches. Therefore, it becomes interesting to examine how such organizations that had already adopted such models become able to realize benefits from ES as one system among different systems within the organization.

To conclude, this thesis contributes an improved understanding of how organizations become more able to realize more benefits from the implementation of enterprise systems. Further, it shows how organizations become able to exploit the huge capabilities of such systems that can provide greater benefits for their businesses. The thesis findings may be relevant for both research and practice to improve the realization of benefits from ES implementations in the future.

References

Aladwani, A. M. (2001). Change management strategies for successful ERP implementation, Business Process Management Journal, Vol. 7 Iss: 3, pp.266 – 275

Al-Mashari, M., Al-Mudimigh, A., & Zairi, M. (2003). Enterprise resource planning: A taxonomy of critical factors. *European Journal of Operational Research, 146*(2), 352-364.

Al-Mashari, M. (2000) *Constructs of process change management in ERP context: A focus on SAP R/3*, In Proceedings of the Sixth Americas Conference on Information Systems. Long Beach, CA. 977-980.

Anaya, L., Dulaimi, M., & Abdallah, S. (2015). An investigation into the role of enterprise information systems in enabling business innovation. *Business Process Management Journal, 21*(4). 1-22.

Ashurst, C., Doherty, N., & Peppard, J. (2008) *Improving the impact of IT development projects: the benefits realization capability model*, European Journal of Information Systems, 17(4) 352-370.

Aslam, U., Coombs, C., and Doherty, N. (2012) Benefits Realization from ERP Systems: The Role of Customization, European Conference on Information Systems (ECIS).

Barrett, M., Oborn, E., Orlikowski, W. J., & Yates, J. (2012). Reconfiguring boundary relations: Robotic innovations in pharmacy work. Organization Science, 23(5), 1448-1466.

BCS (British Computer Society). (2004) The Challenges of Complex IT Project, The Royal Academy of Engineering.

Belk, R., Fischer, E. & Kozinets, R. (2012) *Approaches to Analysis, Interpretation and theory Building for Scholarly Research*, In Qualitative Consumer and Marketing Research, Thousand Oaks, CA: Sage.

Benbasat, I., Goldstein, D. K., & Mead, M. (1987). The case research strategy in studies of information systems. *MIS Quarterly*, 369-386.

Berghout, E., Nijland, M., & Powell, P. (2011). Management of lifecycle costs and benefits: Lessons from information systems practice. *Computers in Industry, 62*(7), 755-764.

Blok, M., Groenesteijn, L., van den Berg, C., & Vink, P. (2011). New Ways of Working: A Proposed Framework and Literature Review. In M. Robertson (Ed.), *Ergonomics and Health Aspects of Work with Computers* (Vol. 6779, pp. 3-12): Springer Berlin Heidelberg.

Boudreau, M.-C., & Robey, D. (2005). Enacting Integrated Information Technology: A Human Agency Perspective. *Organization Science, 16*(1), 3-18.

Braun, J., Ahlemann, F., & Riempp, G. (2009) Benefits management—A literature review and elements of a research agenda. Paper presented at the Wirtschaftinformatik Proceedings 2009.

Buonanno, G., Faverio, P., Pigni, F., Ravarini, A., Sciuto, D., & Tagliavini, M. (2005). Factors affecting ERP system adoption: A comparative analysis between SMEs and large companies. Journal of Enterprise Information Management (Formerly: Logistics Information Management), 18(4), 384-426.

Bygstad, B., & Munkvold, B. E. (2011). Exploring the role of informants in interpretive case study research in IS. *Journal of Information Technology, 26*(1), 32-45.

Carton, F., & Adam, F. (2008). ERP and functional fit: how integrated systems fail to provide improved control. *Electronic Journal of IS Evaluation, 11*(2), 51-60.

Chen, J.-R. (2009). An exploratory study of alignment ERP implementation and organizational development activities in a newly established firm. Journal of Enterprise Information Management (Formerly: Logistics Information Management), 22(3), 298-316.

Chou, S. W., & Chang, Y. C. (2008) *The implementation factors that influence the ERP (enterprise resource planning) benefits*, Decision Support Systems, 46(1) 149-157.

Chou, H.-W., Lin, Y.-H., Lu, H.-S., Chang, H.-H., & Chou, S.-B. (2014). Knowledge sharing and ERP system usage in post-implementation stage. *Computers in Human Behavior, 33*(0), 16-22.

Computer Business Review (CBR). (2011). ERP market to grow to $50.3bn in 2015: Forrester. Retrieved December 17, 2014, from http://enterpriseapplications.cbronline.com/news/erp-market-togrow-to-503bn-in-2015-forrester-060511

Coombs, C. R. (2015). When planned IS/IT project benefits are not realized: a study of inhibitors and facilitators to benefits realization. *International Journal of Project Management, 33*(2), 363-379.

Crawford, H. K., Leybourne, M. L., & Arnott, A. (2000). *How we Ensured Rigor from a Multi-site, Multi-discipline, Multi-researcher Study,* Forum: Qualitative Social Research (Vol. 1).

Davenport, TH. (1998). Putting the enterprise into the enterprise system. Harvard Business Review, 76(4), 121-131.

Davenport, T. (2000) Mission Critical: Realizing the Value of Enterprise Systems, Boston, MA: Harvard Business School Press.

Davenport, T. H., Harris, J. G., & Cantrell, S. (2004). Enterprise systems and ongoing process change. *Business Process Management Journal, 10*(1), 16 - 26.

Deloitte Consulting (1998) *ERP's Second Wave: Maximizing the Value of ERP-Enabled Processes*, New York: Deloitte Consulting.

Denzin, N., & Lincoln, Y., (1998) Introduction: Entering the Field of Qualitative Research, in Denzin and Lincoln, eds., Strategies of Qualitative Inquiry, Thousand Oaks, CA: Sage, pp. 1-34.

Dezdar, S., & Ainin, S. (2011). Examining ERP implementation success from a project environment perspective. *Business Process Management Journal, 17*(6), 919-939.

De Loo, I., Bots, J., Louwrink, E., Meeuwsen, D., van Moorsel, P., & Rozel, C. (2013) The effects of ERP-implementations on the non-financial performance of small and medium-sized enterprises in the Netherlands**.** The *Electronic Journal Information Systems Evaluation,* Vol 16, No. 2, pp 103-116 , available online at www.ejise.com.

Doherty, N. F. (2014). The role of socio-technical principles in leveraging meaningful benefits from IT investments. *Applied Ergonomics, 45*(2, Part A), 181-187.

Doherty, N., Ashurst, C., & Peppard, J. (2012). *Factors affecting the successful realisation of benefits from systems development projects: Findings from three case studies*. Journal of Information Technology, 27(1) 1-16.

Doherty, N., & Coombs, C. (2013). *From IT Development to IT Exploitation–Shifting the Research Agenda.* Paper presented at the UKAIS 2013.

Dwivedi, Y., Wastell, D., Laumer, S., Henriksen, H., Myers, M., Bunker, D., Srivastava, S. (2014). Research on information systems failures and successes: Status update and future directions. *Information Systems Frontiers*, 1-15.

Eckartz, S., Daneva, M., Wieringa, R., & van Hillegersberg, J. (2009). A conceptual framework for ERP benefit classification: a literature review. *Netherlands: Information Systems Group.[Online],[Retrieved 3 Agustus 2011], http://doc. utwente. nl/65396/1/Technical ReportBenefitFramework. pdf*.

Eckartz, S. M., Katsma, C. P., & Oude Maatman, R. (2012). *A Design Proposal for a Benefits Management Method for Enterprise System Implementations*. 46th Hawaii International Conference on System Sciences.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of management review*, 532-550.

Esteves, J. (2009). *A benefits realisation road-map framework for ERP usage in small and medium-sized enterprises*, Journal of Enterprise Information Management, 22(1/2) 25-35.

Esteves, J. and Bohorquez, V. (2007) An Updated ERP Systems Annotated Bibliography: 2001-2005, Communications of the Association for Information Systems: Vol. 19, Article 18.

Esteves, J., Pastor, J. (1999). An ERP Lifecycle-based Research Agenda. International Workshop on Enterprise Management Resource and Planning Systems EMRPS, Venice, Italy, 359-371.

Farbey, B., Land, F., & Targett, D. (1999). Moving IS evaluation forward: learning themes and research issues. *The Journal of Strategic Information Systems, 8*(2), 189-207.

Finney, S., and Corbett, M. (2007) "ERP Implementation : A Compilation and Analysis of Critical Success Factors," *Business Process Management Journal* (13:3), pp 329-347.

Flak, L., Nordheim, S., & Munkvold, B.E. (2008). *Analyzing stakeholder diversity in G2G efforts: combining descriptive stakeholder theory and dialectic process theory*, e-Service Journal, 6(2) 3-23.

Gattiker, T. F., & Goodhue, D. L. (2005). What Happens after ERP Implementation: Understanding the Impact of Interdependence and Differentiation on Plant-Level Outcomes. *MIS Quarterly, 29*(3), 559-585.

Gargeya, V. B., & Brady, C. (2005). Success and failure factors of adopting SAP in ERP system implementation. *Business Process Management Journal, 11*(5), 501-516.

Gartner Executive Program Report, accessed on 25-Dec-14 available at: http://www.gartner.com/imagesrv/cio/pdf/cio_agenda_execsum2013.pdf.

Gioia, D. A., & Chittipeddi, K. (1991) *Sensemaking and sensegiving in strategic change initiation*, Strategic Management Journal, 12(6) 433-448.

Grabski, S. V., Leech, S. A., & Schmidt, P. J. (2011). A Review of ERP Research: A Future Agenda for Accounting Information Systems. *Journal of Information Systems, 25*(1), 37-78.

Guba, E.G. and Lincoln, Y.S. (1989). Fourth Generation Evaluation, Newbury Park, CA: Sage Publications.

Guba, E., & Lincolin, Y. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.). In C. S. Thousand Oaks (Ed.), *Handbook of qualitative research* (pp. 105-117).

Ha, Y. M., and Ahn, H. J. (2013) Factors Affecting the Performance of Enterprise Resource Planning (ERP) Systems in the Post-Implementation Stage, *Behaviour & Information Technology*, 1–17.

Haddara, M., & Paivarinta, T. (2011) *Why Benefits Realization from ERP in SMEs Doesn't Seem to Matter?* Paper presented at the System Sciences (HICSS) 2011 44th Hawaii International Conference.

Haddara, M., & Zach, O. (2011). *ERP systems in SMEs: A literature review.* Paper presented at the System Sciences (HICSS), 44th Hawaii International Conference.

Hawari, A., & Heeks, R. (2010) *Explaining ERP failure in a developing country: A Jordanian case study*, Journal of Enterprise Information Management (Formerly: Logistics Information Management), 23(2) 135.

Hawking, P., Stein, A., & Foster, S. (2004) *Revisiting ERP Systems: Benefit Realisation*, In Proceedings of the 37th Hawaii International Conference on System Sciences.

Hellang, Ø., Flak, L., & Päivärinta, T. (2013) *Diverging approaches to benefits realization from public ICT investments: A study of benefits realization methods in Norway*. Transforming Government: People, Process and Policy, 7(1) 93-108.

Hirschheim, R., & Klein, H. K. (2012). A glorious and not-so-short history of the information systems field. *Journal of the Association for Information Systems, 13*(4), 188-235.

Hu, Q., Frisk, E., Hallikainen, P., Eikebrokk, T. R., Päivärinta, T., & Nurmi, A. (2007). *IT Investment Evaluation as a Socio-Political Process: Determinants to Managerial Adoption and Use.* Paper presented at the ECIS.

Huang, T. and Yasuda, K., (2016) Reinventing the ERP Life Cycle Model: From Go-Live to Withdrawal, *Journal of Enterprise Resource Planning Studies.*

Hustad, E., & Olsen, D. (2011). ERP Post-implementation Issues in Small-and- Medium-Sized Enterprises. In M. Cruz-Cunha, J. Varajão, P. Powell & R. Martinho (Eds.), *Enterprise Information Systems* (Vol. 219, pp. 290-299): Springer Berlin Heidelberg.

Irani, Z., Sharif, A. M., & Love, P. E. D. (2007). Knowledge mapping for information systems evaluation in manufacturing. *International Journal of Production Research, 45*(11), 2435-2457.

Jorgensen, D., Participant Observation, Newbury Park, CA, Sage, 1989.

Kallinikos, J. (2004). Deconstructing information packages: Organizational and behavioural implications of ERP systems. *Information technology & people, 17*(1), 8-30.

Kim, Y., Lee, Z., & Gosain, S. (2005). Impediments to successful ERP implementation process. *Business Process Management Journal, 11*(2), 158-170.

King, S. F., & Burgess, T. F. (2006). Beyond critical success factors: A dynamic model of enterprise system innovation. *International Journal of Information Management, 26*(1), 59-69.

King, S. F., & Burgess, T. F. (2008). Understanding success and failure in customer relationship management. *Industrial Marketing Management, 37*(4), 421-431.

Klein, Heinz K., & Myers, Michael D. (1999). A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems. *MIS Quarterly, 23*(1), 67-93.

Lange, M., Mendling, J., & Recker, J. (2012). *A comprehensive EA benefit realization model--An exploratory study.* Paper presented at the System Science (HICSS), 2012 45th Hawaii International Conference.
Langley, A. (1999). Strategies for Theorizing from Process Data. *The Academy of Management Review, 24*(4), 691-710.
Langley, A. (2009). Studying processes in and around organizations. *The Sage handbook of organizational research methods*, 409-429.
Langley, A., and Stensaker, I. (2012). Longitudinal Research and Analysis. In C. S. Cassell, G. (eds.) (Ed.), *The Practice of Qualitative Organizational Research: Core Methods and Current Challenges* (pp. 149-167): Sage Publications.
Legare, T. L. (2002). The role of organizational factors in realizing ERP benefits. *Information Systems Management, 19*(4), 21-42.
Leonard, J., & Higson, H. (2014). A strategic activity model of Enterprise System implementation and use: Scaffolding fluidity. *The Journal of Strategic Information Systems, 23*(1), 62-86.
Leonardi, P. M. (2009). Crossing the implementation line: The mutual constitution of technology and organizing across development and use activities. *Communication Theory, 19*(3), 278-310.
Leonardi, P. (2011). When flexible routines meet flexible technologies: Affordance, constraint, and the imbrication of human and material agencies. *MIS Quarterly, 35*(1), 147-167.
Leonardi, P. M. (2012). Maternality, Sociomaternality and socio-technical systems. *Leonardi, P. M. (2012). Materiality, Sociomateriality, and Socio-Technical Systems: What Do These Terms Mean? How Are They Related? Do We Need Them? In P. M. Leonardi, B. A. Nardi, & J. Kallinikos (Eds.), Materiality and Organizing: Social Interaction in a Technological World (pp. 25-48). Oxford: Oxford University Press.*
Leonardi, P., & Barley, S. (2008). Materiality and change : Challenges to building better theory about technology and organizing. *Information and Organization (Formerly : Accounting , Management and Information Technologies), 18*(3), 159-176.
LePine, J., and A. King (2010). "Editors'comments: developing novel theoretical insight from reviews of existing theory and research." *Academy of Management Review*, *35*(4), 506-509.
Liu, H., Ke, W., Wei, K. K., Gu, J., & Chen, H. (2010). The role of institutional pressures and organizational culture in the firm's intention to adopt internet-enabled supply chain management systems. *Journal of Operations Management, 28*(5), 372-384.
Majchrzak, A., & Markus, M. L. (2013). Technology Affordances and Constraints in Management Information Systems (MIS) *Encyclopedia of Management Theory, (Ed: E. Kessler), Sage Publications, Available at SSRN: http://ssrn.com/abstract=2192196* (pp. 832-836): Thousand Oaks, CA: Sage Publications.
Marchand, D. A., & Hykes, A. (2006). Designed to fail: Why IT-enabled business projects underachieve. *IMD, 1*(2), 3.
Marchand DA, Peppard J (2008) Designed to fail: why it projects underachieve and what to do about it. Research paper 2008-11, IMD International, Lausanne, pp 1-28.
Markus, M.L., and Tanis, C. (2000) The Enterprise Systems Experience - from Adoption to Success, in: *Framing the Domains of It Research: Projecting the Future...Through the*

Past, R.W. Zmud (ed.), Pinaflex Educational Resources, Cincinatti OH, 2000, pp. 173-207.
Markus, M. L., Axline, S., Petrie, D., and Tanis, C. (2000). Learning from adopters' experiences with ERP: Problems encountered and success achieved. *Journal of Information Technology*, *15*(4), 245-265.
Mathrani, S., Mathrani, A., & Viehland, D. (2013). Using enterprise systems to realize digital business strategies. *Journal of Enterprise Information Management, 26*(4), 363-386.
Mattila, M., Nandhakumar, J., Hallikainen, P., & Rossi, M. (2011). Role of Enterprise Systems in Organizational Transformation. *Engineering Management Journal, 23*(3), 8-12.
McDonald, M. and Aron, D. (2013), Executive summary: Hunting and Harvesting in a Digital World: The 2013 CIO Agenda.
McCracken, G., The Long Interview, Newbury Park, CA: Sage, 1988.
Melin, U. (2010). "The enterprise system as a part of an organization's administrative paradox." *Journal of Enterprise Information Management* 23 (2), 181–200.
Microsoft and GFOA Consulting. (2012) The Real Impact of ERP Systems in the Public Sector.
Miles, M. B., & Huberman, A. H. (1994) *Making good sense: Drawing and Verifying Conclusions*, In Qualitative Data Analysis. A Sourcebook for New Methods, Thousand Oaks, CA: Sage.
Moon, Y., B. (2007) Enterprise Resource Planning (ERP): A Review of the Literature, *International Journal of Management and Enterprise Development* (4:3), pp 235-264.
Mueller, B. and Urbach, N. (2013). The Why, What, and How of Theories in IS research. *Proceedings of ICIS 2013.*
Mumford, E. (2006). Researching people problems: some advice to a student. *Information Systems Journal, 16*(4), 383-389.
Myers, M. D. (2000) *Qualitative research and the generalizability question: Standing firm with Proteus*, The Qualitative Report, 4(3/4). Available: http://www.nova.edu/ssss/QR/QR4-1/myers.html.
Myers, M. D., & Newman, M. (2007) *The qualitative interview in IS research: Examining the craft*, Information and Organization (Formerly: Accounting, Management and Information Technologies), 17(1).
Nandhakumar, J., Rossi, M., & Talvinen, J. (2005). The dynamics of contextual forces of ERP implementation. *The Journal of Strategic Information Systems*, *14*(2), 221-242.
Newman, M. and Zhao, Y. (2008) "The Process of ERP Implementation and BPR: A Tale from two Chinese SMEs**".** *Information Systems Journal*, 18 (4): 405–426.
Ngai, E. W., Law, C. C., & Wat, F. K. (2008). Examining the critical success factors in the adoption of enterprise resource planning. *Computers in Industry, 59*(6), 548-564.
Niemi, E. (2006). Enterprise architecture benefits: Perceptions from literature and practice. *Evaluation of enterprise and software architectures: critical issues, metrics and practices:[AISA Project 2005-2008]/Eetu Niemi, Tanja Ylimäki & Niina Hämäläinen (eds.). Jyväskylä: University of Jyväskylä, Information Technology Research Institute.*
Nori, W., Ismail, N., & Zin, R. (2009) *ERPS—Management Accounting Practices*, Fit, Antecedents, and User Satisfaction, IPBJ, 1(1) 1-16.
Nwankpa, J. K. (2015). ERP system usage and benefit: A model of antecedents and outcomes. *Computers in Human Behavior, 45*, 335-344.

Olsen, K. A., & Sætre, P., (2007) ERP for SMEs—is proprietary software an alternative? Business Process Management Journal, 13(3), 379 – 389.
Ononiwu, C. G., (2013) A Delphi Examination of Inhibitors of The Effective use of Process Industry Enterprise Resource Planning (Erp) Systems: A Case Study of New Zealand's Process Industry. The *Electronic Journal Information Systems Evaluation,* Vol 16 No. 2, pp 116-133 , available online at www.ejise.com
Orlikowski, W. J. (2007). Sociomaterial Practices : Exploring Technology at Work. *Organization Studies, 28*(9), 1435-1448.
Orlikowski, W. J., & Scott, S. V. (2008). 10 Sociomateriality : Challenging the Separation of Technology , Work and Organization. *The Academy of Management Annals, 2*(1), 433-474.
O'Donovan, B., Seymour, L., Geldenhuys, J., Isaacs, I., & Kaulule, K. (2010). The Influence of Organizational Memory Mismatches and Coping Strategies on ERP Outcomes. *The Electronic Journal Information Systems Evaluation, 13*(2), 165-176.
Panorama Consulting. (2012) 2012 ERP Report: A Panorama Consulting Solutions Research Report.
Panorama Consulting. (2013) 2013 ERP Report: A Panorama Consulting Solutions Research Report.
Panorama Consulting. (2014) 2014 ERP Report: A Panorama Consulting Solutions Research Report.
Patton, MQ. (2002). *Qualitative Research and Evaluation Methods* (2nd Edition). Thousand oaks, CA: Sage Publications.
Pearlson, K.E. & Saunders, C.S. (2009). *Strategic Management of Information Systems*, International Student Version, 5th Edition. John Wiley & Sons Singapore Pte, Ltd
Peppard, J., Ward, J., & Daniel, E. (2007) *Managing the realization of business benefits from IT investments*. MIS Quarterly Executive, 6(1) 1-11.
Peng, G. C., & Nunes, M. B. (2009). Surfacing ERP exploitation risks through a risk ontology. *Industrial Management & Data Systems, 109*(7), 926-942.
Peng, G. C., & Nunes, M. B. (2010) *Why ERP Post-Implementation Fails? Lessons Learned from A Failure Case in China*, In Proceedings of the 14th Pacific Asia Conference on Information Systems.
Poba-Nzaou, P., Raymond, L., & Fabi, B. (2008). Adoption and risk of ERP systems in manufacturing SMEs: a positivist case study. *Business Process Management Journal, 14*(4), 530-550.
Rabaa'i, A. (2009) *The impact of organisational culture on ERP systems implementation: Lessons from Jordan*, In Proceedings of the Pacific Asia Conference on Information Systems 2009.
Rajapakse, J., & Seddon, P. (2005) *Why ERP May Not be Suitable for Organisations in Developing Countries in Asia*, In Proceedings of PACIS 2005, Bangkok, 1382-1388.
Rikhardsson, P., & Kræmmergaard, P. (2006). Identifying the impacts of enterprise system implementation and use: Examples from Denmark. *International Journal of Accounting Information Systems, 7*(1), 36-49.
Robey, D., J. W. Ross and M.-C. Boudreau (2002). Learning to implement enterprise systems: An exploratory study of the dialectics of change. *Journal of Management Information Systems* 19 (1), 17–46.

Ross, J. W., & Vitale, M. (2000). The ERP revolution : surviving vs. thriving. *Information Systems Frontiers, 2*(2), 233.
Santos, F. M., & Eisenhardt, K. M. (2009) *Constructing markets and shaping boundaries: Entrepreneurial power in nascent fields*, Academy of Management Journal, 52(4) 643-671.
Saraf, N., Liang, H., Xue, Y., and Hu, Q. (2013) "How does organisational absorptive capacity matter in the assimilation of enterprise information systems?" Information Systems Journal, 23, pp. 245–267.
Saunders, Mark, Lewis, Philip, & Thornhill, Adrian. (2009). *Research methods for business students - fifth edition*.
Schlichter, B., & P., K. (2010). A comprehensive literature review of the ERP research field over a decade. *Journal of Enterprise Information Management, 23*(4), 521-537.
Schubert, P., & Williams, S. (2009). *An Extended Framework for Comparing Expectations and Realized benefits of Enterprise systems implementations.* Paper presented at the Proceedings of the Fifteenth Americas Conference on Information Systems, San Francisco, California August 6th-9th 2009.
Schubert, P., & Williams, S. (2011) *A framework for identifying and understanding enterprise systems benefits*, Business Process Management Journal, 17(5) 808-828.
Seawright, J., and Gerring, J. 2008. "Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options," *Political Research Quarterly* 61(2), 294–308.
Seddon, P., Calvert, Ch., & Yang, S. (2010) *A Multi-Project Model of Key Factors Affecting Organizational Benefits From Enterprise Systems*, MIS Quarterly, 34(2) 305-328.
Sedmak, M. (2010). Studying the processes during implementation of enterprise systems. *Knowledge and Process Management, 17*(1), 1-11.
Sedmak , M., & Longhurst , P. (2010). Methodological choices in enterprise systems research. *Business Process Management Journal, 16*(1), 76-92.
Shang, S., & Seddon, P. (2000) *A comprehensive framework for classifying the benefits of ERP systems*, The Americas Conference on Information Systems.
Shang, S., & Seddon, P. B. (2002). Assessing and managing the benefits of enterprise systems : the business managers perspective. *Information Systems Journal, 12*(4).
Shang, S. & Seddon, P. (2004) *Enterprise Systems Benefits: How Should They Be Assessed?* Pacific Asian Conference on Information Systems (PACIS).
Shanks, G., Seddon, P. B., & Willcocks, L. (2003). *Second-wave enterprise resource planning systems: Implementing for effectiveness*: Cambridge University Press.
Shiau, W. L., Hsu, P. Y., & Wang, J. Z. (2009) *Development of measures to assess the ERP adoption of small and medium enterprises*, Journal of Enterprise Information Management, 22(1/2) 99-118.
Shpilberg, D., Berez, S., Puryear, R., Shah, S., 2007. Avoiding the alignment trap in information technology. MIT Sloan Management Review 49 (1).
Sia, S. K., Tang, M., Soh, C., & Boh, W. F. (2002). Enterprise resource planning (ERP) systems as a technology of power: empowerment or panoptic control? *ACM SiGMIS Database, 33*(1), 23-37.
Silverman, D. (2001). Interpreting Qualitative Data: Methods for Analysing Talk, Text and Interaction (second edition). London / Thousand Oaks / New Delhi: Sage, 325 pages, ISBN 0-7619-6864-4.

Singla, A. R. (2008) *Impact of ERP systems on small and midsized public sector enterprises,* Journal of Theoretical and Applied Information Technology, 4(2) 119-131.
Skok, W., & Legge, M. (2002). Evaluating enterprise resource planning (ERP) systems using an interpretive approach. *Knowledge and Process Management, 9*(2), 72-82.
Soh, C., Kien Sia, S., Fong Boh, W., & Tang, M. (2003) *Misalignments in ERP Implementation: A Dialectic Perspective*, The International Journal of Human-Computer Interaction, 16(1) 81.
Somers, T. M., & Nelson, K. (2001). *The impact of critical success factors across the stages of enterprise resource planning implementations.* Paper presented at the System Sciences, 2001. Proceedings of the 34th Annual Hawaii International Conference.
Somers, T. M., & Nelson, K. G. (2004). A taxonomy of players and activities across the ERP project life cycle. *Information & Management, 41*(3), 257-278.
Staehr, L., Shanks, G., & Seddon, P. (2012). *An Explanatory Framework for Achieving Business Benefits from ERP Systems*, Journal of the Association for Information Systems, 13(6) 424-465.
Tomblin, M. S. (2010). Theory development in enterprise systems and organizational learning. *Journal of Organizational Computing and Electronic Commerce, 20*(4), 398-416.
Wagner, E. L., & Newell, S. (2004). 'Best' for whom : the tension between 'best practice' ERP packages and diverse epistemic cultures in a university context. *Journal of Strategic Information Systems , The, 13*(4), 305.
Wagner, E. L., & Newell, S. (2007). Exploring the importance of participation in the post-implementation period of an ES project: a neglected area. *Journal of the Association for Information Systems, 8*(10), 32.
Wagner, E. L., Newell, S., & Piccoli, G. (2010). Understanding project survival in an ES environment: a sociomaterial practice perspective. *Journal of the Association for Information Systems, 11*(5).
Walsham, G. (1995). *Interpretive case studies in IS research: Nature and method*, European Journal of Information Systems, 4(2) 74-81.
Walsham, G., & Sahay, S. (2006) *Research on information systems in developing countries: Current landscape and future prospects*. Information Technology for Development, 12(1) 7-24.
Ward, J., & Daniel, E. (2006) Benefits Management: Delivering Value from IS & IT Investments (1st ed.): John Wiley.
Ward, J., & Daniel, E. (2012). *Benefits Management: How to Increase the Business Value of Your IT Projects* (2nd edition ed.): Wiley.
Ward, J., Hemingway, C., & Daniel, E. (2005). A framework for addressing the organisational issues of enterprise systems implementation. *The Journal of Strategic Information Systems*, *14*(2), 97-119.
Ward, J., Hertogh, S. D., & Viaene, S. (2007). *Managing Benefits from IS-IT Investment- an empirical Investigation into current Practices.* Paper presented at the Proceedings of the 40th Hawaii International Conference on System Sciences - 2007.
Ward, J., Daniel, E., Peppard, J., (2008). Building a better business case for IT Investments. MIS Quarterly Executive 7 (1), 1-14.
Willis, T. H., & Willis-Brown, A. H. (2002). Extending the value of ERP. *Industrial Management and Data Systems, 102*(1), 35-38.

Yen, T. S., Idrus, R., & Yusof, U. K. (2011) *A Framework for Classifying Misfits Between Enterprises Resource Planning (ERP) Systems and Business Strategies*, Asian Academy of Management Journal, 16(2) 53-75.
Yin, R. K. (2009) Case study research: Design and methods (Vol. 4), Sage Publications. ISBN 141296099.
Yoo, Y., Henfridsson, O., & Lyytinen, K. (2010). Research Commentary---The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research, Information Systems Research, (21:4), pp. 724-735.
Zach, O., (2011) *Exploring ERP System Outcomes in SMES: A Multiple Case Study, ECIS 2011 Proceedings.*
Zhu, Y., Li, Y., Wang, W., & Chen, J. (2010). What leads to post-implementation success of ERP? An empirical study of the Chinese retail industry. *International Journal of Information Management, 30*(3), 265-276.

Appendixes

Appendix A

Interview Guide

I-Introduction: Introduce myself and the research objectives; ask for permission to record.

II-Background Details: Ask about the company, the participant's department, role, the type of ES system (and which modules they work in), years of experience in the company, prior experience.

III-Core of the interview: focus on the open ended questions (how & why).

System adoption before the implementation

Why did your organization adopt an ES system?

What were the expectations in the adoption stage?

How did you reach the decision about choosing the current system?

Why did you choose this system particularly? Why didn't the organization develop its own system?

Has your organization prepared for benefits in the early planning stages? What kind of planning did you undertake?

The implementation process

Could you please explain the implementation process: what was the process itself, which people were involved, how communication took place, and how was customization handled?

Could you please describe the available training and support?

Please discuss the IT staff including their competence and availability.

Can you think of examples of the changes that occurred through the implementation of the system, and whether these changes for the business proceeded smoothly or with difficulty? Consider the following changes:

- system changes
- examples of the changes in business work or workflow
- examples in the changes of structure like roles or organizational hierarchy,
- examples of whether the system was flexible to change(you tried to change something in the system, and if it was possible or difficult)

Gained benefits (Post Implementation)

What are the system advantages or aspects that you consider real benefits? (discuss some benefits from the Shang & Seddon, 2002)

Compared with the expectations, how do you see the gained benefits?

When exactly did you come to feel the system is important and valuable to your work?

Now after the implementation, is there anybody responsible to look for system benefits?

How and why are further benefits suggested? For example: to meet the business needs; improve the system use; somebody has discovered a system feature to improve the business work; advice from IT people; advice from consultants; modelled on other organizations that have the advantage; an idea, reading or attending a professional event like a conference or a workshop

Have you thought about these above benefits before the implementation?

Do you have any measures or system for reviewing the benefits?

System Evaluation by the interviewee

How do you evaluate the system use: are you satisfied, dissatisfied, or partly satisfied? Please explain why.

How much do you use the system in your daily work?

What is the importance of the system in your organization?

Can you imagine the organization without the system or your job function without the system?

Issues to be learned/factors

What do you think about the aspects that were essential and helped you implement the system advantages (what are the issues that you consider essential in the implementation and after implementation that helped or obstructed gaining the advantage from the system).

Do you have any governance programs that affect your efforts in realizing the system advantages? What about the consulting company (implementer) – are they supportive and helpful? And how -- do they have enough resources? Experience and competence?

IV-Closing:

Review/summarize the main points, ask for secondary details like documents, ask to recommend persons who are familiar with specific topics (snowball technique), ask the ability to follow-up by email or phone, thank the interviewee.

Appendix B - Examples of Data Analysis

Informants' Responses	Key Concepts	Clustered Concepts (Themes)
"If something happens and prevents us working in the system then we are in a real crisis. It is impossible to imagine such a thing because it will be very difficult to do our business without the system" *(Head of General Accounting, Case 1)*	Difficult to separate the system (technical) from the social (business)	Sociomateriality
"It is better for me to go home or resign than work manually or even use the old systems" *(Accounts Payable Supervisor, Case 1)*	The system becomes part of the business and the informant cannot imagine do his job without the ES	
"It is very difficult to go back to the old systems; it is about changing your identity, or changing yourself" *(Head of Reconciliation and Accounts Receivable, Case 1)*	The enterprise system shapes the business now	
"When we think about anything for the business or any rule, the first thing we ask is the possibility of doing this with the system, because it reflects our business, and now if you are asked to work without it, this is unbelievable" *(Head of Accounting Section & Functional Consultant , Case 2)*	The enterprise system shapes the business	

"We did not start the business operation until we had a solid system to streamline our processes, and now we are talking about doing the business processes without the system. How is this so?" *(Chief Financial Officer, Case 2)*	An enterprise system is a fundamental player, which is more than influencing the business	Sociomateriality
"I may accept (live without) it, but only if you talk about replacing this system with another one that may be better than this system" *(Payroll Accountant and HR Coordinator, Case 1)*	The issue is not the system itself, but its functionality and features	
"The system for us is like the motor for the car; so, it is not oil to make the motor work better" *(Chief Financial Officer, Case 2)*	Metaphors represent the importance of the system, as an integral part, and not just an influencing factor	
"As an IT department, we have a Service Level Agreement (SLA) with business departments for the possibility of taking the system down for only a few hours in a working day. So when we do any type of maintenance we think about this. Now, if we are talking about a couple of days, then we will be in a difficult situation" *(Technical Consultant & Application Administrator, Case 2)*	Difficult to separate the ES from the business	

"If you imagine how we were working before, you would know how much the system helped us and changed our work, and because of this I cannot imagine my daily work or imagine the company's work without the system." *(Head of Fixed Assets and Inventory, Case 1)*	Difficult to separate the ES from the business	
"The company is a recently established business, so it needs a system to help us institute a solid base of business practices that can help us now and in the future" *(Inventory & Fixed Assets Accountant, Case 2)*	The enterprise system provides a basis for the business (institutionalizing)	
Informant Responses	**Key Concepts**	**Clustered Concepts (Themes)**
"I had experience of the ERP implementation. So I am aware of the advantages of the system, and I experienced different challenges. Hence, I thought the most important thing to do, in order to prepare well for the implementation, was to develop a competent team early on, before the implementation, and continue after the real implementation. To do this, I hired many experienced persons, and I think this was a fundamental aspect that allowed us take huge benefits from the system. … This team knows what we want, and they participated in the	-Have expectations -Planning -Competent team -Participation in the physical implementation	-Pre-Implementation -Enablers -The implementation

implementation, and they were reminding the implementers about some issues like the currency issues, tax rules, issues considered for the future, etc" *(Chief Financial Officer and Project Sponsor, Case 2)*		
"I and other persons visited other peer companies who work in telecoms in the middle-East. They talked about their experience and what modules they adopted. Furthermore, our company established a partner relationship with a local company that has experience in ES implementation. We agreed also with the main vendor in Jordan (not the implementer) that we will make something called health-check sessions to monitor the implementation and to provide advice on what we can do" *(Financial Director and Internal Project manager, Case 1)*	-Planning (visits to peer companies) -Partnership with companies -Planning for monitoring activities (health-check sessions)	-Pre-implementation -Enablers
"The first period was very tough for all of us. We were working till late and at weekends. The initial period, when the implementer company delivered the system for us to start using it, was a very difficult period that lasted for six months. Afterwards, another year and a half was also difficult but not like the first six months. After these two years, most of the staff were using the system, and when some staff were facing troubles, they asked other colleagues who were familiar with the system. In the beginning most of us did not know what was happening" *(Head of Reconciliation and Accounts Receivable, Case 1)*	-Challenges in use -Stable system after troubled period (Case 1)	Post-implementation

"It took more than one year of working on troubleshooting, entering basic data, but after that the system became stable" *(Head of Accounting, Case 2)*	-Stable system after troubled period (Case 2)	Post-implementation
"The system solved the paperwork problems. For example, alone, I was using about five boxes of paper weekly, but now the whole department, about 30 employees, uses this amount of paper." *(Head of Fixed Assets and Inventory, Case 1)*	-Example of one benefit realized	Post-implementation

Examples of Data Analysis

Appendix C

Research Publications

No.	Title
1.	Anaya, Luay Ahmad. (2013). Towards An Improved Understanding for the Benefits Realization from Enterprise Information Systems. *Paper presented at the CONFENIS - 7th International Conference on Research and Practical Issues of Enterprise Information Systems, Prague - Czech Republic. Published by Trauner.*
2.	Anaya, Luay Ahmad. (2014). How A newly Established Company Realizes the Benefits of ERP Implementation: A Palestinian Case Study. *Paper presented at the Annual Conference of the UK Academy of Information Systems (UKAIS), Oxford, April 2014, UK.* http://aisel.aisnet.org/ukais2014/21/
3.	Anaya, Luay Ahmad (2014). Developing business advantages from the technological possibilities of enterprise information systems. *International Journal of Information Systems and Project Management, Vol. 2, No. 2, pp. 43-56. Available online* http://www.sciencesphere.org/ijispm/archive/ijispm-020203.pdf
4.	Anaya, L. and Olsen, D. (2014). Implementing ERP in a Challenging Environment: The Case of a Palestinian Telecom Company. *Paper presented at the 8th European Conference on IS Management and Evaluation (ECIME),* Ghent, Belgium, September 2014. Published by ACPIL.
5.	Anaya, L., Flak, L. and Olsen, D. (2015). Start-up company? Get your ERP system ASAP! *European, Mediterranean & Middle Eastern Conference on Information Systems 2015 (EMCIS2015), June 2015, Athens, Greece.*

<Article 1>

Anaya, Luay Ahmad. (2013). *Towards An Improved Understanding for the Benefits Realization from Enterprise Information Systems.* Paper presented at the CONFENIS - 7th International Conference on Research and Practical Issues of Enterprise Information Systems, Prague - Czech Republic. Published by Trauner.

TOWARDS AN IMPROVED UNDERSTANDING FOR THE BENEFITS REALIZATION FROM ENTERPRISE INFORMATION SYSTEMS

Luay Anaya

Department of Information Systems
Faculty of Economics and Social Sciences
University of Agder
luay.a.anaya@uia.no

Keywords

Benefits Realization (BR), Enterprise Information systems (EIS), Sociomateriality, Relationality, Performativity, Organisational Capabilities, Technological Possibilities

Abstract

Many organisations adopt large-scale enterprise information systems (EIS), even if the process will be challenging and expensive, because they are looking for more comprehensive benefits than those available from small off-the-shelf software applications. However, many organisations that have already implemented such systems reveal that the actual benefits from these systems are below expectations, and not commensurate with the massive investments. Hence, this research aims to first understand the existing process of benefits realisation from EIS and the factors that influence this benefits realization. It is expected that this research will contribute to an improved understanding of the gained benefits from EISs, and provide new insights for organisations seeking to improve the benefits realization from their EISs. To do this research, a multi-case study method has been suggested to conduct several interviews, and collecting qualitative data drawn on an interpretive philosophical paradigm.

1. Introduction

Nowadays, many organisations adopt large-scale Enterprise Information Systems (EIS), even if the process will be challenging and expensive (Panorama Consulting, 2012; Seddon et al., 2010), because they are looking for greater advantages and benefits than those available in small information systems (Nori et al., 2009; Shiau et al., 2009). This is particularly the case for those organisations that consider such systems as essential technological infrastructure that is needed for their survival and growth in the market (Hawking et al., 2004). Similarly, many organisations that have already implemented such systems reveal that the actual benefits from these systems are below expectations, and are not commensurate with the massive investments (e.g. Al-Mashari, 2000; BCS, 2004; Microsoft & GFOA Consulting, 2012; Panorama Consulting, 2012).

Many studies have been conducted on benefits realization and benefits management in information systems and IT projects (e.g. Ashurst et al., 2008; Doherty et al., 2012; Ward & Daniel, 2006). There have also been many studies conducted on benefits realization in EISs (e.g. Esteves, 2009; Seddon et al., 2010; Shang & Seddon, 2000; Staehr et al., 2012). These studies provide a

worthwhile foundation for studying benefits realization in EISs, as they shed light on relevant areas, including: benefits management processes (Ward & Daniel, 2006), developing benefits realization capabilities (Ashurst et al., 2008), benefits classification in ERP projects (Shang & Seddon, 2000), benefits realization of ERP in small and medium-sized enterprises (Esteves, 2009), the achievement of benefits in the post-implementation phase of ERP projects (Staehr et al., 2012), and success factors for benefits realizations from information systems developments (Doherty et al., 2012).

Surprisingly, despite the considerable information available from these studies, some organisations are still unhappy with the results of EIS implementation. For example, a recent study for Enterprise Resource Planning systems shows that only fifty percent of 246 respondents from 64 countries realized greater than fifty percent of expected benefits (Panorama Consulting, 2012). Different studies attribute this lack of benefits realization to nonexistence or poor application of benefits management practices (Ashurst et al., 2008), dialectic between different stakeholders with different interests (Flak et al., 2008), and other such reasons. Some issues in benefit realization may be accounted for by differences in organisation, practice, and context between one group and another; because of these distinctions, some organisations may be more able to realize benefits, whereas others face a difficulty achieving the benefits they expected, as found by Staehr et al. (2012).

Interestingly, Schubert & Williams (2009; 2011) recognized a lack of contextual studies that provide a clear understanding of the benefits realization from EISs. This is followed by recent calls (Doherty et al., 2012; Staehr et al., 2012) to conduct contextual studies that investigate the benefits realization in a multiplicity of sectors and areas. This perspective is strengthened by the assumption that some benefits management practices ignore the contextual complexities that make benefits management frameworks effective. When these are ignored, the benefits management practices often will not be as effective, at least within certain complex projects (Breese, 2012). This is particularly the case when benefits management practices do not take the organisational context of necessary changes into account (Ward & Daniel, 2012). Reasonably, contextual variables are very broad, and have significant influence on the systems' implementations. A study by Clarke & O'Connor (2012) found 44 factors and 170 subfactors within 8 categories to be situational factors that can affect software processes, whereas, Staehr et al. (2012) found 23 contextual factors that affect benefits realization from ERP systems. It is necessary to be engaged with these factors for a full understanding of the lack of consistent benefits realization. It is also noteworthy that the most of the existing studies have been conducted in organisations working in Western countries, and there is a lack of contextual studies based on organisations working in non-Western countries. Thus, the planned research aims to investigate what exactly is happening in practice in the firms under investigation, to understand the existing efforts and practices that have been utilized to realize the benefits from EISs, and to provide clear understanding of the aspects that influence benefits realization from EISs.

2. Theoretical Background

2.1. Related Works

Enterprise information system implementation is considered as one of the most sophisticated kinds of IT projects that require a high level of investment, resources, attention and commitment (Yen et al., 2011). These systems are being increasingly implemented to solve business problems, facilitating the flow and dissemination of information and automating business processes, among other benefits. The potential is significant, therefore, studying these systems and their impacts is critical to help organisations gain the value for their substantial investments in these systems (Nori et al., 2009).

Many researchers have conducted studies about the benefits of an EIS, and they found that successful implementation can affect organisations significantly. One such comprehensive classification study, conducted by Shang and Seddon (2000), found five benefits dimensions (operational, managerial, strategic, IT infrastructure, and organisational) with 25 sub-dimensions of benefits that organisations can achieve from their investments in enterprise systems. A later work by the same authors, (Shang and Seddon, 2004), a study of four medium-sized enterprises, they found that four organisations obtained distinct benefits within the five dimensions, and that the impact of these benefits are different among organisations. EIS can also be implemented by smaller enterprises. Singla (2008) showed that EIS may yield substantial benefits to the small and medium-sized firms that adopt enterprise systems, and the risks that emerge from adoption do not exceed the expected value.

On the other hand, even if there are many benefits that can emerge from these systems, many studies show that these benefits cannot be easily captured, and not all are relevant to all firms that adopt EIS. Al-Mashari (2000) found that 70 percent of ERP systems fail to deliver the expected benefits. This unpleasant picture has not improved. In a recent study on enterprise systems, Panorama Consulting (2012) found only about 50 percent of organisations are realizing their most anticipated benefits from EIS. Rajapakse & Seddon (2005) went further when they revealed that the implementation of enterprise information systems may not be a proper solution for firms in developing countries due to financial, technical and cultural issues. Most importantly, the poor benefit realization is more complicated in small and medium-sized enterprises (SME), according to some studies, because the implementation of 'commodity' enterprise information systems may force a more rigid organisational structure and hence weaken the competitive advantage that was based on the SMEs flexibility and low standardization (Olsen & Sætre, 2007; Yen et al., 2011). Some factors that are related to the dynamic nature of SMEs may constrain the benefit realization, like labour cost saving, as this benefit has a dramatic impact for large organisations, whereas it is not considered a vital benefit for SMEs (Zach, 2011).

However, some authors have suggested the development of a plan for the expected benefits that encourages collective work toward the achievement of this benefits realization plan, within a management process. In this regard, Ward and Daniel (2006; 2012), and Peppard et al. (2007), among others, study the benefits realization issue in IT/IS projects, contending that the possession of a technological information system in itself has no inherent value, and will not automatically confer the expected benefit to the business (Peppard et al., 2007). Hence, to realize the full value of implementing an information system, these authors recommend organisations develop benefits management processes to continually work toward desired benefits. This requires the active engagement and involvement of both business management and users to construct a benefits realization plan that has source details, responsibilities, required business changes, and timelines for achievements. After this, the plan should be executed, the results monitored, and all stakeholders engaged in seeking new benefits, within continuing process (Ward & Daniel, 2006).

Most importantly, existing studies show that organisations that developed information systems have rarely developed benefits management plans, and that there are very limited numbers of organisations that have such processes and practice (Ashurst et al., 2008). The former authors attribute this to the lack of awareness of such practices, a lack of understanding of their importance, and organisations that are not competent enough to implement them. Additionally, because this process is proactive, many organisations consider it a waste of money as long as the system has been delivered, and people start using it (Ashurst et al., 2008). Furthermore, despite the importance of benefits planning and management, it is assumed that the real benefit from a technological system can emerge in the practice, after the usage, and not beforehand, as people usually do not interact with an object without perceiving what the object is good for (Leonardi, 2011). This is

because a technological information system like EIS can provide possibilities for action, and opportunities for organisations to be exploited that are not fully expected and clearly decided in the beginning (ibid). These concepts of emerged benefits can be clearly explained by the affordances and constraints lens within the sociomateriality perspective.

2.2. The Use of the Sociomateriality Perspective

Sociomateriality assumes that organisations, people and technology are not self-contained entities, but they are mutually constituted and entangled with each other (Orlikowski & Scott, 2008). Thus, a technological system is considered a material, integral component, rather than an incidental or intermittent aspect, of social life, since both share a sociomaterial structure (ibid). This is considered reasonable to be applied to EIS, as argued by Wagner et al. (2010). Most likely, because the EISs are not technical systems only, but socio-technological artefacts working on social or organisational contexts, engaging many social actors (Howcroft & Light, 2010). Also, they are interacting in social processes within organisations (Dery et al., 2006), and organisations with some organisational factors shape the usage of these systems (*ibid*). Further, such systems have serious implications in organisations, as they can form many organisational roles and practices (Kallinikos, 2006). In this aspect, Leonardi (2012) recommended that information systems researchers need the sociomateriality perspective, because it consists of two aspects: social and material. On one side, it emphasizes that all materiality is social because it is created through social processes, and it is interpreted and used in social contexts. On the other side, it reminds us that all social actions are possible because of some materiality (ibid). Accordingly, a technological information system like an EIS can be considered a technical system that has material properties, and acts as a constitutive component in a social context, to shape and be shaped by the organisational life.

Hence, sociomateriality as a theoretical stance can exhibit a clear understanding of benefits realization in the use of EISs, through its capability of exploring the relation between the two parties that constitute the system's implementations: the organisation, humans with the working routines representing the social side and the EIS representing the material side. Sociomateriality concepts like relationality and performativity can thus provide rich insights to this study.

2.2.1. Relationality

Entities, whether technologies or humans, have no inherent properties. What matters is their interconnectedness with each other (Orlikowski & Scott, 2008). In sociomateriality, technologies have material properties that can afford different possibilities, giving the humans the capacity to act upon the technology to exploit its capabilities. However, these capacities do not exist in all social contexts; they are active in proper contexts that can enable those possibilities to be construed like organisational policies, procedures, controls, training, support and IT expertise, among others (Leonardi, 2011). This means that benefits can be realized from an EIS when an organisation has certain capabilities that are able to exploit the system's inherent possibilities, which are afforded by the material properties or features of the system. To illustrate this, if an organisation desires to take the benefits from the accumulated data that is generated by the system, it must have capacities that enable it realize this benefit, such as analytics skills and organisational policies that support gaining the benefit from the data.

2.2.2. Performativity

It is assumed that affordance and constraint perspective considers that the real usage is in practice (Leonardi, 2011). In sociomateriality, affordance asserts possibilities for actions that are not clearly

pre-given, but are dependent on the technological properties that can be offered, as the material is enacted by the intent of humans (Leonardi, 2011), besides existence of some capacities that are not necessarily available in all organizations. Therefore, it will be difficult to talk about a complex system like an EIS without referring to the social setting that the system is constituted in (Zammuto et al., 2007). The benefits of EISs emerge in practice, once the capabilities, which are able to exploit the system possibilities, are available. For example, the benefits that emerge from the data that is accumulated by the system cannot be clearly seen before or during implementation. It is only once the data is available, and the capacities, which allow organisations find new uses from the accumulated data like polices, procedures or expertise, are also available.

3. Research Methodology

Initially, our underlying philosophical assumptions drew on the interpretive approach, which considers the reality of business benefits as dependent, existing within its connections to people (Walsham, 1995). This approach enables us to study the complicated and interconnected aspects within benefit realization in EIS, by accessing the socially constructed knowledge in these systems from the people who work in them. Regarding the nature of the data to be collected, it is suggested to be qualitative. To articulate a clear understanding of the role of EISs within organisations, and to understand how these organisations exploit the potential capabilities of these systems, there is a need to describe their organisational contexts. This allows the researcher to analyze the environments of the organisations that will participate in the research because this can help to uncover the factors that may affect benefits realization in these organisations. Regarding the methods, this research will utilize case studies, as they are recommended when the research objective is to explain, explore and describe, and when the study aims to generate answers to questions like why, what and how (Yin, 2009). Another important aspect to this decision is that the case study method allows investigators to maintain the holistic and meaningful characteristics of real-life events, such as the specific life cycle of organisational and managerial processes (Yin, 2009). Furthermore, the case study method is an appropriate option because it uses multiple sources of information, including interviews, observations, documents and reports. Particularly, the semi-structured interviews are the primary data source in this study because they enable the researcher access the people-dependent knowledge by understanding the social world from the viewpoints of the people who are working in the systems (Walsham, 1995). Besides the interviews, triangulating the data collection with observation and documents analysis is also suggested. Interview guide is prepared to direct the interviews to extract clear answers about the implementation process, and the efforts before and after that, and if the benefits were expected or emerge after the implementation. It also has inquiries about the aspects that influence the benefits realization like training, support, availability of IT people and their competence, customization, flexible system and flexible routines, the consulting company that implemented the system, governance programs, and other such factors.

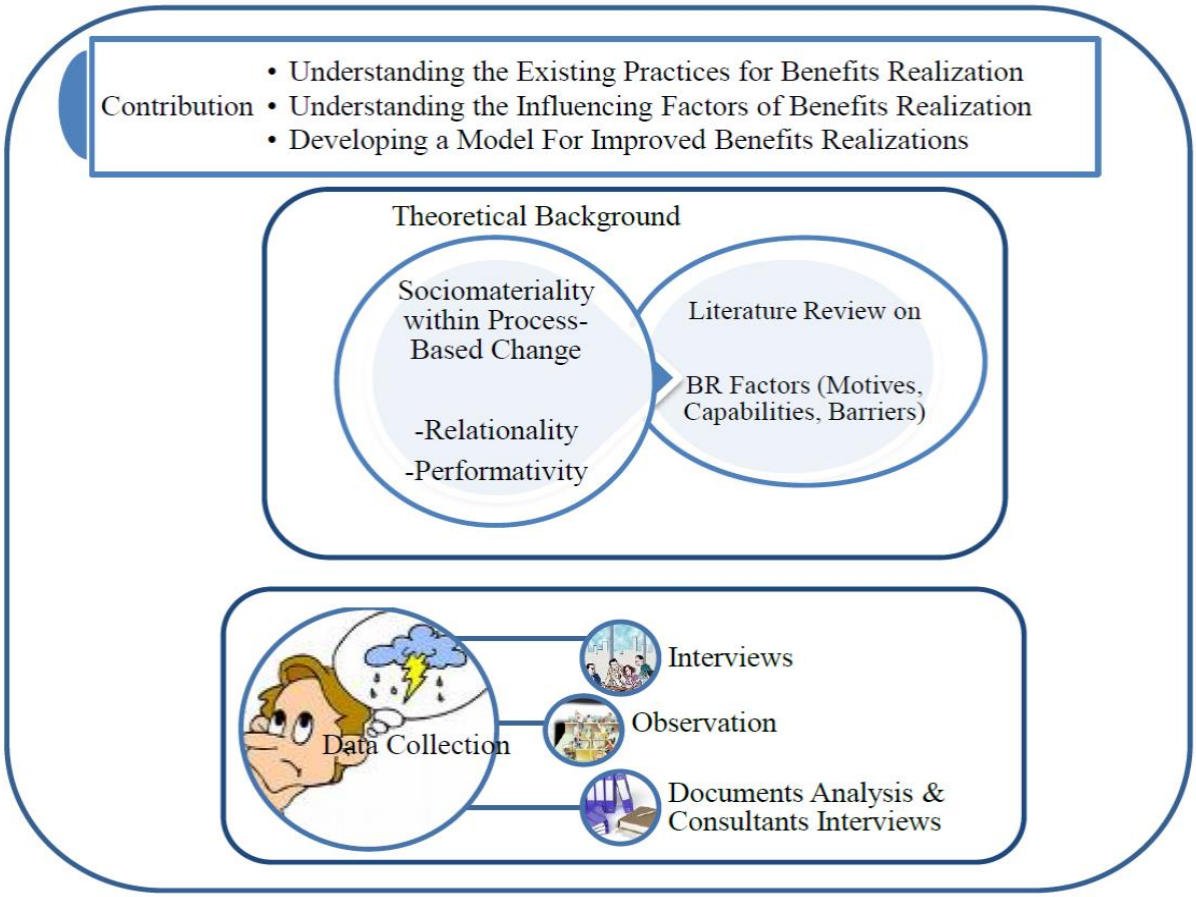

Fig. 1. The Research Design

4. Expected Contribution

This potential research is expected to contribute to both theory and practice. On the theoretical level, this study will provide new insights on benefits realization in EIS implementations. In particular, it will provide improved understanding for the existing, potentially useful, and counterproductive practices that are intended to achieve benefits realization from the significantly capable EISs. Additionally, this study is expected to contribute new insights about the application of sociomateriality concepts, as there is lack of empirical research that is based on this theoretical stance (Mueller et al., 2013), and will show how sociomateriality concepts like relationality and performativity will help in developing an improved understanding about benefits realization from EISs. Furthermore, this research is expected to make practical contributions. In particular, this study is expected to provide a useful model for benefits realization from EISs to enable different parties to improve their usage of these systems.

5. Conclusion

Based on this understanding, it is expected that the obtained benefits from EISs can be improved when the EIS as a technical system exists within the organisational work, in which both are dynamically changing in practice. Therefore, the technical features of the system alone cannot provide the expected benefits. Instead, benefits can be realized when organisations become able to

exploit the technological possibilities of the EIS, which can be achieved through the organisational capabilities. Automating the existing routines without organisational changes cannot provide the real benefits from EISs. Furthermore, there are many benefits that can be realized from EISs other than those that were initially expected, based on the many opportunities that emerge in the utilization of the system after the implementation process, such as those related to the data accumulated by the system. This formation will give the opportunity to view new uses for and new benefits from the EISs, which will enable the organisations to create more value from their investments in EISs. Finally, this work, which is part of a research-in-progress, which aims to improve the benefits realization from EISs, will be followed by an empirical work to investigate the emergence and realization of EIS benefits.

6. References

Al-Mashari, M. (2000). Constructs of process change management in ERP context: A focus on SAP R/3. The Sixth Americas Conference on Information Systems, Long Beach, CA. 977-980.

Ashurst, C., Doherty, N., & Peppard, J. (2008). Improving the impact of IT development projects: the benefits realization capability model. European Journal of Information Systems, 17(4), 352-370.

BCS (British Computer Society). (2004). The Challenges of Complex IT Projects: The Royal Academy of Engineering.

Breese, R. (2012). Benefits realisation management: Panacea or false dawn? International Journal of Project Management, 30(3), 341-351.

Clarke, P., & O'Connor, R. (2012). The situational factors that affect the software development process: Towards a comprehensive reference framework. Information and Software Technology, 54(5), 433-447.

Davenport, TH. (1998). Putting the enterprise into the enterprise system. Harvard Business Review, 76(4), 121-131.

Davenport, TH., Harris, J., & Cantrell, S. (2004). Enterprise systems and ongoing process change. Business Process Management Journal, 10(1), 16 - 26.

Dery, K., Hall, R., & Wailes, N. (2006). ERPs as technologies- in-practice: social construction, materiality and the role of organisational factors. New Technology, Work and Employment, 21(3), 229-241.

Devadoss, P., & Pan, S. (2007). Enterprise systems use: towards a structurational analysis of enterprise systems induced organizational transformation. Communications of the Association for Information Systems, 19(1), 352-385.

Doherty, N., Ashurst, C., & Peppard, J. (2012). Factors affecting the successful realisation of benefits from systems development projects: findings from three case studies. Journal of Information Technology, 27(1), 1-16.

Esteves, J. (2009). A benefits realisation road-map framework for ERP usage in small and medium-sized enterprises. Journal of Enterprise Information Management, 22(1/2), 25-35.

Flak, L., Nordheim, S., & Munkvold, B.E. (2008). Analyzing stakeholder diversity in G2G efforts: combining descriptive stakeholder theory and dialectic process theory. e-Service Journal, 6(2), 3-23.

Hawking, P., Stein, A., & Foster, S. (2004). Revisiting ERP Systems: Benefit Realisation. Proceedings of the 37th Hawaii International Conference on System Sciences.

Howcroft, D., Light, B., (2010). The social shaping of packaged software selection. Journal of the Association for Information Systems, volume(issue), 122-148.

Leonardi, P. (2011). When flexible routines meet flexible technologies: Affordance, constraint, and the imbrication of human and material agencies. MIS Quarterly, 35(1), 147-167.

Leonardi, P. (2012). Materiality, Sociomateriality, and Socio-Technical Systems: What Do These Terms Mean? How Are They Related? Do We Need Them? In P. M. Leonardi, B. A. Nardi, & J. Kallinikos (Eds.), Materiality and Organizing: Social Interaction in a Technological World (pp. 25-48). Oxford: Oxford University Press.

Microsoft and GFOA Consulting. (2012). The Real Impact of ERP Systems in the Public Sector.

Mueller, B., Raeth, P., Faraj, S., Kautz, K., Robey, D., & Schultze, U. (2013). On the Methodological and Philosophical Challenges of Sociomaterial Theorizing: An Overview of Competing Conceptualizations, ICIS 2012 PANEL STATEMENT. Thirty Third International Conference on Information Systems (ICIS), Orlando.

Nori, W., Ismail, N., & Zin, R. (2009). ERPS-Management Accounting Practices Fit, Antecedents, And User Satisfaction. IPBJ, 1(1), 1-16.

Olsen K. A.& Sætre P., (2007). ERP for SMEs – is proprietary software an alternative?. Business Process Management Journal, 13(3), 379 – 389.

Orlikowski, W. J., & Scott, Susan V. (2008). 10 Sociomateriality: Challenging the Separation of Technology, Work and Organization. The Academy of Management Annals, 2(1), 433-474.

Panorama Consulting. (2012). 2012 ERP Report: A Panorama Consulting Solutions Research Report.

Peppard, J., Ward, J., & Daniel, E. (2007). Managing the realization of business benefits from IT investments. MIS Quarterly Executive, 6(1), 1-11.

Rajapakse, J., & Seddon, P. (2005). Why ERP May Not be Suitable for Organisations in Developing Countries in Asia. Proceedings of PACIS 2005, Bangkok, 1382-1388.

Schubert, P., & Williams, S. (2009). An Extended Framework for Comparing Expectations and Realized Benefits of Enterprise SystemsIimplementations. Americas Conference on Information Systems, San Francisco.

Schubert, P., & Williams, S. (2011). A framework for identifying and understanding enterprise systems benefits. Business Process Management Journal, 17(5), 808-828.

Seddon, P., Calvert, Ch., & Yang, S. (2010). A Multi-Project Model of Key Factors Affecting Organizational Benefits From Enterprise Systems. MIS Quarterly, 34(2), 305-328.

Shang, S., & Seddon, P. (2000). A comprehensive framework for classifying the benefits of ERP systems. The Americas Conference on Information Systems.

Shang, S. & Seddon, P. (2004). Enterprise Systems Benefits: How Should They Be Assessed?. Pacific Asian Conference on Information Systems (PACIS).

Shiau, W-L., Hsu, P-Y., & Wang, J-Z. (2009). Development of measures to assess the ERP adoption of small and medium enterprises. Journal of Enterprise Information Management, 22(1/2), 99-118.

Singla, A. R. (2008). Impact of ERP systems on small and midsized public sector enterprises. Journal of Theoretical and Applied Information Technology, 4(2), 119-131.

Staehr, L., Shanks, G., & Seddon, P. (2012). An Explanatory Framework for Achieving Business Benefits from ERP Systems. Journal of the Association for Information Systems, 13(6), 424-465.

Volkoff, O., Strong, D. M., & Elmes, M. B. (2007). Technological Embeddedness and Organizational Change. Organization Science, 18(5), 832-848.

Wagner, E.L., Newell, S., & Piccoli, G. (2010). Understanding project survival in an ES environment: a sociomaterial practice perspective. Journal of the Association for Information Systems, 11(5), 276-297.

Walsham, G. (1995). Interpretive case studies in IS research: nature and method. European Journal of Information Systems, 4(2), 74-81.

Ward, J., & Daniel, E. (2006). Benefits Management: Delivering Value from IS & IT Investments (1st ed.): John Wiley.

Ward, J., & Daniel, E. (2012). Benefits Management: How to Increase the Business Value of Your IT Projects (2nd edition ed.): John Wiley. ISBN 1118381599

Yen T. S., Idrus R., & Yusof U. K. (2011). A Framework for Classifying Misfits Between Enterprises Resource Planning (ERP) Systems and Business Strategies. Asian Academy of Management Journal, 16(2) 53–75.

Yin, R.K. (2009). Case study research: Design and methods (Vol. 4), Sage Publications. ISBN 141296099.

Zammuto, R. F., Griffith, T. L., Majchrzak, A., Dougherty, D. J., & Faraj, S. (2007). Information Technology and the Changing Fabric of Organization. Organization Science, 18(5), 749-762.

Zach, O., (2011). Exploring ERP System Outcomes in SMES: A Multiple Case Study. ECIS 2011 Proceedings.

<Article 2>

Anaya, Luay Ahmad. (2014). How A newly Established Company Realizes the Benefits of ERP Implementation: A Palestinian Case Study. *Paper presented at the Annual Conference of the UK Academy of Information Systems (UKAIS),* Oxford, April 2014, UK.

http://aisel.aisnet.org/ukais2014/21/

Spring 4-9-2014

How A Newly Established Company Realises The Benefits Of ERP Implementation: A Palestinian Case Study

Luay Anaya
University of Agder, luay.a.anaya@uia.no

HOW A NEWLY ESTABLISHED COMPANY REALISES THE BENEFITS OF ERP IMPLEMENTATION: A PALESTINIAN CASE STUDY

Luay Ahmad Anaya
Department of Information Systems, University of Agder, Kristiansand, Norway
Email: luay.a.anaya@uia.no

Abstract

Many organisations adopt large-scale enterprise information systems (EIS), because they are looking for more comprehensive benefits than those available from small, off-the-shelf software applications. However, adoption of EIS has often proved to be challenging and expensive. This work is designed as an inductive case study using a retrospective investigation to understand the process that allows a newly established company to obtain substantial benefits from an ERP system. The main contribution of this work is an improved understanding of how a successful implementation for the ERP system that incorporates some activities of benefits management framework but, without explicit adoption of these benefits managements techniques, can help organizations realise substantial benefits from the system. The results of this study also suggest that broad expectations and wide-ranging objectives are determined in the early stage, without detailed specification of the benefits. The findings also emphasise that a low level of customisation can lead to improved realisation of benefits.

Keywords: Enterprise Information System (EIS), Enterprise Resource Planning (ERP), Benefits Realization, Benefits Management, Newly Established Company / New Venture.

1.0 Introduction

Nowadays, many organisations both large and small adopt large-scale Enterprise Information Systems (EIS), especially Enterprise Resource Planning (ERP) systems, even when the process is challenging and expensive (Buonanno et al., 2005; Panorama Consulting, 2012; Seddon et al., 2010). This increasing adoption is because organizations are looking for greater advantages and benefits than those available from small information systems (Nori et al., 2009; Shiau et al., 2009). This is particularly the case for those organisations that consider EISs to be essential technological infrastructures that are needed for their survival and growth in the market (Hawking et al., 2004). In actuality, many organisations that have already implemented such systems reveal that the actual benefits of these systems fall short of

expectations and are not commensurate with the massive investments required for implementation (e.g., Al-Mashari, 2000; BCS, 2004; Microsoft & GFOA Consulting, 2012; Panorama Consulting, 2012).

Many studies have been conducted on benefits realization and benefits management in information systems and information technology (IT) projects (e.g., Ashurst et al., 2008; Doherty et al., 2012; Ward & Daniel, 2006). There have also been many studies conducted on benefits realization in EISs (e.g., Esteves, 2009; Seddon et al., 2010; Shang & Seddon, 2000; Staehr et al., 2012). These studies provide a worthwhile foundation for studying benefits realization in EISs by shedding light on relevant areas, including: benefits management processes (Ward & Daniel, 2006), developing benefits realization capabilities (Ashurst et al., 2008), benefits classification in ERP projects (Shang & Seddon, 2000), benefits realization of ERP in small and medium-sized enterprises (Esteves, 2009), the achievement of benefits in the post-implementation phase of ERP projects (Staehr et al., 2012), and success factors for benefits realization in information system developments (Doherty et al., 2012).

Surprisingly, despite the considerable information available from these studies, some organisations are still unhappy with the results of EIS implementation. For example, a recent study of ERP systems shows that only fifty per cent of 246 respondents from 64 countries realised greater than fifty per cent of expected benefits (Panorama Consulting, 2012). In 2013, this level of benefits realisation has deteriorated even further, as a more recent study (Panorama Consulting, 2013) found that only 26 per cent of organizations realised half or more of the expected benefits. Different studies attribute this lack of benefits realisation to the nonexistence or poor application of benefits management practices (Ashurst et al., 2008), dialectic between different stakeholders with different interests (Flak et al., 2008), poor technical competence (Rajapakse and Seddon, 2005), misfit between the culture introduced by the system and the existing organizational culture (Rabaai, 2009), and other such reasons.

Recently, Staehr et al. (2012) found that although there are many organizations that are not largely satisfied with the effects of enterprise systems, there are also organizations that are more satisfied and that realise substantial benefits from the implemented systems. However, these varied experiences motivated this work, which seeks to articulate a clearer understanding of how certain organizations are more satisfied and more able to extract potential benefits from the enterprise systems.

Investigations on such an enquiry are suggested in many previous works (Doherty et al., 2012; Staehr et al., 2012; Schubert & Williams, 2011).

However, a majority of existing research is focused on well-established organizations, and a large number of previous studies do not mention whether the organizations studied were new ventures or well established. Therefore, it is clear that there is lack of studies investigating the implementation of enterprise systems in new ventures. One of the few studies conducted on ERP implementation in new ventures (Chen, 2009) reveals that ERP implementation is critical to new ventures and can facilitate organizational development. However, more research is needed to understand many issues about ERP implementation in new ventures and its role in business growth, survival, and benefits cultivation. In this study, we are interested in understanding what is happening when a new venture implements an ERP system and attempts to realise the benefits from the system. Thus, the research question that this study aims to answer is, "How do newly established companies realise the benefits of enterprise systems?"

This study investigates a Palestinian telecommunication company that is considered one of a new venture that has already implemented an enterprise system and is highly satisfied with the realised benefits. The company started its implementation of an ERP system in late 2008 so that the system would be ready when the company started its business operations in 2009.

The rest of the paper is structured as follows: Section 2 reviews a number of relevant studies and outlines the theoretical perspective that has been considered. Section 3 explains the methodological choices that have been applied. Results are shown in Section 4 and discussed in Section 5. Section 6 presents the conclusions.

2.0 Theoretical Background

In this section, we will review previous research on the impact of enterprise systems and the benefits that can be generated from these systems. This section also presents some concerns that influence the benefits realization from enterprise systems.

2.1 Effects of Enterprise Information Systems

EIS implementation is considered to be one of the most sophisticated kinds of IT projects, requiring high levels of investment, resources, attention and commitment (Yen et al., 2011). EISs are being increasingly implemented to solve business

problems by facilitating the flow and dissemination of information and automating business processes, among other benefits. Their potential is significant; therefore, studying these systems and their impacts is critical to help organisations gain value for their substantial EIS investments (Nori et al., 2009).

Many researchers have conducted studies about the benefits of EISs and have found that successful implementation can affect organisations significantly. One such comprehensive classification study, conducted by Shang and Seddon (2000), found five benefit dimensions (operational, managerial, strategic, IT infrastructure, and organisational) and 25 benefit sub-dimensions that organisations can achieve from their investments in enterprise systems. A later work by the same authors, (Shang and Seddon, 2004), a study of four medium-sized enterprises, found that four organisations obtained distinct benefits within the five dimensions and that the impacts of these benefits were different among organisations. EISs can also be implemented by smaller enterprises. Singla (2008) showed that EISs may yield substantial benefits for small- and medium-sized firms that adopt enterprise systems and that the risks that emerge from adoption do not exceed the expected value.

On the other hand, despite the many benefits that can emerge from EISs, many studies show that these benefits cannot be easily captured, and not all are relevant to all firms that adopt EISs. Al-Mashari (2000) found that 70 per cent of ERP systems fail to deliver the expected benefits. A more recent study on enterprise systems conducted by Panorama Consulting (2012) showed that this unpleasant picture has not improved; the study found that only 50 per cent of organisations are realizing their most anticipated benefits from EISs. Rajapakse and Seddon (2005) went further when they revealed that the implementation of enterprise information systems may not be a proper solution for firms in developing countries due to financial, technical and cultural issues. Most importantly, according to some studies, the poor benefit realization is more complicated in small and medium-sized enterprises (SMEs) because the implementation of 'commodity' enterprise information systems may force a more rigid organisational structure and hence weaken the competitive advantage that was based on such SMEs' flexibility and low standardisation (Olsen & Sætre, 2007; Yen et al., 2011). Also, some contextual factors related to the dynamic nature of SMEs may constrain the realisation of benefits, such as labour cost saving, that have a dramatic impact on large organisations but are not considered vital benefits for SMEs (Zach, 2011).

However, some authors have suggested the benefits management approach. This approach can help organizations identify their expectations and construct a plan to achieve these expected benefits through a structured process. The importance of such a planning approach is that it addresses the technical, organizational and other barriers that may prevent benefits from being realised (e.g., Ashurst et al., 2008; Doherty et al., 2012; Peppard et al., 2007; Ward & Daniel, 2006). On the other hand, a study by Haddara and Paivarinta (2011) challenged benefits realisation practices. The authors found that the benefits from ERP systems, particularly in SMEs, are obvious or 'self-evident', such that they do not require formal efforts in order to be realised. Reasonably, these different findings motivate the development of further investigations to understand the process of benefits realization. It is worth questioning if the benefits from enterprise systems are 'self-evident' and it is not necessary to apply benefits management approaches to realise such benefits, as found by Haddara and Paivarinta (2011), then why many organizations are still unsatisfied with the ERP benefits, as found in more recent studies (e.g., Panorama Consulting, 2013). It also becomes more interesting to understand the aspects of the benefits management approach that have made some authors suggest it as a way to realise the benefits of ERPs and to investigate if successful organizations that realise substantial benefits from ERPs are applying such practices.

2.2 Benefits Management Framework

To realise EIS benefits, many authors have suggested the development of a plan that determines and suggests a way to execute the expected benefits and entails a collective work toward the achievement of these benefits within a management process. In this regard, Ward and Daniel (2006) and Peppard et al. (2007), among others, studied the benefits realization issue in IT/IS projects, contending that the possession of a technological information system in itself has no inherent value and will not automatically confer the expected benefit to the business (Peppard et al., 2007). Hence, to realise the full value of implementing an information system, these authors recommend that organisations develop benefits management processes to continually work toward desired benefits. There are different benefits management frameworks, but one of the most common frameworks is the one suggested by Ward and Daniel (2006), which is widely used in information system studies (e.g., Braun et al., 2009; Hellang et al., 2013). Figure 1 shows the different stages of the benefits

management process, which starts with the active engagement and involvement of both business management and users to construct a benefits realization plan that has details like benefits sources and their relations to the adoption motives, action responsibilities, required business changes, and timelines for achievements. These sub-processes are called benefits identification and benefits planning. After that, the plan should be executed, the results monitored, and all stakeholders engaged in seeking new benefits, within continuing processes (Ward & Daniel, 2006).

Arguably, existing studies show that organisations that have developed information systems have rarely developed benefits management plans, and that there is a very limited number of organisations that have such processes in practice (Ashurst et al., 2008). Ashurst and his colleagues (2008) attribute this to the lack of awareness of such practices, a lack of understanding of their importance, and organisations not being competent enough to implement them. Additionally, because this process is proactive, many organisations consider it a waste of money as long as the system has been delivered, and simply people started using it (Ashurst et al., 2008).

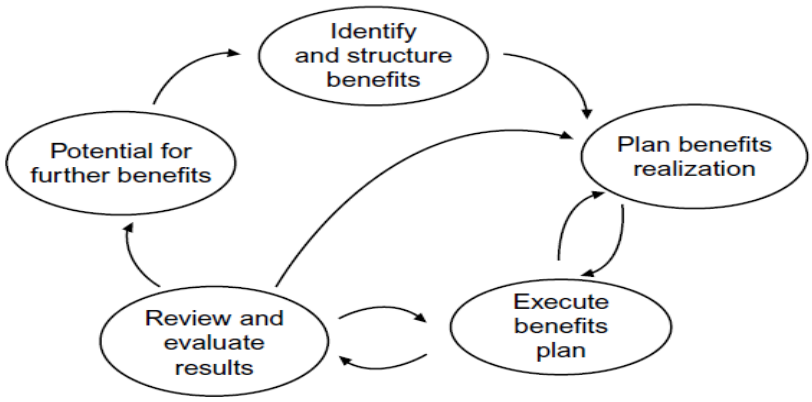

Figure 1. Benefits management framework by Ward and Daniel (2006).

However, this benefits management approach will be considered a theoretical foundation for guiding data collection and analysis to show the efforts that the company does to realise the benefits, and attempt to perceive these efforts based on the illustrated benefits management framework.

3. Research Methodology

The data that was collected is qualitative; this is because the best way to grasp people-dependent knowledge is by understanding the social world from the viewpoints of the people themselves, through detailed descriptions of their cognitive and symbolic

actions, and through the richness of meaning associated with observable behaviours for those people (Wildemuth, 1993 cited in Myers, 2000). This information can be acquired through qualitative methods, which can enable the researcher to conduct deep explorations, and through writing 'thick' descriptions about the phenomena under investigation, which generates sufficient details for the reader to grasp the 'idiosyncrasies' of the situation (Myers, 2000). The semi-structured interviews were the primary data source in this study because they enabled the researcher to access the people-dependent knowledge by understanding the social world from the viewpoints of the people who are working in the systems (Walsham, 1995). Besides conducting the interviews, the researcher also triangulated the data collection with observation and document analysis.

Regarding the methods, this research adopted the case study method, as this method is recommended when the research objective is to explain, explore and describe and when the study aims to generate answers to questions like why, what and how (Yin, 2009), which is in line with the research question that this work aims to answer. Another important aspect to this methodological choice is that the case study method allows investigators to maintain the holistic and meaningful characteristics of real-life events, such as the specific life cycle of organisational and managerial processes (Yin, 2009), the implementation process of an enterprise system (Davenport, 2000), and the process of benefits management (Ward & Daniel, 2006).

3.1 Data Collection

The data collection was from variety of people within the company. In this research, it is assumed that reality is subjective, so different people working on different business functions may not necessarily have the same interpretation of benefit realization from enterprise systems. This kind of representation of different voices was vital to the research findings and can most likely help in avoiding the data bias (Myers and Newman, 2007).

Table 1 provides details about the interviewees, their business roles, and the interview duration of each interview.

Interviewee Code	Role	Duration in Minutes
A1	Chief Financial Officer (CFO) & Project Sponsor	45
A2	Head of Accounting Section & Functional Consultant	110
A3	Financial Accountant	45
A4	Inventory & Fixed Assets Accountant	50
A5	Technical Consultant & Application Administrator	60
A6	Cash Management Accountant	40

Table 1. List of the interviewees.

Regarding the reporting media, a tape-recording technique was used, as this technique helped the researcher to capture participants' views and interpretations in a more effective way (Walsham, 1995). This was supplemented with a note-taking technique to draw the most important interpretations and record the non-verbal events. Later on, the researcher used transcribing to provide a 'thick description', or the complete story about what is happening with regard to benefits realization and the use of the enterprise information system.

3.2 Data Analysis

The data collection and data analysis were conducted in such a way as to complement each other, so the data collection was initially guided by a deal of existing research and relevant previous studies that provided a reasonable starting point for data collection. These studies were largely represented in the interview protocol. The interview protocol was prepared to direct the interviews to develop clear understanding about the implementation process, and to understand the efforts that had been put before and after the system's implementation, and to investigate if the benefits were expected or emerge after the implementation. The protocol has also inquiries about the aspects that influence the benefits realization like training, support, availability of IT people and their competence, customization, system's flexibility, the consulting company that implemented the system, and other such factors that may emerge through data collection.

Afterwards, the collected data was analysed on a high level to infer interesting themes from individual interviews, and subsequently, the data collection guide, which

is the interview protocol, was improved to address the issues that emerged in subsequent interviews. The next stage was to combine the dominant themes to articulate a set of interesting issues expressed by the participants. This stage provided a set of descriptive data that was meaningful to participants and used by them to reflect on their experiences on the ERP system and their perceived benefits from the system, besides the challenges that they had faced to gain such benefits. The goal of conducting such a stage is to develop what is called "first order analysis," as suggested by Gioia and Chittipeddi (1991). Lastly, the focus was to derive an explanatory framework to express the full story from a more theoretical perspective using what is called "second order analysis" (Gioia and Chittipeddi, 1991).

4.0 Results Analysis

This section presents a description for the case under study. Further, it demonstrates the key theme findings of this study.

4.1 The Case Study

The data collection occurred in Palestine, which is an Arabian developing country, as there is a need for more in-depth studies of information systems in this geographical area (Walsham and Sahay, 2006). This study investigates a Palestinian company called Wataniya Mobile. The company is a second provider of mobile telecommunication services in Palestine and started its business operations in 2009. The company is the third-largest listed company on the Palestine Exchange in terms of its market value, which amounted to approximately $300 million at the end of 2012, representing about 13.8% of the Al-Quds Index. With regard to its customers, within its first three years of business operation, the company engaged about 600,000 subscribers in the West Bank alone. This success was despite the political and economic instability and crises that have been affecting Palestine. Wataniya Mobile has invested heavily in technology; in 2012 alone, the company invested U.S. $21.4 million for network upgrades and operational information systems. By the end of 2012, the company had 419 employees, of whom 397 (representing about 95% of the company staff) had bachelor's degrees and above, whereas the company had only about 150 employees when the system's implementation started in late 2008. The company started the implementation of Oracle E-business suite, which is classified as tier 1 global product (Panorama Consulting, 2013). Many fundamental modules (e.g. general ledger, account receivable, account payable) of this wide and global system

were ready to be used in November 2009, when the company launched its services to customers. This system has been viewed as important component in the technological infrastructure for the company to help in introducing its business services and streamlining business processes and in leading the company towards more growth.

Investigation on such companies is very attractive, as described by Santos and Eisenhardt (2009), because the telecommunication industry represents the emergence of numerous nascent markets, and such organizations are relatively young companies. Wataniya Mobile, particularly, is an interesting company to be studied because of the following characteristics: First, the company was established in 2009, so it does not have the historical background and traditional cultural aspects that resist modern culture (including organized processes for decision making and a profound reliance on technology and digital means), which is embedded in the implemented system. This cultural conflict has made some researchers (Rabaai, 2009; Rajapakse & Seddon, 2005) argue that enterprise systems are not appropriate solutions for companies in developing countries. In this case, the cultural aspect does not seem to exist. That means that the company is not attracted to traditional working means; rather, it is a new company that needs an enterprise system as a motive for introducing a modern way for doing business work based on international standards. Second, Wataniya Mobile in particular is rapidly growing in the market; the company's operating revenue jumped from $38.3 million in 2010 to $84.1 million in 2012. It will be interesting to study how a fast-growing company implemented its enterprise system. Third, the company employees have strong competences (for instance, more than 95% of them have bachelor or higher degree). Competent people are less likely to have problems in dealing with technological systems, which is, again, related to cultural and technical competences, which is one reason attributed to the lack of benefits realization from enterprise systems in previous studies (Rajapakse & Seddon, 2005).

4.2 Results

As mentioned in Section 3, the data analysis was accomplished using first-order and second-order analysis, as suggested by Gioia and Chittipeddi (1991). This section shows how the first-order analysis emerged from the content analysis of the participants' views. The first-order concepts are intimately developed by initial coding of the participants' expressions and observational data to represent an 'emic' analysis (Belk et al., 2012). Then, these first-order concepts are aligned with appropriate theoretical themes that are introduced by discovering similar patterns or themes

among the concepts (Miles and Huberman, 1994). These extracted themes can explain all corresponding first order concepts; this presents the 'etic' analysis (Belk et al., 2012). Grouping the related second-order (theoretical) themes can help us understand the main dimensions of the existing practices to provide generic constructs (Miles and Huberman, 1994). These details—the first-order concepts, the second-order themes, and the populated dimensions—are illustrated in Figure 2, which presents the data structure for these findings. In the following section, there is a detailed description for the findings' themes.

4.2.1 Developing adoption motives

Before the implementation, Wataniya Mobile established a steering committee to study the company needs and to suggest the most appropriate solution to help the company manage its business operation and business growth. The head of the committee was the chief financial officer (A1), who believes that the ERP is the most appropriate solution for the company, if not the only one. He said, "If we want a system to serve and integrate the overall business units, and to provide a unified, flexible system to enable all people working in the system simultaneously and to meet our future needs, then we don't have many alternatives other than an ERP". The head of accounting section (A2) emphasized the same issue about serving and integrating all business functions, saying that "instead of adopting a system for accounting, one for administration, one for procurement, and so on, we can implement a comprehensive ERP system which integrates all of these business functions without fragmentations". At the same time, different interviewees (e.g., A1, A2, A3, and A6) highlight that the company environment requires such types of systems. They believe that the telecommunication industry is a complex business, deals with a mass of customers (several millions), and also deals with services that require effective and smart business decisions. At the same time, the telecommunication industry relies on technology that is quickly growing and changing. These aspects give the company one solution, which is an ERP system. Furthermore, most of the interviewees considered the system to be critical in helping the company meet potential growth. In this regard, the senior employee who is responsible for assets management (A4) indicated that "the company is a recently established business, so it needs a system to help us instituting a solid base of business practices that can help us now and in the future".

The fore-mentioned motives and drivers for ERP adoption can be summarized as follows: integrating business functions, meeting the needs of a company working in the telecommunications industry, dealing with multiple users, fostering potential growth, and allowing the system to provide best practices for business work. These aspects, which can be considered the expected benefits from the system, motivated the company to adopt an ERP system, and the company's efforts were focused on achieving these expectations.

4.2.2 Preparing the team and developing the technical competence

To achieve the expected benefits, the company put huge efforts on the team that would participate in the implementation. The project sponsor (the CFO, A1) had previous experience in same ERP system product (Oracle E-Business Suite) in the telecommunications industry, so he was familiar with the system and its complexity. Similarly, a key functional consultant (A2), who is now the head of the accounting section, was engaged in the project because he also had experience in the product and in ERP implementation in a telecommunications company. Furthermore, the project manager, who has deep technical skills as an IT professional, formerly worked on many projects, including ERP projects. This project manager was empowered and became part of the finance department rather than the IT department, reporting directly to the project sponsor. The CFO (A1) emphasized that the appointment decisions regarding new staff consider the ability of the new employees to work on the ERP system. It is worthwhile to note that the training is given to many employees but not to all of them, and every senior staff member worked together with junior staff to help them use the system in an effective way. The assets accountant (A4) acknowledged that he got training, but assumed that "the training gives the basic principles to use the system, and it can cover only to 50% to 60% of my work, and the remaining is individual efforts". Therefore, he relies on himself for more on-going investigations about the system usage and features, training on his own by using the system's help tool, the Internet, and the manuals and by asking questions of the IT people and the consulting company that implemented the system. It seems that the team that participated in the implementation was competent enough to undertake the system's implementation, and these team members helped other staff members who use the system on a daily basis.

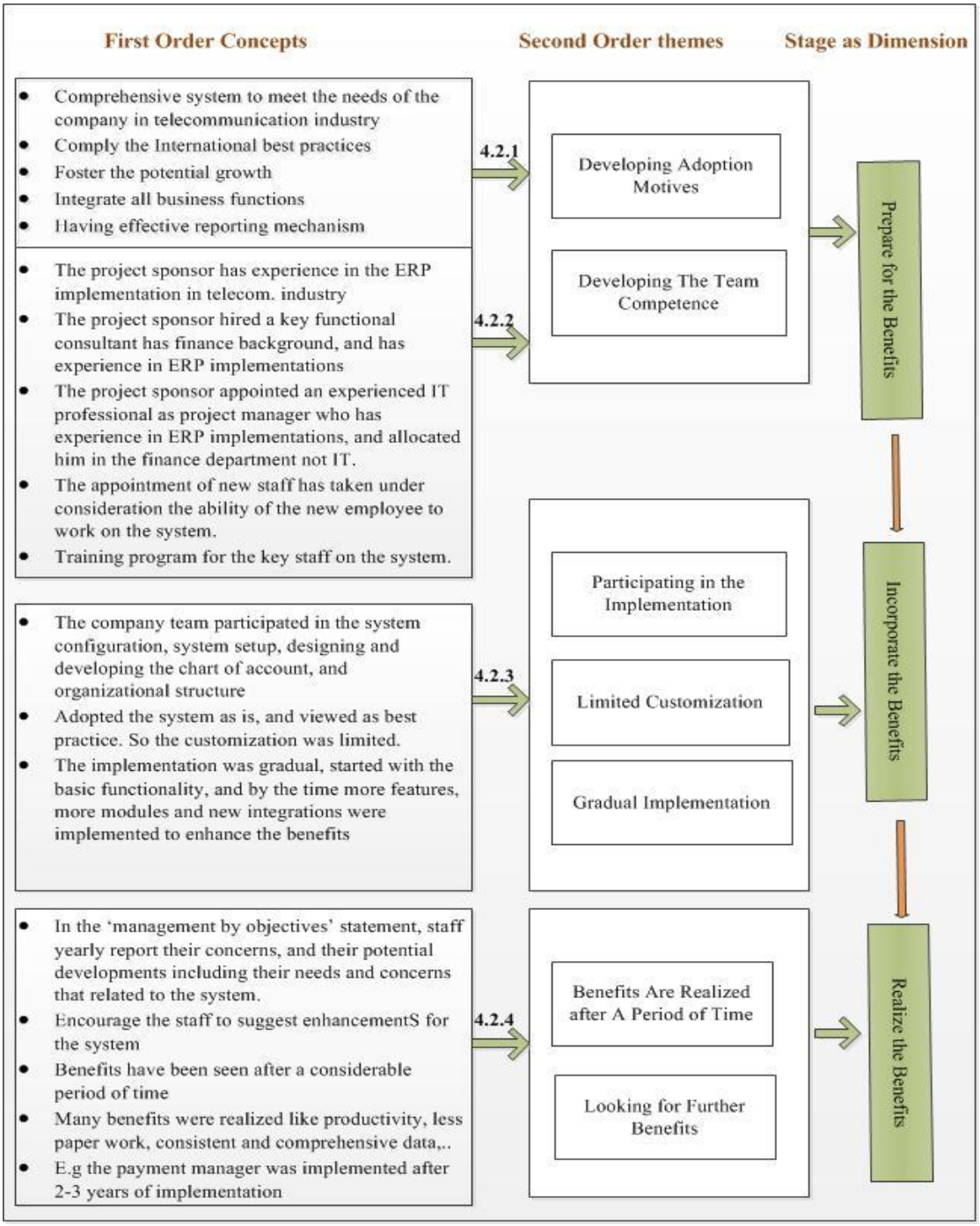

Figure 2. Data structure for the findings.

4.2.3 Participating in the implementation

In order to achieve what the company was interested in, many staff members from the company participated in the implementation. This strengthens what has been mentioned about preparing the team competencies, which showed the availability of people with solid technical competence and experience in the system's implementation. Therefore, the company team participated in the system configuration, system setup, and design and development of the chart of account. This

team participated with other business functions to develop the overall company requirements. As the project sponsor (A1) highlighted, “the project team, besides experts from the company business functions, were present with the company that implemented the system for working together to configure the system in a way to meet all of our needs and to achieve what we want, including our expectations to the future needs.” The head of the accounting section (A2) said that “Initially, the design of the chart of account was very simple, but through the system configuration, when we discussed that with the company that implemented the system, and we raised our future needs and our expectations about having branches for the company, and our needs about the interest to have the budget, cost, revenue in different levels, we came up with other chart of account that is flexible to meet our future needs”.

Another important aspect is the gradual implementation of the system. Regarding this theme, the project sponsor (A1) said, “We started with the basic functions, and when we felt these are stable, we started to focus on the other functions and features.” To clarify, he gave an example, saying, “I cannot tell a person to swim in a deep lake if he doesn’t have experience in the swimming, so he has to swim firstly in a small lake then he became able to swim in deeper lake.”

However, most of the interviewees stressed that the system customization was very limited and the system was implemented to impose its logic onto the organization’s practices. The interviewees expressed that they assumed the system was built based on the business principles in that discipline. For example, the head of accounting section (A2), the assets accountant (A4), and the financial accountant (A3), in addition to the chief financial officer (A1), shared same meaning that “the system brought the financial principles that we learned at the school, for this reason we assumed the system should be adopted as is with limited customization to bring the international standards and the business principles in our field, and this could help us to grow in effective way.” In a further discussion, they assumed that the huge modifications in the system may affect its consistency, and this may raise errors and problems in later stages. Most importantly, because the company was recently established, they wanted their business work to be built based on international standards and international business principles, especially since the company does not have old business practices that the people are accustomed to working with, which may conflict with any new business practices that could be suggested by the system.

4.2.4 Achieving benefits from the system

Although the company has many experienced people, and despite the training that has been conducted to explain the system features and to illustrate the proper way to use the system, the informants expressed that the state was unstable and the benefits were not clearly seen in the first year after implementation. This unsettled situation may be because in that period, a significant number of employees used the system for the first time, and many of them were not familiar with the whole process or aware of the impact of a particular transaction on the overall process. This is in addition to the errors, problems, and the system bugs that arose in the beginning of the implementation and took time to be resolved. After that, the system became stable and many of the expected benefits were seen. As the informants mentioned, the system provided great benefits, such as accurate transactions, a clear and integrated business cycle, streamlined organizational processes, consistent and comprehensive data, less paperwork, a reduced amount of manual work, solid segregation of duties among company staff, increased business growth, and increased productivity, among others. In addition, every business unit had its own business process and data flow according to the best practices in that field. However, at the beginning of every year since implementation, the company staff members are encouraged to submit suggestions about how his/her work could be improved by the system and to submit any features or system capabilities that could help the company take more benefits from the system. Interestingly, the cash management accountant (A6) raised the issue that "by the time the benefits are increasingly achieved, as many features were not needed because at that time we didn't have the need for that, but now as the company is growing, more requirements and needs become essential". To clarify that, she gave the example of the feature called 'Payment Manager', which is considered an add-on feature that can be bought and adopted separately based on need. In the beginning, this feature was not available, but after two or three years, the staff experienced difficulties in the existing payment process, which was complex and comprised some manual work. These challenges motivated a number of the company employees to raise the issue in their yearly evaluation. As a result, the project team that was responsible for the project consulted the company that executed the system implementation, which recommended applying the 'payment manager' module.

5.0 Discussion

The benefits management framework is seen as a theoretical base that can explain the emerged model in Figure 3, which is the model that represents the study findings (second order or the theoretical themes) and the constructed dimensions as stages. From the findings section, it is clear that even though the Wataniya Mobile does not have a formal benefits management technique, it did deliberately design a set of activities in a stage-based approach to help the company realise the expected benefits from the ERP system. These stages help the company prepare for the benefits before implementation, incorporate the benefits through implementation, and realise the benefits after implementation.

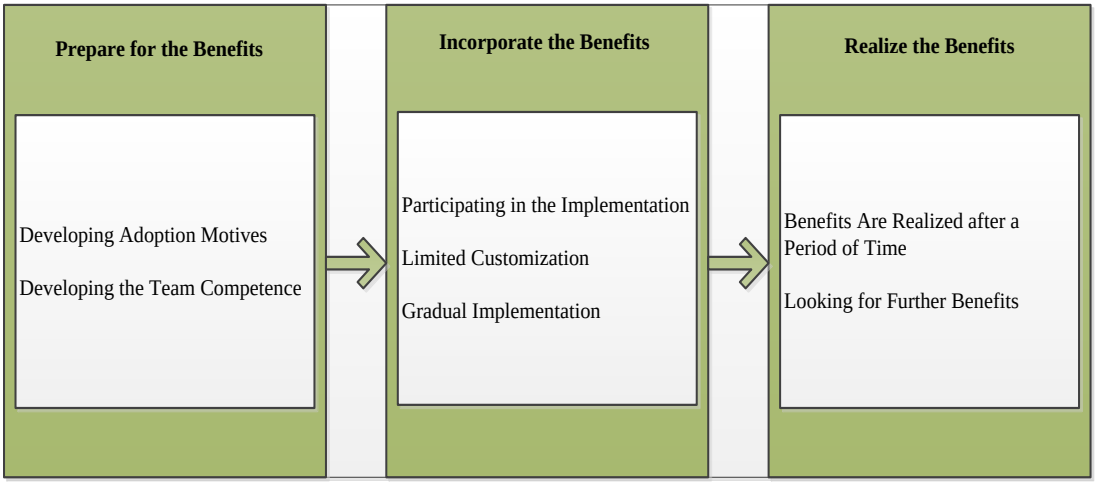

Figure 3. Benefit realization activities for implementing an EIS in a newly established company.

Prepare for the Benefits Stage: In this stage, the company prepares for the benefits or advantages that the company is looking to achieve from the system. In this study, the company presented the main broad drivers for system implementation without a clear link between the corporate drivers (or the motives that provided the real need of the system) and the expected benefits (as more detailed advantages) and without defining performance indicators for the expected advantages. This is plausible because the company team decided to implement the system to accomplish broad objectives and general expectations, not specific ones, and the team therefore thought the detailed benefits would be accumulated after the system was in use in the form of desired outcomes like accurate transactions, a clear and integrated business cycle, and streamlined organizational processes, among others. Therefore, it is clear that the

company doesn't have a clear picture about the all the benefits in the early stages. However, even this aspect did not establish clear measurements for the achievement level. Instead, the company analysed the drivers of the investment objectives and assigned the module responsibilities to the respective staff according to their working needs. These activities can be aligned to the 'Identify and structure benefits' process (the first process) in the benefits management framework (Ward and Daniel, 2006).

Furthermore, the company prepared the staff members who would participate in the implementation and would use the system. The project sponsor, the head of accounting and the project manager from the company side, in addition to other key staff like the financial accountant and the assets management accountant, already had experience in the system and had participated in the system implementation in previous organizations. However, having this expertise before implementation was a key issue that helped the company realise great benefits. This issue was fundamental to success because the team became capable of competently preparing the system requirements and conducting the proper configuration, which took under consideration existing needs as well as needs for future growth. The expertise and the technical competence aspects have been highlighted in previous studies, and are two of the aspects that can be attributed to a lack of benefit realization (Rabaai, 2009; Rajapakse & Seddon, 2005). Furthermore, in well-established companies, the main concern has been accommodating existing business practices and resolving the conflicts that are created because of the system, which is also another aspect that influence the delivery of the system outcomes (Hawari and Heeks, 2010; Peng and Nunes, 2010; Soh et al., 2003). In this case, the conflict between the new system and existing practices did not exist; instead, the concern was competence. For this reason, developing the competence and hiring competent people is a critical aspect of preparation for a new venture, and it can be considered a very significant preparation effort that must be accomplished before implementation. Furthermore, because the company was newly established, it was easier to hire experienced people to participate in the implementation. In well-established companies, it may not easy to replace existing staff. Introducing training programs for existing staff can help, but it cannot lead to well-experienced staff for the system implementation. This kind of preparation before the implementation can be considered a planning issue to ensure the successful achievement of the system benefits. Thus, it can be aligned with the second process in

the benefits management framework (Ward & Daniel, 2006), which is 'Plan benefits realization'.

Incorporate the Benefits Stage: The company team engaged in the system implementation, so they participated in the system configuration and raised some suggestions and issues to be considered, such as designing and configuring the chart of account. Additionally, Wataniya Mobile dealt with the system as a best practice for its business work, so the level of customization was very limited. Therefore, the company was more able to realise the benefits. Rabaai (2009) found that customization should be minimized to prevent a lack of fit between the organizational culture and the new system, since extensive customization and modification can lead longer to implementation time, new bugs may be raised, and most importantly, the new modifications will not be consistent with the system logic. When any of these happens, it makes it difficult for an organization to gain the expected benefits. New ventures usually don't have the existing practices to customize systems into; however, the considerable level of customization that well-established companies do creates inconsistencies and can affect benefit realization (Peng and Nunes, 2010; Rabaai, 2009). On the other hand, some studies encourage organizations to customize their systems, arguing that customization can lead to task efficiency and greater coordination (Chou and Chang, 2008). However, in this case, having strong competencies from the previous stage helped the key staff to actively participate in the implementation. This kind of participation was important in ensuring the achievement of the system benefits and can be aligned to the process 'Execute benefits plan', which is the third process in the benefits management framework (Ward & Daniel, 2006).

Realise the Benefits Stage: The real benefits are shown in this stage. In this study, the company gained various benefits, including: accurate transactions, a clear and integrated business cycle, streamlined organizational processes, consistent and comprehensive data, less paperwork, a reduced amount of manual work, solid segregation of duties among the company staff, increased business growth, increased productivity, and a situation in which every business unit has its own business process and data flow according to the best practices in that field, among others. It can be argued that all of the fore-mentioned benefits are relevant to all kinds of companies, both newly established and well established, because these benefits can lead to more effective management. In fact, most of these benefits are referred in different studies

(e.g., Shang and Seddon, 2000). In this case, Wataniya Mobile is continually working to achieve further benefits, so the company employees have been encouraged to offer suggestions for better use, even if the suggestions require buying or adopting new features that were not originally equipped with the system. These activities can be aligned to the last two processes—'Review and evaluate results' and 'Potential for further benefits'—in the benefits management framework.

6.0 Conclusion

This study has shown that enterprise systems are important for new ventures, and can help them create considerable benefits for organizations. However, these benefits may not be clearly seen in the early stages of implementation; rather, an organization may have broad expectations or general drivers that motivate it to implement a new enterprise system. New ventures can also develop planning and management processes based on these broad expectations and motives. Consequently, the benefits can be generated as outcomes after implementation. Figure 3 presents a set of activities based on different stages that show how a newly established company realises the benefits of an enterprise system. In this case, the key aspect that helped the new venture realise many benefits was having experienced and competent people who were aware of the system functionality and features, and they were available all the time within the company. Finally, this paper suggests doing further empirical research on other organizational settings, such as well-established companies that have existing systems and routines, to understand how benefits are realised in such kinds of organization. This paper also suggests conducting more empirical research to understand how organizations realise the unexpected benefits that emerge in practice.

Acknowledgement

The author would like to thank the paper reviewers, beside the supervisors Leif Flak and Dag Olsen for their insightful comments, and would like to thank the case interviewees, particularly, the CFO Fadi Abdellatif, and the functional consultant Haytham Alshamali, in addition to the other participants for their time and support. The author is also grateful to Saeed Zeidan, the CEO of Ultimate Solutions that participated in the implementation for his time, cooperation and support.

References

Al-Mashari, M. (2000) *Constructs of process change management in ERP context: A focus on SAP R/3*, In Proceedings of the Sixth Americas Conference on Information Systems. Long Beach, CA. 977-980.

Ashurst, C., Doherty, N., & Peppard, J. (2008) *Improving the impact of IT development projects: the benefits realization capability model*, European Journal of Information Systems, 17(4) 352-370.

BCS (British Computer Society). (2004) The Challenges of Complex IT Project, The Royal Academy of Engineering.

Belk, R., Fischer, E. & Kozinets, R. (2012) *Approaches to Analysis, Interpretation and theory Building for Scholarly Research*, In Qualitative Consumer and Marketing Research, Thousand Oaks, CA: Sage.

Braun, J., Ahlemann, F., & Riempp, G. (2009) Benefits management—A literature review and elements of a research agenda. Paper presented at the Wirtschaftinformatik Proceedings 2009.

Buonanno, G., Faverio, P., Pigni, F., Ravarini, A., Sciuto, D., & Tagliavini, M. (2005). Factors affecting ERP system adoption: A comparative analysis between SMEs and large companies. Journal of Enterprise Information Management (Formerly: Logistics Information Management), 18(4), 384-426

Chen, J.-R. (2009). An exploratory study of alignment ERP implementation and organizational development activities in a newly established firm. Journal of Enterprise Information Management (Formerly: Logistics Information Management), 22(3), 298-316.

Chou, S. W., & Chang, Y. C. (2008) *The implementation factors that influence the ERP (enterprise resource planning) benefits*, Decision Support Systems, 46(1) 149-157. doi:10.1016/j.dss.2008.06.003.

Davenport, T. (2000) Mission Critical: Realizing the Value of Enterprise Systems, Boston, MA: Harvard Business School Press.

Doherty, N., Ashurst, C., & Peppard, J. (2012). *Factors affecting the successful realisation of benefits from systems development projects: Findings from three case studies*. Journal of Information Technology, 27(1) 1-16.

Esteves, J. (2009). *A benefits realisation road-map framework for ERP usage in small and medium-sized enterprises*, Journal of Enterprise Information Management, 22(1/2) 25-35.

Flak, L., Nordheim, S., & Munkvold, B.E. (2008). *Analyzing stakeholder diversity in G2G efforts: combining descriptive stakeholder theory and dialectic process theory*, e-Service Journal, 6(2) 3-23.

Gioia, D. A., & Chittipeddi, K. (1991) *Sensemaking and sensegiving in strategic change initiation*, Strategic Management Journal, 12(6) 433-448.

Haddara, Moutaz, & Paivarinta, Tero. (2011) *Why Benefits Realization from ERP in SMEs Doesn't Seem to Matter?* Paper presented at the System Sciences (HICSS) 2011 44th Hawaii International Conference.

Hawking, P., Stein, A., & Foster, S. (2004) *Revisiting ERP Systems: Benefit Realisation*, In Proceedings of the 37th Hawaii International Conference on System Sciences.

Hawari, A., & Heeks, R. (2010) *Explaining ERP failure in a developing country: A Jordanian case study*, Journal of Enterprise Information Management (Formerly: Logistics Information Management), 23(2) 135.

Hellang, Ø., Flak, L., & Päivärinta, T. (2013) *Diverging approaches to benefits realization from public ICT investments: A study of benefits realization methods in Norway*. Transforming Government: People, Process and Policy, 7(1) 93-108.

Microsoft and GFOA Consulting. (2012) The Real Impact of ERP Systems in the Public Sector.

Miles, M. B., & Huberman, A. H. (1994) *Making good sense: Drawing and Verifying Conclusions,* In Qualitative Data Analysis. A Sourcebook for New Methods, Thousand Oaks, CA: Sage.

Myers, M. D. (2000) *Qualitative research and the generalizability question: Standing firm with Proteus,* The Qualitative Report, 4(3/4). Available: http://www.nova.edu/ssss/QR/QR4-1/myers.html.

Myers, M. D., & Newman, M. (2007) *The qualitative interview in IS research: Examining the craft,* Information and Organization (Formerly: Accounting, Management and Information Technologies), 17(1).

Nori, W., Ismail, N., & Zin, R. (2009) *ERPS—Management Accounting Practices*, Fit, Antecedents, and User Satisfaction, IPBJ, 1(1) 1-16.

Olsen, K. A., & Sætre, P., (2007) ERP for SMEs—is proprietary software an alternative? Business Process Management Journal, 13(3), 379 – 389.

Panorama Consulting. (2012) 2012 ERP Report: A Panorama Consulting Solutions Research Report.

Panorama Consulting. (2013) 2013 ERP Report: A Panorama Consulting Solutions Research Report.

Peppard, J., Ward, J., & Daniel, E. (2007) *Managing the realization of business benefits from IT investments*. MIS Quarterly Executive, 6(1) 1-11.

Peng, G. C., & Nunes, M. B. (2010) *Why ERP Post-Implementation Fails? Lessons Learned from A Failure Case in China,* In Proceedings of the 14th Pacific Asia Conference on Information Systems.

Rabaa'i, A. (2009) *The impact of organisational culture on ERP systems implementation: Lessons from Jordan,* In Proceedings of the Pacific Asia Conference on Information Systems 2009.

Rajapakse, J., & Seddon, P. (2005) *Why ERP May Not be Suitable for Organisations in Developing Countries in Asia,* In Proceedings of PACIS 2005, Bangkok, 1382-1388.

Santos, F. M., & Eisenhardt, K. M. (2009) *Constructing markets and shaping boundaries: Entrepreneurial power in nascent fields,* Academy of Management Journal, 52(4) 643-671.

Schubert, P., & Williams, S. (2011) *A framework for identifying and understanding enterprise systems benefits,* Business Process Management Journal, 17(5) 808-828.

Seddon, P., Calvert, Ch., & Yang, S. (2010) *A Multi-Project Model of Key Factors Affecting Organizational Benefits From Enterprise Systems,* MIS Quarterly, 34(2) 305-328.

Shang, S., & Seddon, P. (2000) *A comprehensive framework for classifying the benefits of ERP systems,* The Americas Conference on Information Systems.

Shang, S. & Seddon, P. (2004) *Enterprise Systems Benefits: How Should They Be Assessed?* Pacific Asian Conference on Information Systems (PACIS).

Shiau, W. L., Hsu, P. Y., & Wang, J. Z. (2009) *Development of measures to assess the ERP adoption of small and medium enterprises,* Journal of Enterprise Information Management, 22(1/2) 99-118.

Singla, A. R. (2008) *Impact of ERP systems on small and midsized public sector enterprises,* Journal of Theoretical and Applied Information Technology, 4(2) 119-131.

Soh, C., Kien Sia, S., Fong Boh, W., & Tang, M. (2003) *Misalignments in ERP Implementation: A Dialectic Perspective*, The International Journal of Human-Computer Interaction, 16(1) 81.

Staehr, L., Shanks, G., & Seddon, P. (2012). *An Explanatory Framework for Achieving Business Benefits from ERP Systems*, Journal of the Association for Information Systems, 13(6) 424-465.

Walsham, G. (1995). *Interpretive case studies in IS research: Nature and method*, European Journal of Information Systems, 4(2) 74-81.

Walsham, G., & Sahay, S. (2006) *Research on information systems in developing countries: Current landscape and future prospects*. Information Technology for Development, 12(1) 7-24.

Ward, J., & Daniel, E. (2006) Benefits Management: Delivering Value from IS & IT Investments (1st ed.): John Wiley.

Yen, T. S., Idrus, R., & Yusof, U. K. (2011) *A Framework for Classifying Misfits Between Enterprises Resource Planning (ERP) Systems and Business Strategies,* Asian Academy of Management Journal, 16(2) 53-75.

Yin, R. K. (2009) Case study research: Design and methods (Vol. 4), Sage Publications. ISBN 141296099.

Zach, O., (2011) *Exploring ERP System Outcomes in SMES: A Multiple Case Study*, ECIS 2011 Proceedings.

<Article 3>

Anaya, Luay Ahmad (2014). Developing business advantages from the technological possibilities of enterprise information systems. *International Journal of Information Systems and Project Management, Vol. 2, No. 2, pp. 43-56. Available online* http://www.sciencesphere.org/ijispm/archive/ijispm-020203.pdf

International Journal of
Information Systems and Project Management
ISSN (print):2182-7796, ISSN (online):2182-7788, ISSN (cd-rom):2182-780X
Available online at www.sciencesphere.org/ijispm

Developing business advantages from the technological possibilities of enterprise information systems

Luay Ahmad Anaya
University of Agder
Department of Information Systems
Faculty of Social Sciences
P.O Box 422, 4604 Kristiansand
Norway
www.shortbio.net/luay.a.anaya@uia.no

Abstract:
Organizations are increasingly implementing Enterprise Information Systems (EIS), and Enterprise Resource Planning (ERP) systems in particular. Despite the notable studies on the advantages of an EIS, many organizations are not satisfied with the benefits or advantages gained. At the same time, it is assumed that such systems with increasing innovations and technological enhancements would generate abundant business advantages, if organizations exploited these opportunities. The investigation in this work drew on the sociomateriality perspective, using imbrication notion, and focused on a telecomm case study to examine how organizations can exploit the technological possibilities of an EIS to create business benefits. The study findings suggest that business benefits can be achieved when the EIS as a technical system is interwoven with the organizational work in which both dynamically change in practice (not from the technical features of the system), when the system provides interesting and beneficial technological possibilities that attract organizations, and when the firm has the organizational capabilities to translate these possibilities into real business benefits.

Keywords:
enterprise information systems (EIS); enterprise resource planning (ERP); sociomateriality; imbrication, technological possibilities.

DOI: 10.12821/ijispm020203

Manuscript received: 3 November 2013
Manuscript accepted: 28 February 2014

1. Introduction

Nowadays, business work is highly dependent on the advanced technology and, in many cases, it is difficult to accomplish the business work without information technology [1]. Organizations are increasingly adopting Enterprise Information Systems (EIS), even if implementing the system is challenging and expensive, because they are looking for greater advantages and benefits that are usually not obtainable in smaller systems [2],[3]. Many organizations that have implemented such systems have revealed that the realized benefits from these systems did not meet the organizations' expectations [3], [4]. Actually, there are several studies that have been conducted on the benefits of enterprise systems and provided rich insights (e.g. [5]-[11]).

A review of numerous studies shows that some adopted a variance model [5], [6]. For example, Gattiker and Goodhue [6] used organizational information processing theory to show that high interdependence among organizational subunits can lead to more benefits from an EIS. However, other studies drew their research upon process-based investigations based on social theories. For example, Staehr et al. [8] used structuration theory to understand the business consequences of ERP use. Staehr [9] also used structuration theory to review the benefits of ERP systems, especially to extend the benefits classification model suggested by Shang and Seddon [7]. In a later study, Staehr [10] used structuration theory to study the role of top management in achieving benefits from ERP systems. Most recently, Staehr et al. [11] applied process theory to study the factors that affect the benefit realization from ERP systems after implementation.

Orlikowski and others (e.g. [12]-[15]) argued that studies that use the variance model or information system studies that use traditional social theories, based on emergent process investigations, are not sufficient to study the modern applications of the technology in organizational life, because they do not clearly show the role of technology. It has also been argued that investigations in information systems field should provide its identity to offer compelling explanations for the importance of technology, and not viewing information systems studies as an extension of the reference disciplines like social or management studies that are more focused on the social aspects [12],[16].

Accordingly, an investigation of the underlying theoretical bases adopted in many studies raises a question about the extent that these studies can clearly explain all types of benefits and the extent these studies adequately emphasized the technological facet of the EIS in business advantages or in the reorganization. Some of these studies were based on research perspectives or theories that deal with technology as an exogenous and autonomous driver for business impacts [5], [6]; other studies dealt with technology based on the social actions and interpretations within a process [8]-[11]. These studies may underestimate the role of EIS in reorganization, or may have had difficulty exploring and explaining all kinds of potential benefits from enterprise systems, especially the unintended benefits that emerge in the practice based on the possibilities and opportunities that the technology offers. For example, the benefits that emerge in the practice from system integration with other technologies such as mobile services, or the email system, or any other emerging benefits that the technology offers and the social agency exploits, and put abundant efforts to make them real business benefits like the benefits gained from the accumulated data.

Using a contemporary view of technology in organizations, this work shows that real business advantages emerge in the practice through the interwoven agencies that represent the two sides, social and technology. Therefore, to understand how some benefits can be realized by organizations whereas other benefits are not apparent to all organizations requires paying attention to the use of technology and practice, but not only in the social agency. In doing so, this paper suggests a model that can provide rich insights for exploiting instances of the potential possibilities of enterprise systems, and show how they become real benefits after being implemented. Thus, the research question that motivates this work is: how can an organization exploit the technological possibilities of the enterprise information systems to create business advantages after the system is implemented?

To answer this research question, we attempt to articulate a conceptual framework based on a discussion of sociomateriality, relationality, and imbrication, and based on arguments derived from extant literature, mainly Leonardi

[1]. We applied data from a telecommunication company that implemented an ERP system to provide insights for the articulated framework.

The rest of this paper is composed as follows: Section 2 explores the role of technology in different theoretical perspectives in information systems research. Section 3 discusses the sociomateriality. A conceptual model to view enterprise systems based on sociomateriality is introduced in Section 4. Section 5 presents the data to support the constructed model, followed by a discussion in Section 6. Conclusions are in Section 7.

2. Technology in different theoretical perspectives

Information systems (IS) scholars develop research based on different theoretical foundations. As illustrated by Orlikowski [14], at the outset, researchers in the information systems field drew on theories that dealt with technology as a material playing a role, and viewed technology as an exogenous and relatively autonomous driver of organizational change. Thus, technology has considerable and predictable impacts on various human and organizational outcomes; an example of these theories is contingency theory [14]. Then information systems scholars challenged this notion. Many scholars adopted emergent process that assumes technology is a material artifact socially defined and produced by the people who engage in this technology [14]. This stream adopted the socio-technical system perspective, focusing on the ongoing dynamic interaction between people and organizations from one side, and technology from the other side, over time in an institutional context. These interactions, therefore, were understood in the context of an emergent process. Such theories are process theory, socio-technical, structuration, and institutional theories among others [13], [14]. However, within this same research stream, there are different conceptualizations among different theories. For example, in process theory the structure or the agency was a human agent doing things (events or activities) at some point in time within a context; thus, the focus is on the actors and events. In structuration theory, according to Orlikowski's [17] view, human agents draw on and shape structure (rules and resources) in practice; thus, the focus is on the technologies-in-practice shaped by human agents [15].

Arguably, the second stream, which adopts the emergent process perspective, has also been challenged, according to Orlikowski [14]. Scholars have argued that the emergent process perspective underestimates the huge capabilities and affordances of technology that can affect organizational work [14]. For example, structuration theory or even process theory focuses on the social as agent and ignore the technological capabilities that can form the agency, whereas institutional theory ignores the agency [14], [15], [18]. Furthermore, studies that adopt the emergent process perspective show how technologies can serve as an occasion for social reorganization but not how the material technologies might, in part, constitute the reorganization [19]. This standpoint makes many scholars look for new ways to theorize how technology can provide widely applicable insights to shape organizations and their practices and routines (e.g. [12], [20]). This perspective differs from other traditional information systems perspectives, because, as illustrated by Hassan and Hovorka [16], "sociomateriality does not make a black box out of the IT artefact or any other material element. In fact, it makes the material a key focus such that it will be possible to theorize and elaborate on its significance and interaction with other elements in different contexts".

In contrast, Mutch [21] criticized the sociomateriality perspective, although he acknowledged the importance of bringing the materiality aspect to organization studies. He contended that sociomateriality, which refers to agential realism (e.g. [22]), which is grounded in science studies, is not appropriate for studying the combination of the social and the material that is pertinent to organizational life, which is related to social studies. He also raised problems that, perhaps, face information systems scholars in practice, when they endeavored to theorize based on this perspective. He argues that if the empirical work does not reflect the ontological constitution between the technology and the organization, the traditional socio-technical approach can usually provide more plausible explanations for the empirical world. Mutch [21] also argued that in strong sociomateriality scholars, most likely, lose the ability to draw on fundamental concepts in the socio-technical approach such as roles or structure which are difficult to separate from practice, because the sociological analysis is not present. Most importantly, Mutch [21] believed that sociomateriality is

not applicable to studying enterprise systems that are large, data-intensive systems, because when drawing on such a notion scholars are not specific about the technology, and perhaps, they neglect the broad social context.

Responding to Mutch [21], Scott and Orlikowski [23] stressed that although sociomateriality is inspired by agential realism, sociomateriality does not focus on the physical properties of the materiality but assumes the properties and boundaries are inherent. Therefore, the constitutional ontology is opposed to viewing materiality as an object separate from the social aspect, which suggests conceptual and analytical tools for viewing the world and making sense of its existence in new ways. Furthermore, a reasonable critique about the application of sociomateriality concepts in some works "cannot constitute credible evidence against the original" [23]. In response to Mutch's criticism of the application of sociomateriality to studies focusing on enterprise systems, Scott and Orlikowski [23] believed a larger body of evidence would be needed before having such articulation, as sociomateriality is in its infancy. In the same regard, Leonardi [24] also responded to Mutch. Leonardi considered sociomateriality a promising theoretical perspective, and he confirmed that sociomateriality is influenced by agential realism, but now sociomateriality, as a theoretical perspective, is broader than agential realism. Leonardi, also, argued that critical realism, which Mutch suggested differs from agential realism, and he suggested for scholars to decide which approach to choose based on their empirical work.

Accordingly, this work on sociomateriality aims to contribute on this debate, by drawing on sociomateriality to study enterprise system implementation. In particular, we suggest a model that can provide high level of understanding about the technological possibilities that enterprise systems offer. The sociomateriality perspective is described in more detail in the following section.

3. Sociomateriality perspective

Sociomateriality, as a way of theorizing research, is a new perspective or a new research stream [12]. Sociomateriality can also be viewed as a meta-theory that provides a high level of abstract understanding about the phenomenon under investigation, to exhibit a way of thinking about the world, and not as an empirically testable explanation of social behavior [15]. However, sociomateriality assumes that organizations, people, and technology are not self-contained entities but are mutually constituted and entangled [12]. This ontological constitution, which underlies agential realism, rejects any kind of separation between the social and the material, therefore, the quest is for their existence. In this view, the technological system is a technical component that has material properties organized with the social life, and they shape each other. Each one changes the other through interactions. The technological system in this case is an integral component of the social life, not an incidental or intermittent aspect of organizational life [12]. However, when an organization implements a new technological artifact, and deals with it as a response to specific organizational needs in certain circumstances, then the firm loses sight of "how every organizational practice is always bound with materiality" [12]. This means that focusing on specific organizational needs and on the expected advantages of an information system makes organizations lose the huge opportunities that can emerge from the adopted technological system.

Within sociomateriality, different tents hold different levels of the ontological constitution between the social and material parts; based on that, different terms are used in each tent. Entanglement is mainly suggested in studies by Orlikowski, Scott, and others (e.g. [12]-[14]). Orlikowski described entanglement as "how to take seriously the recursive intertwining of humans and technology in practice" [12]. Different terms are introduced in this view such as entanglement, sociomaterial assemblage, and inseparable constitution. There is also imbrication, which is mainly suggested in studies by Leonardi, Barley, and others (e.g. [1], [20]) focusing on "the entwining of the material and the social" [20]. Many terms are used in this view, such as imbrication and interwoven agencies. However, Leonardi's view, imbrication, allows for some kinds of separateness, because the two agencies are interwoven as originally they are separated, whereas Orlikowski's view, entanglement, does not allow for separateness because the two aspects, human and technology, are mutually constitutive. Authors such as Bratteteig and Verne [25] apply imbrication to suggest disentanglement to give space between the social aspect and technology to reconfigure the agency and improve it. This view, which comes from the design perspective, has been challenged by Kautz and Jensen [26] and by Leonardi and Rodriguez-Lluesma [27]. Kautz and Jensen [26] stressed, "As tempting as it may be to think that entanglements can be

disentangled into imbrications, this is misleading. Imbrications do not need to be 'disentangled', they do not need 'disentanglement' because imbrications are not 'tangled'. They are interlocked and, as such, they need careful unlocking, disconnecting, and separation."

4. Constructing a model to view enterprise systems based on the sociomateriality perspective

The literature argues that the enterprise system is not only a technical system but also a socio-technological artifact working in a social or an organizational context, and entails the engagement of many social actors [28], [29]. In addition, an EIS interacts with the social processes within organizations, and organizational factors shape the use of these systems [30]. Furthermore, such systems have serious implications for organizations, as they can form many organizational roles and practices [31], [32]. However, according to these conceptions, the enterprise system can be theorized based on the sociomaterial perspective. For example, Wagner and colleagues suggested that the enterprise system is part of the organizational life, and they mutually constitute each other [32]. Sociomateriality, here, is important to theorize upon, because it consists of two aspects: social and material. On one side, sociomateriality emphasizes that all materiality is social because it is created through social processes, and it is interpreted and used in social contexts. On the other side, all social actions are possible because of some materiality [1]. Accordingly, a technological information system like an EIS is a technical system that can offer material possibilities and act as a fundamental component in a social context to shape and be shaped by the organizational life.

In this regard, sociomateriality focuses on finding ways or patterns to bring to the foreground from everyday work practices to expand management knowledge in organizations, and to show a clear picture through the materiality of an information system [13]. Thus, these methods can make researchers aware of the system uses and the meanings of these uses for different people, to reveal the importance of the system in their daily work. Accordingly, investigators analyze how people appreciate the benefits that can emerge from the implemented enterprise systems. These uses and meanings are related to the system's benefits, because "[h]ow users choose to adopt and use these systems on an ongoing basis can significantly impact the organizational benefits associated with them" [30]. Thus, sociomateriality as a theoretical stance can exhibit a clear understanding about the potential benefits of an EIS from its capability of exploring the two parties that constitute the implementation of these systems: the organization, humans with work routines representing the social side, and the EIS representing the material side. In this regard, Leonardi and Rodriguez-Lluesma [27] agreed with Suchman [33], when she stated that "the technology acquires its meaning when embedded in social practice and, therefore, in relation to the agent(s) involved and other material elements". They stressed the relational view that entails not dissolving the difference between the social and the technology. Accordingly, to perceive the potential advantages of the enterprise system, the traditional view that theorizes the enterprise system should be abandoned since it has deterministic effects. However, this work suggests engaging in investigations to view the enterprise system implementation based on relationality formation between the main two sides organization and the technology.

4.1. Technological possibilities and organizational capabilities

Entities, whether technological or human, have no inherent properties, but what matters is how they are interconnected [13]. In sociomateriality, technologies have material properties that can provide different possibilities, giving humans the capacity to act upon and exploit the huge capabilities of these technologies [13]. These material properties are not static, but are multiple and dynamic over time [19]. In the later work there are examples of these material properties for technologies such as programmability, senseability, and communicability [34]. Thus, in some cases, humans and materials interweave to create or change business routines, whereas in other cases, the human and material components weave together to develop or modify technologies [1]. This interwoven relationship gives the constructed sociomaterial structure, which consists of both sides, the capability to act according to the relevant agency. Agency is considered by Orlikowski [12] the capacity realized through the associations of actors (human and nonhuman). However, Leonardi [24] considered agency a matter of intra-acting, or enactment, so it is not something someone has. Therefore, in

Orlikowski's view (entanglement), the relational is ontological between the social and the materiality, while the relationality is representational in Leonardi view (imbrication) [26].

However, according to Leonardi's view, people have agency, and technologies also have agency; both are enacted, but inevitably people decide how to respond to specific technologies [1]. This relational formation can be explained as "people who have goals and the capacity to achieve them (human agency) confront a technology that does specific things that are not completely in their control (material agency)" [1]. Saying that material agency means that nonhumans experience things does not mean revoking human contributions; people can adapt and appropriate what nonhumans do [1]. Drawing on that, an organization with its people including the routines represent social agency imbricated with the enterprise system that represents material agency. These two agencies, social and material, are illustrated in Fig. 1.

Accordingly, the potential benefits from EIS emerge when people interweave with the system in practice to generate various uses of the system, and when the EIS enables an organization to do what can be practically accomplished over time. Thus, the benefits generated from EIS are not inherent in the systems' material properties but emerge from how people experience their agency to change and adapt the systems for their needs. It is also based on how the material agency gives humans the opportunity to find new uses for the system, such as developing new practices or changing existing routines. To maintain relationality, Leonardi [1] suggests imbrication between technologies and organizational routines that require flexible technologies and flexible routines.

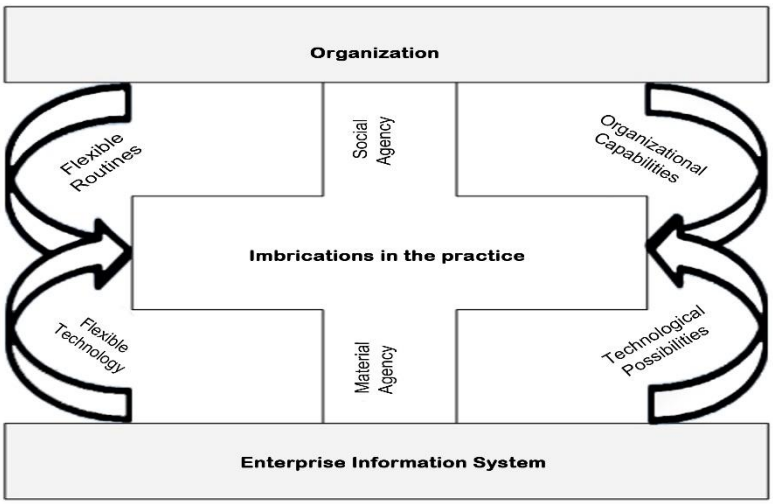

Fig. 1. Imbrication of the enterprise system model

4.2 Flexible technologies and flexible routines

4.2.1 Flexible technologies

It is assumed that the perceived net benefits from an EIS depend on how the system is used [36]. Within an organization, different groups of people are interested in different benefits; therefore, people use the system differently, and the system should be modified according to the group's needs [30]. For example, to ensure that these needs are embedded in the system, the implementation team needs to configure thousands of tables in a complex structural database [11]. These adaptations affect many system modules and functionalities to meet the organization's needs [11]. Thus, when the system becomes more flexible, its materiality offers wide possibilities, it will be more able to reflect the organization's needs and suggest new forms for use, and then it will be able to provide extreme benefits for the

organization. Conversely, when the system has difficulty addressing the organization's needs, people may not use it effectively. Thus, the benefits are minimal. According to the suggested model (Fig. 1), a technologically flexible EIS will enable the material agency that does many things to effectively imbricate with the social agency that has goals, and act to achieve these goals and to provide the maximum benefits through these material possibilities.

Accordingly, EIS should be flexible technologies (Fig. 1) to meet ever-changing business requirements and to effectively change the technology to respond to these requirements and needs. Here, the technological changes, when they are applied, are viewed as a response from the system that has materiality that can translate the organizational needs, which is the social component, to real business advantages within an imbrication process.

4.2.2 Flexible routines

It has been argued that organizations should change their business routines and business processes to realize the benefits from enterprise systems [37]. Wagner et al. [32] called for negotiated practices. It has also been suggested that many business processes or modules must be integrated with the core system, which is the financial module in the case of the ERP. In this way, organizations can obtain greater benefits from the enterprise systems, when the system integrates many business functions across the organization [5]. It is assumed that the changes in the social or organizational side are more extensive, and could influence wide areas inside and outside the organization. Staehr et al. [11] stated, "Although all IS projects involve some degree of organizational change, ERP implementation and use can be differentiated by the capacity to involve extensive changes across a number of functional areas in an organization." Davenport [38] identified examples of organizational change that can be introduced by the enterprise systems, such as a change in structure (e.g., shared services), changes to work practices right across the organization, and changes that affect external parties such as customers and suppliers [11]. However, business benefits accumulate when organizations change business practices or routines and when the enterprise system integrates many business functions across the organization. To do so, the business routines that represent the business logic should be flexible, because new forms should replace existing practices. Based on the suggested model, an organization that has flexible routines will enable social agency, which acts to achieve its interests and goals, to effectively imbricate with the material agency that does wide things, and can offer great possibilities to help the organization achieve the maximum benefits from the material possibilities.

Therefore, in Fig. 1, the organizational routines should be flexible to interweave with the EIS to produce new combinations or possibilities for the organization's work. This flexibility can allow organizations to introduce new routines or to change existing ones based on the possibilities of the enterprise system.

Now the question that can be raised is, which types of changes, technological or organizational, have priority? Using the sociomateriality perspective, "[b]y themselves, neither human nor material agencies are empirically important. But when they become imbricated—interlocked in particular sequences—they together produce, sustain, or change either routines or technologies" [1]. This formation also interweaves the technological development and the system adaptations, with the organizational changes and the process reorganizing; so they are no longer separate or distinct processes across the overall implementation phases [39].

5. Insights from practice

5.1 The case study

In our study, a company called B Mobile was investigated. The company, a leading provider of mobile telecommunication services in the Middle East, started operating in 1999. The company built consistent growth in the customer base, starting from 1 million in 2007 to about 2 million subscribers in 2010. By end of 2012, the company had about 2.5 million subscribers. B Mobile has an extensive network of 29 stores, more than 1,000 major and primary distributers, and hundreds of outlets in different areas. By the end of 2012, 950 employees worked in different locations. The company started implementing an Enterprise Resource Planning System (ERP) early in 2007, and the system was

ready for use in September 2007. This system has been viewed as essential, and company management considered it indispensable for doing the company's internal administrative work, which had increased over time. It was difficult to deal with the huge amount of the work generated by the large number of external parties: customers, suppliers, and distributers, without an enterprise system that manage all the financial and administrative issues for the company. The study investigations were conducted in July and August 2013, targeting different interviewees working at different business functions to represent different voices, but it was important to recruit interviewees worked in the system's implementation that had been conducted in 2007.
Table 1 provides details about the case informants, their business roles, and interview duration.

Table 1. List of interviewees with their roles and duration

Interviewee code	Role	Interview duration in minutes
B1	Head of Financial Department & Internal Project Manager (Company side)	70
B2	Reconciliation & Account Receivable Section Head	90
B3	Fixed Assets & Inventory Section Head	90
B4	Accounts Payable Supervisor	60
B5	General Accounting Section Head	50

5.2 Findings

5.2.1 Interwoven relation

Initially, the company had expectations based on its needs and requirements. These expectations mainly focused on implementing a comprehensive system that covers all business functions that can provide efficient and consistent data. The company was also interested in an ERP system to help the staff handle the increasing daily work in less processing time and with a minimum level of human error. Two years after the system was implemented, the company staff realized that these expectations, to large extent, had translated into real business benefits. When the company informants were asked about their level of satisfaction with the benefits, all reported that they were at least 70% satisfied from the system outcomes. The interviews revealed that the people were satisfied not only with the system implementation. The enterprise system became a comprehensive organizational practice that entailed a robust relation, and it became difficult to detach the system from their daily work. The head of the finance department (B1) said, "I cannot imagine the company without the system, because the system brings international and world-class business practices to the company, so now we can say we have a modern operation management and this is because of the system's implementation". In addition, the fixed assets and inventory section head (B3) mentioned, "The system solved the paper work problems, alone, I was using about five boxes of paper weekly, but now the whole department about 30 employees use this amount of paper". Further, the general accounting section head (B5) said, "It is easier for me to stay at home if I have to do the current work based on the old system and based on the old way of organizing". He also said, "The system is not complementary to our work, but it is a primary part of it". The reconciliation and account receivable section head (B2) said, "The system becomes part of the company, and if we remove it from the company that means we change our way for doing our work". Another informant said, "If you imagine how we were working before, you would know how much the system helped us and changed our work, and because of this I cannot imagine my daily work or imagine the company work without the system". During various different visits to the company, it was easy to observe that the staff offices did not perform much manual work, and there were no manual accounting booklets, for example. That means the system replaced the old manual work with new electronic practices.

5.2.2 Technological possibilities

The company informants were also satisfied because they realized many unexpected benefits. These benefits helped them do their work more productively and efficiently. An example is the use of mobile technologies to do and follow part of the business work using the ERP system. The company managers said that many times, for different reasons, accessing their offices was difficult. This challenge created delays in their work; the processes in the enterprise systems are integrated and served many business functions. A process such as the procure-to-pay cycle was fully implemented. That means the process would take care of procurement, stock control, finance, and budget, so their work depended on each other. The head of the finance department (B1) said, "When it became difficult to reach the company office, and I came into the office the next day, I might find a significant number of the system transactions that were pending and required approval". After the system was upgraded, the email system could be accessed with mobile phones to review, approve, or disapprove certain transactions. The email system and a mobile device could now be used to review warning messages that showed if an employee used the system to do something different from what was defined for him or her. This benefit was very important for people who work from home or attend many meetings outside the company. Company personnel had been unaware of these benefits in 2007 when the company started the implementation; however, after several years, employees knew about these advantages. These technological possibilities provided unexpected benefits.

5.2.3 Organizational capabilities

Investigating what the company did to ensure successful implementation and successful cultivation of the system advantages showed that management was very supportive of the system implementation, and worked hard to ensure successful implementation and exploitation of the system features that could create real benefits for the company. Further, the company had a strong, long-term partnership with the consulting company that implemented the system. The company also appointed many people experienced in ERP implementation, during and after the implementation. Furthermore, system logic was dominant in the organization, which means the company replaced many practices with new practices. For example, the system provided restrictions when people attempted to delete an invoice or settle an invoice in a currency different from the original currency, which had been acceptable before the system was implemented. Additionally, the budget process was completely changed. Instead of giving the head of the budget section the authority to approve a purchase order, the system now automatically generates approval if there is enough money in the budget for the department that had submitted the purchase order.

6. Discussion

In this work, we suggested analyzing the data based on the constructed model that adopts the imbrication notion [1]. In the case suggested by Scott and Orlikowski in consequent works [40], [41] on TripAdvisor, the authors used entanglement. However, we maintain that it is difficult to describe TripAdvisor as a social travel community without describing the technological part that constitutes the site's core business. In the enterprise systems implementation case, the system is very important, and it became difficult to imagine that a company that has huge engagements like outlets, customers, suppliers, etc., does not have an enterprise system. A company of that size could function without an enterprise system but would be less efficient. Thus, we examined how the technology agency is imbricated with the social agency to generate substantial advantages for the business. The focus was on the imbricated agencies that were interwoven and ontologically interlocked, but not entangled. Entanglement may create difficulties in analyzing ERP implementation, since it entails inseparable constitution between the social and material, which was not easy to capture in the empirical work of this study. This work examined the ERP implementation in a company, accomplished when two separate objects, the company that implemented the system (social aspect) and a technological artifact that can offer material possibilities, enact together. Before the implementation, these two aspects were separate. After the implementation, and when people started using the system, the two agencies became imbricated in the practice, which becomes difficult to talk about their business work after the implementation without mentioning the enterprise system, or even imagine their business with its complexity without an ERP system. As defined by Leonardi [1], "To imbricate

means to arrange distinct elements in overlapping patterns so that they function interdependently". On the other hand, entanglement may not be appropriate for studying this ERP implementation as Orlikowski believed in the ontology of inseparability, and acknowledged that from the beginning the social and the technology are entangled, so they exist together. Orlikowski [14] cited other scholars to express the ontology of inseparability: "Thus, the social and the technical are posited to be 'ontologically inseparable from the start' (Introna, 2007, p. 1) [42] and, as Suchman (2007, p. 257) [33] notes, 'the starting place comprises configurations of always already interrelated, reiterated sociomaterial practices'. On this view, capacities for action are seen to be enacted in practice and the focus is on constitutive entanglements (e.g., configurations, networks, associations, mangles, assemblages, etc.) of humans and technologies". Entanglement, based on Orlikowski's view, explains the ontological existence, human and technology, and rejects the ability to view humans and technology as distinct elements. In this regard, if an organization already has an ERP, and years later decided to replace it with other system, how could we analyze this empirical situation using entanglement, which rejects inseparability? However, imbrication, which assumes distinct elements are interwoven together, accepts careful unlocking, disconnecting, and insightful separation [26].

The study provided empirical evidence of an ERP implementation, of the model in Fig. 1, and an explanation for this model. This work shows that enterprise systems generate advanced business advantages, and provide a high value to organizations for the investment, through the following aspects: first, when the enterprise system becomes imbricated with the work, so they work together to achieve the organization's objectives by shaping each other (imbrication); second, when the system offers technological possibilities that attract the organization (material agency); and third, when the organization have capabilities that ensure successful exploitation (social agency). Details of these aspects are explained below:

- The advantages of EIS can be enriched when the enterprise system becomes imbricated or interwoven with the organization. From this study finding, it is clear that the company considers the system an important part of doing the business work, and the company staff stressed that they cannot imagine their business work without the enterprise system. The study showed that the company staff acknowledged the importance decreasing manual work, which was confirmed with observations of staff offices. The enterprise system converted all of the manual work into computerized practices, and this work became part of the EIS. Here, the enterprise system became not only a financial system but also a comprehensive organizational practice comprising all the details of the business work, and organized it in an effective and efficient practice. That means, one cannot talk or describe the current business work after implementing the ERP without referring to the system, which made the business work, that is, the organizational aspect acts upon social agency, interwoven with the technicality of the enterprise system (the materiality aspect). Therefore, the enterprise system, which was originally an IT product, became imbricated or interwoven with the organizational life, and became part of everyday practices. This formation supports many studies that theorized, based upon the sociomaterial perspective, that the information system is part of the organizational life and they shape each other, and is not an incidental or intermittent aspect of the organizational life [1],[12]-[14],[24],[32];
- The advantages of EIS form when the technological possibilities create an interesting use or a business advantage for the firm, and the firm has an interest in that advantage and values it. In this aspect, the study showed how unintended benefits emerged when the enterprise system provided the possibility to do part of the work with the email system and mobile devices. The company did not deal with the enterprise system as a response to organizational needs, because the need for incorporating mobile devices was not part of the requirements when the company started the implementation, but emerged after the implementation. This conceptualization is in line with other studies [1],[43] that assumed that the possibility for action is not pre-defined but depends on the context that helps achieve this possibility. This study also confirmed suggestions by Majchrzak and Markus [44] that assumed using the system does not mean exploiting all the potential of the technology, but organizations can exploit the potential of technology over time. However, this kind of exploitation would not be achieved without flexible technology, which was apparent with the flexibility of the system that allowed programming within the system and

integration between the enterprise system and the email system. Email messages were treated as transactions with the system. In addition, through programming the company developed appropriate validation rules when they were needed. This study also confirmed that the real benefits are not inherent in the physical features of the system, but in the materiality of the technology that can provide beneficial use [1]. However, configuring a complex system like an EIS with default values, or based on the consultant's habits in the system's implementation, will not provide distinctive features that can be obtained from the system possibilities. As a result, organizations will lose flexibility in their technology and, in turn, will not achieve huge benefits from the systems;

- The advantages of EIS could be achieved when the organization became capable of taking benefits from the technological possibilities. Thus, to integrate the system with another system, or with another device, the company used the benefit of experienced IT people who were available in the company, had the expertise, and were aware of many system features, and the management allocated funds to provide mobile devices for the company staff. Furthermore, the decision to approve a financial transaction on a mobile device, and budget items, required a strong management that considered the business routines flexible. These organizational capabilities are relational aspects through which the company exploited potential benefits of the enterprise system. Leonardi [1] argued that such relational aspects are not available in all organizations, and thus, some organizations can achieve the potential of the technology, whereas others face difficulties.

7. Conclusion

This paper discussed the sociomateriality perspective to provide an improved understanding for exploiting the potential benefits of an EIS. Sociomaterial structure or the imbrication between the enterprise system and the organization helps organizational work become an integral part of the materiality of the technical system. This structure allows researchers to understand how the EIS can shape organizations' work and be shaped by social adaptations, according to the organizational needs and the system possibilities. The relationality notion illustrates how the benefits from enterprise systems are not inherent in the systems' material properties, but based on the dynamic relationship between the people who experience their agency changing and adapting the enterprise systems for their needs, and the materiality of the system. This materiality provides new opportunities to develop new practices or to change existing routines. However, to answer the study question, the potential benefits of EIS can be exploited or realized when the EIS as a technical system is imbricated with the organizational work in which both dynamically change in the practice (not from the technical features of the system), when the system provides interesting and beneficial technological possibilities that the organization values, and when the firm has the organizational capabilities that enable it to translate these possibilities into real business benefits. Finally, this work used a single case study; therefore, in future research, a multiple-case study should collect a wide range of data to validate the research model. In addition, further empirical research should investigate the relationality factors that make some organizations more able than others to achieve the potential benefits of ERP systems or other enterprise information systems.

References

[1] P. Leonardi, "When flexible routines meet flexible technologies: affordance, constraint, and the imbrication of human and material agencies," *MIS Quarterly*, vol. 35, no.1, pp. 147-167, 2011.
[2] P. Seddon, C. Calvert and S. Yang, "A multi-project model of key factors affecting organizational benefits from enterprise systems," *MIS Quarterly*, vol. 34, no. 2, pp. 305-328, 2010.
[3] Panorama-Consulting, "2012 ERP report: a Panorama Consulting solutions research report," 2012.
[4] M. Al-Mashari and M. Zairi, "Information and business process inequality the case of SAP R/3 implementation," *The Electronic Journal of Information Systems in Developing Countries*, vol. 2, no. 4, pp. 1-15, 2000.
[5] T. Davenport, J. Harris and S. Cantrell, "Enterprise systems and ongoing process change," *Business Process Management Journal*, vol. 10, no. 1, pp. 16-26, 2004.

[6] T. Gattiker and D. Goodhue, "Understanding the local-level costs and benefits of ERP through organizational information processing theory," *Information & Management*, vol. 41, no. 4, pp. 431-443, 2004.
[7] S. Shang and P. B. Seddon, "A comprehensive framework for classifying the benefits of ERP systems," in the *Americas Conference on Information Systems*, Long Beach, USA, pp. 1005-1014, 2000.
[8] L. Staehr, G. Shanks and P. Seddon, "Understanding the business consequences of ERP use," in *European Conference on Information Systems*, Gothenburg, Sweden, 2006.
[9] L. Staehr, "Assessing business benefits from ERP systems: an improved ERP benefits framework," in the *ICIS Proceedings*, Montreal, Canada, paper 36, 2007.
[10] L. Staehr, "Understanding the role of managerial agency in achieving business benefits from ERP systems," *Information Systems Journal*, vol. 20, no. 3, pp. 213-238, 2010.
[11] L. Staehr, G. Shanks and P. B. Seddon, "An explanatory framework for achieving business benefits from ERP systems," *Journal of the Association for Information Systems*, vol. 13, no. 6, pp. 424-465, 2012.
[12] W. Orlikowski, "Sociomaterial practices: exploring technology at work," *Organization Studies*, vol. 28, no. 9, pp. 1435-1448, 2007.
[13] W. J. Orlikowski and S. V. Scott, "10 sociomateriality: challenging the separation of technology, work and organization," *The Academy of Management Annals*, vol. 2, no. 1, pp. 433-474, 2008.
[14] W. J. Orlikowski, "The sociomateriality of organisational life: considering technology in management research," *Cambridge Journal of Economics*, vol. 34, no. 1, pp. 125-141, 2010.
[15] B. Mueller, P. Raeth, S. Faraj, K. Kautz, D. Robey and U. Schultze, "On the methodological and philosophical challenges of sociomaterial theorizing: an overview of competing conceptualizations," in *the International Conference on Information Systems*, Atlanta, United States of America, pp. 845-852, 2012.
[16] N. R. Hassan and D. S. Hovorka, "Sociomateriality and IS Identity", in *the ACIS*, Sydney, Australia, 2011.
[17] W. J. Orlikowski, "Using technology and constituting structures: a practice lens for studying technology in organizations," *Organization Science*, vol. 11, no. 4, pp. 404-428, 2000.
[18] O. Volkoff, D. M. Strong and M. B. Elmes, "Technological embeddedness and organizational change," *Organization Science*, vol. 18, no. 5, pp. 832-848, 2007.
[19] M. Barrett, E. Oborn, W. J. Orlikowski and J. Yates, "Reconfiguring boundary relations: robotic innovations in pharmacy work," *Organization Science*, vol. 23, no. 5, pp. 1448-1466, 2012.
[20] P. Leonardi and S. Barley, "Materiality and change: challenges to building better theory about technology and organizing," *Information and Organization*, vol. 18, no. 3, pp. 159-176, 2008.
[21] A. Mutch, "Sociomateriality — Taking the wrong turning?," *Information and Organization*, vol. 23, no. 1, pp. 28-40, 2013.
[22] K. Barad, "Posthumanist performativity: toward an understanding of how matter comes to matter," *Signs: Journal of Women in Culture and Society*, vol. 28, no. 3, pp. 801-831, 2003.
[23] S. V. Scott and W. J. Orlikowski, "Sociomateriality — taking the wrong turning? A response to Mutch," *Information and Organization*, vol. 23, no. 1, pp. 77-80, 2013.
[24] P. M. Leonardi, "Theoretical foundations for the study of sociomateriality," *Information and Organization*, vol. 23, no. 1, pp. 59-76, 2013.
[25] T. Bratteteig and G. Verne, "Conditions for autonomy in the information society," *Scandinavian Journal of Information Systems*, vol. 24, no. 2, pp. 51-78, 2012.
[26] K. Kautz and T. B. Jensen, "Debating sociomateriality: entanglements, imbrications, disentangling, and agential cuts," *Scandinavian Journal of Information Systems*, vol. 24, no. 2, pp. 89-96, 2012.
[27] P. M. Leonardi and C. Rodriguez-Lluesma, "Sociomateriality as a lens for design," *Scandinavian Journal of Information Systems*, vol. 24, no. 2, pp. 79-88, 2012.
[28] P. Devadoss and S. Pan, "Enterprise systems use: towards a structurational analysis of enterprise systems induced organizational transformation," *Communications of the Association for Information Systems (CAIS)*, vol. 19, pp. 352-385, 2007.
[29] D. Howcroft and B. Light, "The social shaping of packaged software selection," *Journal of the Association for Information Systems*, vol. 11, no. 3, pp. 122-148, 2010.

[30] K. Dery, R. Hall and N. Wailes, "ERPs as technologies- in-practice: social construction, materiality and the role of organizational factors," *New Technology, Work and Employment*, vol. 21, no. 3, pp. 229-241, 2006.
[31] J. Kallinikos, "Deconstructing information packages: organizational and behavioural implications of ERP systems," *Information Technology & People*, vol. 17, no. 1, pp. 8-30, 2004.
[32] E. L. Wagner, S. Newell and G. Piccoli, "Understanding project survival in an ES environment: a sociomaterial practice perspective," *Journal of the Association for Information Systems*, vol. 11, no. 5, pp. 276-297, 2010.
[33] L. Suchman, *Human-Machine Reconfigurations: Plans and Situated Actions*. Cambridge, England: Cambridge University Press, 2007.
[34] Y. Yoo, O. Henfridsson and K. Lyytinen, "Research commentary - The new organizing logic of digital innovation: an agenda for information systems research," *Information Systems Research*, vol. 21, no. 4, pp. 724-735, 2010.
[35] Y. Yoo, "Computing in everyday life: a call for research on experiential computing," *MIS Quarterly*, vol. 34, no. 2, pp. 213–231, 2010.
[36] C. Ng, "A case study on the impact of customization, fitness, and operational characteristics on enterprise-wide system success, user satisfaction, and system use," *Journal of Global Information Management*, vol. 21, no. 1, pp. 19-41, 2013.
[37] T. H. Davenport, "Putting the enterprise into the enterprise system," *Harvard Business Review*, vol. 76, no. 4, pp. 121-131, 1998.
[38] T. H. Davenport, *Mission Critical: Realizing the Promise of Enterprise Systems*. Boston, MA: Harvard Business Press, 2000.
[39] P. M. Leonardi, "Crossing the implementation line: the mutual constitution of technology and organizing across development and use activities," *Communication Theory*, vol. 19, no. 3, pp. 278-310, 2009.
[40] S. V. Scott and W. J. Orlikowski, "Great expectations: the materiality of commensurability in social media," In: P. Leonardi, B. Nardi and J. Kallinikos, eds. *Materiality and Organizing: Social Interaction in a Technological World*. Oxford, England: Blackwell, pp. 113-133, 2012.
[41] S. V. Scott and W. J. Orlikowski, "Entanglements in practice: performing anonymity through social media," *MIS Quarterly*, Special Issue on Sociomateriality, 2014.
[42] L. D. Introna, "Ethics and the speaking of things," *Theory, Culture and Society*, vol. 26, no. 4, pp. 25-46, 2009.
[43] R. Zammuto, T. Griffith, A. Majchrzak, D. Dougherty and S. Faraj, "Information technology and the changing fabric of organization," *Organization Science*, vol. 18, no. 5, pp. 749-762, 2007.
[44] A. Majchrzak and M. Markus, "Technology affordances and constraints in management information systems (MIS)," in *Encyclopedia of Management Theory*, E. Kessler, Ed. Thousand Oaks, CA: Sage, pp. 832-836, 2013.

Biographical notes

Luay Ahmad Anaya
A PhD Research Fellow in Information Systems at University of Agder in Norway. He received his master degree from the British University in Dubai, UAE. His research interests include enterprise systems, ERP project management, and benefits realization. Anaya has published in many academic outlets. He has also worked in different IT roles for many years in IT and consulting companies in United Arab Emirates, Palestine, and Jordan.

www.shortbio.net/luay.a.anaya@uia.no

<Article 4>

Anaya, Luay A. and Olsen, Dag H. (2014). Implementing ERP in a Challenging Environment: The Case of a Palestinian Telecom Company. *Paper presented at the 8th European Conference on IS Management and Evaluation (ECIME),* Ghent, Belgium, September 2014. Published by ACPIL.

Implementing ERP in a Challenging Environment: The Case of a Palestinian Telecom Company

Luay Ahmad Anaya and Dag Håkon Olsen
University of Agder, Kristiansand, Norway
luay.a.anaya@uia.no
dag.h.olsen@uia.no

Abstract: This paper explores how a company in the Palestinian territories managed to realise substantial benefits from an ERP system. The Palestinian context is quite challenging, with uncertainty and frequent changes in regulations. This study investigates what the company achieved from the system and what the company did to ensure such successful benefits realisation. Six areas were important to secure the potential benefits from the system. First, the company's management was technology proficient and was able to understand the obstacles to realising the potential benefits. Second, the implementation proceeded with well-managed changes. Third, the company established a long-term business partnership with the implementation company. Fourth, the company surveyed similar companies' experiences implementing ERP in several countries in the Middle East. Fifth, the company allocated significant time and resources for motivating employees. Sixth, the company allocated ample time for end user training.

Keywords: enterprise resource planning (ERP), successful implementation, benefits realisation, palestinian territories, post-implementation

1. Introduction

Organisations are increasingly implementing enterprise resource planning (ERP) systems. Many organisations consider such systems more than just information technology solutions to facilitate and automate the existing work; rather, such systems have comprehensive implications for organisational practices regarding how they organise, regulate, control and develop the business processes. While many organisations are satisfied and have gained substantial benefits from the implemented systems, many other organisations face considerable obstacles in realising the potential benefits from these systems (Staehr et al. 2012; Peng and Nunes 2009). An ample body of research has been conducted to investigate what makes such implementations more successful and what makes organisations fail in their ERP implementations (Somers and Nelson 2001; Finney and Corbett 2007). There is also an increasing body of research focused on understanding how organisations can gain the maximum benefits from ERP systems (Schubert and Williams 2011; Seddon et al. 2010; Staehr et al. 2012).

However, it has been argued that existing literature about ERP success factors provides lists of success factors that are most likely focused on ensuring the success of the system via its implementation, but these studies do not focus particularly on the post-implementation stage (Peng and Nunes 2009; Doherty et al. 2012). It is in this stage that organisations realise the benefits of the system; further, this is the phase that enables the company to create the return on the invested amount. The successful implementation of a system alone does not guarantee its successful use and benefits achievement, especially in the long run (De Loo et al. 2013; Doherty et al. 2012; Gattiker and Goodhue 2005; Ha and Ahn 2013). Doherty et al. (2012) argue that the literature on success factors concentrates on the delivery of a technical system, but it falls short after that. Many system benefits are obtained when the system is integrated with other systems – the benefits are not exclusively from a particular system that is isolated from the rest of the technological infrastructure (Ibid.).

The success of ERP implementation is highly dependent on context (De Loo et al. 2013; Robey et al. 2002; Schubert and Williams 2011). Doherty et al. (2012) argue that the success factors of IT projects ignore the dynamics of the social, organisational and political contexts. The success factors cannot be implemented as independent variables to enhance the success of an information systems project, and not all factors have a genuine impact on every kind of system and in different organisational contexts (Ibid.). Against this backdrop, this study was undertaken to investigate the different success aspects that enabled a company to realise the potential advantages of an ERP system after implementation in a non-typical and challenging context. Thus, the research question that this study aims to answer is 'How can ERP implementation successfully realise the benefits in a challenging environment?'

This study investigates a Palestinian telecom company that implemented an ERP system and is highly satisfied with the realised benefits. The company started its implementation in the beginning of 2007. The system implementation took nine months and was ready for use in September 2007.

The rest of the paper is structured as follows: Section 2 reviews a number of relevant studies. Section 3 explains the methodological choices we applied. Section 4 reports the study's results. Section 5 discusses the results.

2. Theoretical background

ERP systems are widely adopted and implemented in organisations. It has been assumed that such systems can have a huge impact on the organisations and on their performance. Davenport (1998, p. 121) said that 'For managers who have struggled at great expense and with great frustration with incompatible information systems and inconsistent operating practices, the promise of an off-the-shelf solution to the problem of business integration is enticing'. Furthermore, many studies showed that such systems can generate operational, organisational, managerial, technological and strategic benefits for organisations (Shang and Seddon 2000; Staehr et al. 2012). On the other hand, when organisations implement these systems, they are confronted with a wide range of challenges, especially because these systems differ from traditional information systems in a number of areas including scope, scale, complexity, the organisational changes that are implied and the consequences for business process reengineering that could result from implementing such systems (Davenport 1998; Somers and Nelson 2001).

Many studies have been conducted to help organisations deal with these challenges and to enable them to achieve their expectations from these enterprise systems (Robey et al. 2002; Finney and Corbett 2007; Gargeya and Brady 2005; Somers and Nelson 2001). Somers and Nelson (2001) identified a set of critical aspects that can help organisations in each stage of the implementation process. For example, factors like top management support was critical in most of the implementation stages. They found that the most critical part of an ERP implementation occurs early on, particularly in the selection of the software package itself and in preparing to make that selection. They also paid attention to the training, communication and vendor support, among other things. Finney and Corbett (2007) argued that the success of ERP should include the key stakeholders.

It has been argued that many challenges become more persistent after ERP implementation (Peng and Nunes 2009). These challenges can threaten potential benefits, despite success in the initial implementation stages. The real challenges show up after the implementation, especially when different staff members from different business units start using a central and a comprehensive system serving the whole organisation (Robey et al. 2002). Therefore, different studies have focused on the dialectics that can be encountered when organisations that already have existing systems and working practices encounter new requirements, which in turn create cultural and dialectical challenges. Many authors (e.g. Robey et al. 2002; Soh et al. 2003) argue that an ERP implementation as a dialectic perspective occurs between the old knowledge embedded in business processes and practices associated with legacy systems and the new business processes and practices implicit in the ERP. Drawing on dialectics as a theoretical base, Robey et al. (2002, p. 21) found two categories of knowledge barriers: configuration and assimilation. A dedicated core team that is carefully selected, motivated with incentives and empowered to act, as well as effectively managed consulting relationships, are critical for responding to configuration challenges. Intensive employee education and an incremental pace of implementation are important for succeeding in assimilation challenges (Robey et al. 2002).

Recently, Doherty et al. (2012) argued that the real success of an information system project should not be about the delivery of the project on time, on budget and to specification; rather, it should focus on the time when the information system becomes able to achieve the expected benefits and when the benefits exceed the costs. They suggested that one should focus on the context, which is usually influenced by political and social dynamics, because the suggested list of success factors is not necessarily applicable or does not have high relevance in every project's context. For example, user participation is highly dependent on a number of contextual variables like leadership style or participation climate. Accordingly, implementing an ERP system in an emerging country influenced by various political and social forces may not necessarily be similar to implementing an ERP in a company working in a more stable environment. The same can be said about implementing an ERP system in a governmental organisation – it may be quite different from implementing an

ERP in a telecom company. Furthermore, such success factor lists ignore the interrelationships between factors. For example, successful change management and introducing organisational changes requires management support and engagement. However, Doherty et al. (2012) suggested that one should focus on the context and pay attention to issues like business environment and leadership, management of transformation and ongoing benefits review, among others.

3. Research method

3.1 Research overview

This study is qualitative, which helps articulate a clear understanding of the role of the ERP system within the company. There is a need to describe the company's context to understand how this company was able to deal with various situations. The study investigated a telecom company working in the Palestinian territories. The investigations focused on the process of system implementation, the benefits that were realized after the system was implemented and the aspects that were critical for the success of the system during and after implementation. The study adopted the case study method, which is recommended when the research objective is to explain, explore and describe and when the study aims to generate answers to questions like why, what and how (Yin 2009). The case study method allows investigators to maintain the holistic and meaningful characteristics of real-life events, such as the specific life cycle of organisational and managerial processes (Yin 2009). The investigation was based on 11 interviews, including junior staff, senior staff and people who participated in the implementations, like consultants.

3.2 Case description

This study investigates a Palestinian company called 'Jawwal Mobile'. The company is the first provider of mobile telecom service in Palestine and started its business operations in 1999. Despite continuing political and economic instability, Jawwal succeeded in consistently growing its customer base from one million subscribers in 2007 to two million subscribers in 2010. By the end of 2012, the company had 2.5 million subscribers in the West Bank and the Gaza Strip. The company has an extensive network of 29 stores, more than 1,000 primary distributers and 10,000 outlets in the West Bank and the Gaza Strip. By the end of 2012, the company had 950 employees working in different locations in the Palestinian territories. The company began implementing an ERP system in early 2007, and the system was ready to be used in September 2007. This system was viewed as essential for managing the company's expanding administrative tasks. Without an ERP, it became increasingly difficult to deal with the huge amount of work generated by the large number of external parties such as customers, suppliers and distributers. The data collection was conducted in 2013/2014, and we targeted different interviewees working on different business functions to represent different voices. It was also important to recruit interviewees who had participated in the implementation process.

Table 1: List of interviewees, their roles and the duration of their interviews

Interviewee code	Role	Interview duration in minutes
B1	Financial director and internal project manager	70
B2	Head of reconciliation and accounts receivable	90
B3	Head of fixed assets and inventory	90
B4	Accounts payable supervisor	80
B5	Head of general accounting	60
B6	Payroll accountant and HR coordinator	70
B7	Functional consultant	60
B8	Finance coordinator	25
B9	Technical team leader	70
B10	ERP implementer	50
B11	E-Business suite manager	80

4. Findings

4.1 Challenging context

Palestine is an emerging state and therefore lacks many national pillars; this has ample consequences for the political, economic and social forces in the business environment in Palestine. This context is quite challenging for organisations undergoing any kind of development. Implementing an ERP system is not an exception, and we uncovered several challenges. The country is facing frequent changes in the business rules because of the high level of uncertainty. The country is an emergent nation, so it does not have a national currency. Individual movement between the West Bank and the Gaza Strip is restricted and could create difficulties in the system configuration and training. Also, access to international implementation experts is limited due to travel restrictions to the Palestinian territories.

4.2 Achieved benefits

The ERP system implementation started in the beginning of 2007 and took nine months to complete. In September 2007, the staff started using the system in parallel with the existent systems for a couple of months during a transition period. However, the first period the system was in use was hectic due to problems in data migration, a great number of errors generated by novice users and the many bugs that appeared. The finance coordinator (B8) stated, 'the system was very difficult to use in the beginning, and we faced a lot of trouble'. This unsettled period continued until 2009, when the company perceived that the system had reached stability. The functional consultant (B7) stated, 'we had work pressure in the first two years doing bugs fixing, correcting business transactions, investigating the reasons for varied balances and convincing the business users to provide the appropriate details of the business transactions because this would be helpful for them later'. The general accounting section head (B5) said, 'Initially, there was a system and it was successfully implemented within the specified time, but we were not fully relying on the system. We were using some work manually, but now we are using the system for most of our work, and the manual work is very limited'. Despite the implementation challenges, the company was satisfied with the system operations after two years of implementation; they acknowledged they had realised many benefits.

Most importantly, the company was growing, so it needed the system to deal with the increasing volume and complexity of the business. The fixed assets and inventory section head (B3) said, 'Before the system implementation, I wondered how big companies manage their huge volume of work because we were not able to do all the business work regularly, so we assigned specific dates to receive invoices, but now everything is done in a timely manner'. Further, the system helped the company to deal with the external forces that influenced the business world in Palestine. Most notably, the system configuration was flexible, which helped the company deal with frequent changes, especially in regulations, and the multi-currency problem that had frustrated the company staff before the implementation.

4.3 Key motives facilitated the benefits realization

Although the system implementation led to many challenges, the implementation was seen as successful and the company was able to achieve various benefits, which made the company management and staff highly satisfied. The high level of satisfaction and success can be attributed to several key motives. We illustrate these aspects in more detail below.

4.3.1 Technology proficiency

The management understood the importance of the enterprise system for the company's processes and for the company's future development. They therefore allocated an appropriate budget for the implementation and assigned a senior manager as the implementation project manager before starting the implementation. The management gave him the required responsibilities and power to lead the implementation process. He involved the management in resolving conflict and resistance among users, and in turn, users were encouraged to adopt the system logic. Furthermore, the company's industry, telecom, is technology intensive. The company invested extensively in the ERP system implementation because the management considered this technology crucial to its business success. The company project manager, who is now the head of the finance department (B1), noted that 'the company's capital is its systems. As a telecom company, what we have is many systems doing our work'. Accordingly, the company's management believed in the system and its

capabilities and wanted to implement the system logic. At the same time, the management had a clear picture about the consequences of implementing an information system. This awareness about the technology was a key factor in the system's success. This view facilitated the adoption of the system before the implementation, and facilitated the changes that the system logic required; it encouraged all staff to use the system to achieve the system's benefits. Furthermore, the management requested a weekly status report and a monthly presentation to the steering committee of the project throughout the implementation process. This committee consists of the top management, the key staff members and representatives from the implementing company. This meeting was important to keep the project progressing according to the plan.

4.3.2 Managing the changes

There were well-managed changes in the two sides, organization and the system. There was some customisation in the system along with some organizational changes. The core system and its workflow structure were not changed, but some changes were made to deal with the challenges of the working context. The system introduced new changes to the business and imposed new business rules. Examples of these changes include changes in the structure (moving staff from one department to another), revoking privileges (the budget department no longer was responsible for approval, but every department had its own allocation, and the system, through approval channels within the purchasing department, could secure the purchase order), creating some new rules (e.g. not possible to pay in a currency different from the invoice currency, which was acceptable before the ERP; not possible to enter an invoice if it does not have a reference in the purchasing module). These changes were successfully implemented and became new business rules because the management fully supported the system, including the consequent changes. At the same time, the system was customised to deal with multiple currencies and to create automatic adjustments in an effective way. Also, the system was changed to accept multiple tax rules at the same time to reflect the varied treatment of tax rules according to the work location.

4.3.3 Partnership with the implementation company

There are a limited number of companies that implement ERPs in Palestine, which makes the implementing company interested in the success of the system; it considers it important to its future success. The implementation consultants have the time to stay with the customer through the implementation and afterward. We found that close and friendly relations between the implementer and the organisation were a key aspect that helped the company extracts the maximum benefit from the system. The implementing company was selected based on its experience. The project managers from both the company (B1) and the implementer (B11) emphasised that the implementation company had ample experience from five previous ERP implementation projects. Most of the informants agreed that one key factor was the professionalism of the system implementers. They were always available, were loyal to the project and all of them were highly determined to succeed. The implementer consultant (B10) said, 'we shared the risk of the implementation, so the system success was important for us also'. Further, the implementation team, whether from the implementer company or from the company itself (Jawwal), has not changed. The same team members followed the project from inception until the end of the implementation; most of them followed the project after its implementation was complete.

4.3.4 Learning from other companies

Before the system implementation started, representatives from the company visited many peer telecom companies in the region to learn from their experiences and to understand how the ERP system could help in handling the increasing volume and complexity of a business. The company representatives also raised some problems that they had faced in earlier systems to envisage how the ERP system could solve these issues. The project manager (B1) commented that 'The site visits helped us also to determine which modules from the suite to implement first and which modules are most valuable in the telecom industry'. To exemplify, he added that 'the project management module is an important module, but when we asked other operators, they suggested that we should focus on such a module in later stages, not from the beginning, as the inputs to this module will not be ready in early stages. It would be more appropriate in industries that depend more on projects than the telecom industry'.

4.3.5 Motivating employees

We found that the company staff was highly motivated; they were concerned about performing their work in an effective and productive way. They were interested on the system even before it was implemented. They were motivated to learn, and learning was seen as important for their professional development. The company introduced incentives to further motivate them. The staff perceived that expertise in the ERP system would be important for their career development and that it might create new opportunities for them. Another issue is the age of the staff. When we walked through the company buildings, we could see that most of the staff were quite young. This is due to the company's growth in recent years. Young people are generally more motivated to embrace new technology; they are usually more willing to learn new things because this knowledge may provide attractive opportunities in the future. The payroll accountant (B6) stated, 'When I stayed to work with the system until late, my manager stayed with me, and when I saw that he appreciated my extra hours, I certainly became more motivated'. Most of the informants (e.g. B2, B3, B4, B5 and B6) acknowledged that they were motivated to make the system a success story. They confirmed that they were working late into the night; further, they worked on the system on the weekends, especially in the first year after its implementation. The accounts payable supervisor (B4) noted that 'The management was confident and motivated to implement the system, and they were motivating us all the time, helping us, staying with us and supporting us, especially when there was a problem or if we faced a situation we did not know how to deal with. That means the top management and the project manager did not make us feel that we were alone'.

4.3.6 End user training

In the initial stages of the system implementation, and particularly after the configuration, key staff members visited the regional office, Oracle, in Jordan, to do what was called a 'health check'. This was done to ensure that the company and the implementer shared the same understanding of the company's needs and expectations and to ensure the implementation would be carried out in the right way. The first 'health check' was in the early stages of the implementation to give introductory details about the project, the important features that could help them through the implementation and a high level of training. The second 'health check' was after the implementation and gave more details about the system use. When the staff members started using the system, the company created an image for the working environment that was refreshed frequently. This gave the staff a testing environment to do experiments, to track the transactions in the system and to better understand how a transaction would influence other business sections. This practice expedited the learning process of the system. The company was also committed to using an up-to-date version of the system; therefore, as the post-implementation phase lasted for several years, a new version was launched by Oracle. The company then adopted the new version and sent many staff members for training courses to learn about the new features in the new version and how they could help the company's business. Furthermore, most of the interviewees (e.g. B2, B3, B4, B5 and B6) emphasised the importance of self-training. They were interested in learning the system's capabilities and they used the testing environment to do experiments on the system and to track the impact of a particular transaction in the different business functions. The training was not just about how to use the system, but also about the consequences of the entered transactions (B6).

5. Discussion and conclusion

Although the company faced many challenges both during and after the implementation, it was able to achieve many of the expected benefits. This benefits achievement explains why the system implementation was considered successful. This is consistent with studies (Doherty et al. 2012; Schubert and Williams 2011; Seddon et al. 2010) that suggested that real success materialises through actual benefits for the organisations. The company realised important benefits primarily after the system provided standard practices across different locations and became able to handle the hugely complicated system processes, among other factors.

Consistent with Somers and Nelson (2001), in the routinisation and infusion stages, which comprise the post-implementation period, the success factors were top management support, interdepartmental cooperation, vendor support, partnership with the vendor and user training. In fact, all of these factors are supported in our study; however, we argue for the active involvement of the top management, and not only management support. Furthermore, our study highlighted the importance of the staff's motivation, particularly in relation to self-training. These aspects were important because a number of systems features were not very visible and demanded efforts from the user to appreciate the advantages of the ERP system. User training and the competency of the internal ERP team was also important for on-going benefits achievement, which is supported in other studies (e.g. Ha and Ahn 2013; Ononiwu 2013). In addition, our study showed the

importance of surveying peer companies to learn from their experiences, especially companies in the same industry and the same region, despite some differences related to the Palestinian context. However, user training and staff motivation were two important aspects to make successful use of the system. These aspects were very helpful as the staff appreciated the system outcomes and they accepted the system without resistance. Many studies have found that users' resistance is a critical challenge that influences the success of the assimilation stage (Robey et al. 2002). Further, Seddon et al (2010) found that the users' acceptance and motivation can overcome the organizational inertia that reduces the ERP system benefits. Thus, the staff learning and motivation resulted in effective use of the system, which in turn lead to real benefits. Most importantly, motivated staff have the desire to learn and use the system, and this was very critical to foster the self-learning which in turn helped to overcome the effects of the movement restrictions between the main two work places.

Furthermore, dialectic aspects related to the context influenced the ERP implementation. These aspects were related to items such as the country and the business sector. Soh et al. (2003) provide some examples of such factors. Country-specific factors include national culture, regulatory environment, level of national wealth, degree of government involvement in the economy and level of education. Similarly, sector-specific factors include revenue generation and whether the sector is private or public and in service or manufacturing. Soh et al. (2003) found that country-specific structures like governmental involvement in healthcare and sector-specific structures like revenue management were found to be in opposition to the assumptions embedded in the ERP system. Our findings revealed many country-specific and sector-specific factors that influenced the system implementation and influenced the ability to reap the benefits from the system, but they were not in opposition to the system implementation. For example, the business sector, telecom, which is a technology-based sector, facilitated the management of the implementation and encouraged organisational changes and system use. The Palestinian territories are politically unstable; thus, using ERP is influenced by frequent changes that require appropriate competence and flexible configuration. Furthermore, despite the company had its old processes and old ways of working, the study findings did not show dialectic issues between the old systems and old ways of working compared with the new system and the new ways of working. We conjectured that, the staff felt the importance of the system and its potential to solve their problems, and they accepted the system and the new ways of working.

Different studies (e.g. Peng and Nunes 2010) found that having an ERP manager who is competent and empowered could improve the likelihood of success. Such a person would participate in resolving conflicts between various stakeholders, especially when the project manager became empowered to promote and facilitate the required organisational changes after the implementation. Our findings support the previous studies' findings, but it is worthy to mention that the ERP project manager was from the finance department and not from the IT department, as found in Peng and Nunes (2010). We believe that the project manager background is one of the aspects that facilitated the friendly relations with other team members in his department. He was able to understand the business changes and was able to enable these changes with a low level of resistance, perhaps lower than a project manager from the IT department.

We advocated the role of top management in realising significant benefits from the system after the implementation, especially in uncertain conditions (Peng and Nunes 2010). This is well beyond the early stages and providing adequate funding. This requires continuous active engagement from the inception through implementation and into the evaluation of the system use. It also involves supporting the efforts to enhance use of the system, promoting the benefit exploitation from the technological features of the system that may arise in later versions of the ERP system. Staehr (2010) investigated the role of management in realising business benefits of ERP systems in the post-implementation stage. She found that managerial agency was very important in delivering the system's benefits. Furthermore, Doherty et al. (2012) considered the active engagement of the top management and the leadership role throughout the project to enhance the ability to realise the maximum benefits. They conjectured that the traditional success factor, top management support, would not be enough. The management should actively engage in the project work and show its leadership role, taking on the responsibility of facilitating organisational change. In our study, the top management's leadership was very clear. Because the telecom industry is highly dependent on technology, the company had a comprehensive understanding of the role of technology, the need for advanced business systems and the impact of such systems. In fact, the active engagement of the company's management since the start of the implementation process was very critical in the success of this case. This was instrumental to ensure successful implementation of the changes requested as the study findings showed there were essential changes that

were needed. In particular those related to the regulations changed frequently. Having the management active throughout the implementation process facilitated the change management and then the successful benefits cultivation.

A number of studies on ERP implementation (e.g. Robey et al. 2002; Peng and Nunes 2010) have suggested minimising customisation as much as possible, as customisation creates a high level of errors and decreases the realised benefits (Gargeya and Brady 2005). However, customisation was reasonable in this case, and it was only done when it was necessary, because the company wanted to adopt the logic embedded in the system. Some customisations were indispensable due to the challenging environment. Customisation was needed to enable the ERP system to meet the new taxation regulations. This customisation was done after the system was implemented and used, and it was needed to restructure the taxation rules to enable the system to deal with multiple tax schemas at the same time. This was not provided for in the original system. In line with this, Aslam et al. (2012) found that customisation may be necessary to modify the information system to ensure that the system meets the functional requirements of the organisation. To illustrate this, they gave the example of the UK water industry, which has two main billing mechanisms. There is a unique billing mechanism in the UK in which the customer is billed on the basis of the rateable value of the home. Therefore, it is unlikely to be included in standard ERP billing functionality, but would need to be developed in the system to meet the needs of water companies (Aslam et al. 2012). However, having proficient people who were able to address these changes was critical as suggested by previous studies (Ononiwu 2013; Robey et al 2002). It would overcome the configuration challenge that usually influences the system benefits.

In general**,** this work contributed to the understanding of ERP implementation in the context of Palestine, and of key aspects for the success of these systems in the post-implementation stage in particular. The paper found six key success motives that can be better understood within the given context.

Acknowledgements

The authors would like to thank the paper reviewers for their insightful comments, and would like to thank 'Jawwal Mobile' that facilitated conducting this study, particularly, the finance director Hatem Al-Turabi, and other interviewees Ayman Hijji, Saeed Shehadeh, Saeed Ziedan and others.

References

Aslam, U., Coombs, C., and Doherty, N. (2012) "Benefits Realization from ERP Systems: The Role of Customization", European Conference on Information Systems (ECIS).

Davenport, T. (1998) "Putting the Enterprise into the Enterprise System". *Harvard Business Review*, Vol 76, No. 4, pp 121–131.

De Loo, I., Bots, J., Louwrink, E., Meeuwsen, D., van Moorsel, P., & Rozel, C. (2013) "The effects of ERP-implementations on the non-financial performance of small and medium-sized enterprises in the Netherlands**"** The *Electronic Journal Information Systems Evaluation,* Vol 16, No. 2, pp 103-116 , available online at www.ejise.com.

Doherty, N. F., Ashurst, C., and Peppard, J. (2012) "Factors Affecting the Successful Realisation of Benefits from Systems Development Projects: Findings from Three Case Studies", *Journal of Information Technology,* Vol 27, No. 1, pp 1–16.

Finney, S., and Corbett, M. (2007) "ERP Implementation: A Compilation and Analysis of Critical Success Factors", *Business Process Management Journal*, Vol 13, No. 3, pp 329–347.

Gargeya, V. B., and Brady, C. (2005) "Success and Failure Factors of Adopting SAP in ERP System Implementation", *Business Process Management Journal*, Vol 11, No. 5, pp 501–516.

Gattiker, T. F., and Goodhue, D. L. (2005) "What Happens After ERP Implementation: Understanding the Impact of Interdependence and Differentiation on Plant-Level Outcomes", *MIS Quarterly*, Vol 29, No. 3, pp 559–585.

Ha, Y. M., and Ahn, H. J. (2013) "Factors Affecting the Performance of Enterprise Resource Planning (ERP) Systems in the Post-Implementation Stage", *Behaviour & Information Technology*, pp 1–17.

Ononiwu, C. G., (2013) " A Delphi Examination of Inhibitors of The Effective use of Process Industry Enterprise Resource Planning (Erp) Systems: A Case Study of New Zealand's Process Industry**"** The *Electronic Journal Information Systems Evaluation,* Vol 16 No. 2, pp 116-133 , available online at www.ejise.com

Peng, G. C., and Nunes, J. M. B. (2009) "Surfacing ERP Exploitation Risks Through a Risk Ontology", *Industrial Management & Data Systems*, Vol 109, No. 7, pp 926–942.

Peng, G. C., and Nunes, M. B. (2010) "Why ERP Post-Implementation Fails? Lessons Learned from A Failure Case in China", The 14th Pacific Asia Conference on Information Systems (PACIS).

Robey, D., Ross, J. W., Boudreau, M. C. (2002) "Learning to Implement Enterprise Systems: An Exploratory Study of the Dialectics of Change", *Journal of Management Information Systems*, Vol 19, pp 17–46.

Shang, S., and Seddon, P. B. (2000) "A Comprehensive Framework for Classifying the Benefits of ERP systems", The Americas Conference on Information Systems.

Schubert, P., and Williams, S. P. (2011) "A Framework for Identifying and Understanding Enterprise Systems Benefits", *Business Process Management Journal,* Vol 17, No. 5, pp 808–828.

Seddon, P.B., Calvert, C. nad Yang, S. (2010) "A Mulit-Project of Key Factors Affecting Organizational Benefits from Enterprise Systems. *MIS Quarterly*, Vol 34, pp 305-328.

Soh, C., Kien Sia, S., Fong Boh, W., and Tang, M. (2003) "Misalignments in ERP Implementation: A Dialectic Perspective", *International Journal of Human-Computer Interaction,* Vol 16, No. 1, pp 81–100.

Somers, T. M., and Nelson, K. G. (2001) "The Impact of Critical Success Factors Across the Stages of Enterprise Resource Planning Implementations", Hawaii International Conference on Systems Sciences (HICSS), Maui, Hawaii.

Staehr, L. (2010) "Understanding the Role of Managerial Agency in Achieving Business Benefits from ERP Systems", *Information Systems Journal,* Vol 20, No. 3, pp 213–238.

Staehr, L., Shanks, G., and Seddon, P. B. (2012) "An Explanatory Framework for Achieving Business Benefits from ERP Systems", *Journal of the Association for Information Systems*, Vol 13, No. 6, pp 424–465.

Yin, R. K. (2009) *Case Study Research: Design and Methods* (Vol. 4), Sage Publications, Thousand Oaks.

<Article 5>

Anaya, Luay, Flak, Leif and Olsen, Dag. (2015). Start-up company? Get your ERP system ASAP! European, Mediterranean & Middle Eastern Conference on Information Systems 2015 (EMCIS2015), June 2015, Athens, Greece.

START-UP COMPANY? GET YOUR ERP SYSTEM ASAP!

TRACK: ENTERPRISE SYSTEMS

Luay Ahmad Anaya, Department of Information systems, University of Agder (UiA), Norway
Luay.a.anaya@uia.no

Dag Håkon Olsen, Department of Information systems, University of Agder (UiA), Norway
dag.h.olsen@uia.no

Leif Skiftenes Flak, Department of Information systems, University of Agder (UiA), Norway
leif.flak@uia.no

Abstract

Enterprise Resource Planning (ERP) systems are increasingly being implemented in organizations around the world. Scholars and practitioners consider the ERP system to be one of the most important technological products in an organization. Such systems have the potential to support organizations in their business operations and business growth, and can provide powerful solutions for integrating business processes. While there are a number of studies on ERP system implementation and use in general, little is known about the ERP experience of newly established companies. This exploratory study thus contributes to the growing literature on ERP implementation by studying a large, newly established company. The study applied a qualitative case-study approach to draw from the experiences of a Palestinian company that implemented an ERP system before starting business operation. Our findings suggest that new ventures can experience fewer challenges in realizing business benefits because they can more easily adopt business processes that match the software features. New ventures do not have entrenched business practices, historical business processes, or persistent culture, factors that have been found to impede realization of ERP benefits. This study recommends that new ventures, especially those who have adequate resources and expect to consistently grow in the market, should consider implementing ERP systems in the early stages, because such systems can help in establishing business operations and can support business growth. Further, many of the known barriers that obstruct benefits from ERP systems do not seem to occur in newly established firms.

Keywords: Newly-established, start-up company, new venture, enterprise systems, enterprise resource planning (ERP), benefits realization, post-implementation challenges.

1 INTRODUCTION

Technology is increasingly playing an effective role in organizations' lives, and many studies have shown evidence of the potential of technology to create and develop business practices in many organizations. ERP systems, in particular, play an important role in business operation and business development. Scholars and practitioners consider ERP systems the most important technological product for organizations (Chen, 2009; Davenport, 1998; Hawking et al., 2004; Melin, 2010; Wagner et al., 2010). Research and practice have paid attention to enterprise systems because these systems

have the potential to solve many traditional problems in a company, like scattered systems and files that are not properly integrated and do not provide comprehensive data storage, in addition to other problems such as increasing business complexity (Robey et al., 2002; Wagner et al., 2006). ERP systems are considered standard systems embedded with standard business functions that most organizations have, and these systems are designed to serve businesses in different countries, in different industries and in standard functionality, and can be implemented in different places to serve a single firm (Davenport, 1998; Williams and Pollock, 2012). Many organizations consider such systems as strategically important element for their growth. This makes many small and medium sized enterprises adopt ERP systems (Malhotra and Temponi, 2010; Soja, 2008; Panorama Consulting, 2013), and makes newly established firms, in early times, adopt the same systems (Chen, 2009).

The literature shows many challenges that face organizations when they start using an ERP system, after it has been successfully delivered. Robey et al. (2002) found two principal challenges that influence system use and influence the reaping of the system's benefits: configuration barriers and assimilation barriers. In other studies, scholars found further challenges, such as usage resistance (Kim et al., 2005), poor change management especially in the case of extensive customization or extensive organizational change (Kim et al., 2005), poor technical competence (Rajapakse and Seddon, 2005; Kim et al., 2005), and misfits between the culture including the new processes introduced by the system compared with the existing organizational culture and the old way of working (Hawari and Heeks, 2010; Peng and Nunes, 2009; Rabaa'i, 2009; Soh et al., 2003), in addition to other challenges.

It can be argued that many of these challenges are largely addressing concerns of established firms. Investigation of the original barriers that face already-established companies shows that these companies have existing systems, entrenched working practices and staff that has historically worked in certain ways. However, little is known about ERP implementation in newly established firms. Such firms are special in that they do not have a historical organizational heritage, such as existing processes, legacy systems, or an established organizational culture. Therefore, there is a call to conduct more studies on ERP implementation in such organizations (Chen, 2009). Most importantly, one of the few studies conducted on ERP implementation in newly established firms (Chen, 2009), indicated that implementing ERP in newly established firms is critical as it can leverage organizational development and build a solid infrastructure for organizational growth. Hence, scholars (e.g. Chen, 2009) have expressed the need for more research on these organizations in order to understand many issues about ERP implementations in newly established firms and their role in business growth, survival and benefits cultivation.

Implementing ERP systems in newly established firms is assumed to be dissimilar from implementing the same system in already established firms. This is because newly established firms have contextual characteristics that differ from established firms. However, it is evident in the literature that some contextual characteristics are affecting ERP implementation and benefits gained from such systems. For example, Soja (2008) found that ERP implementations are influenced with several conditions that vary from one context to another. He argues that factors like company size, implementation scope and adopted modules, are critical criteria to evaluate results from ERP projects. To address the mentioned issues, this study examines business age. That means we aim to focus in ERP implementation in new ventures as ample of existing research does not adequately pay attention to this considerably deviated context.

Interestingly, McDougall and Oviatt (1996) argued that newly established firms that have the potential to grow or who are expecting growth, in addition to private companies seeking internationalization, are required to set up policies, processes, procedures and culture that support such potential development at a very early stage. Otherwise, when these newly established firms grow, they may experience weak performance if they did not establish a substantial and solid base to foster healthy

growth in the early stages (McDougall and Oviatt, 1996). Organizations can be considered new ventures or start-up companies until they are six to eight years old (McDougall et al., 2003). Some studies considered new ventures to be those less than eight years old (Biggadike, 1979 in McDougall and Oviatt, 1996; Miller and Camp, 1985), whereas others classified new ventures as those six years old or younger (McDougall et al., 2003). In other studies, this limit was considered to be up to five years (Birley and Westhead, 1994). In this work, we use terms such as 'newly established firms', 'start-up companies' or 'new ventures' to denote organizations that implement ERP systems at a very early stage after their establishment, and particularly before the business operation. This means that such organizations, when they start their business operation, do not have existing systems, established business processes, or a completely constructed culture. These special features of newly established firms, in addition to the lack of studies about ERP implementations in such organizations, suggest that there is a need for further investigations into newly established firms.

We conducted an exploratory case study to further develop our understanding of whether the challenges discussed in the literature are also applicable to new ventures. We put forward a set of propositions for further research.

This study investigates a Palestinian telecom company that implemented an enterprise system in the early stages of its business start-up, specifically before starting business operations. The paper continues as follows: Section 2 reviews a number of relevant studies and outlines the theoretical perspective that has been considered. Section 3 explains the methodological choices that have been applied. Results are shown in Section 4 and discussed in Section 5. Section 6 presents the conclusions and recommendations.

2 THEORETICAL BACKGROUND

2.1 Barriers to realizing the benefits of implementing ERP systems

An ERP implementation is considered an important organizational practice and its success is seen as a powerful solution for business operations and for staff working in these organizations (Robey et al., 2002). Many studies have been conducted on ERP implementation and on the improved use of the system after implementation. The previous body of research has addressed highly important aspects that influence the gaining of ERP benefits. There are studies focused on benefits classification in ERP projects (e.g. Schubert and Williams, 2011; Shang and Seddon, 2000). There are also many studies focused on the drivers or motives that could lead to more benefits from ERP systems (e.g. Anaya and Olsen, 2014; Davenport et al., 2004; Gattiker and Goodhue, 2005; Seddon et al., 2010; Staehr et al., 2012; Peng and Nunes, 2009). However, a number of studies have focused on the barriers or challenges that could obstruct benefits-realization from ERP systems (e.g. Kim et al., 2005; Markus et al., 2000; Robey et al., 2002; Ross and Vitale, 2000; Sedmak, 2010). Accordingly, analysing these different studies results in a set of areas that are considered the main issues that, if dealt with and managed effectively, could lead to improved benefits, and when they are neglected they could lead to a lack of benefits-realization. In this regard, Ross and Vitale (2000, p. 238) state, "It is not clear how many firms that implement ERPs will actually achieve the benefits. It is clear that there are a number of possible pitfalls that put the benefits at risk, and careful planning can reduce the risk of failure."

There are many particular aspects related to the management of changes, whether it be organizational changes or system changes or modifications. Markus et al. (2000) emphasized the importance of change management, entailing organizational commitment and a high level of functional coordination (Anaya and Olsen, 2014; Kim et al., 2005; Markus et al., 2000; Ross and Vitale, 2000; Staehr et al., 2012). Many scholars have studied the business benefits derived when organizations implementing ERP systems change their business processes to fit the system. In fact, changes on the organizational side are not limited to changes in business processes and rules, but also include changes in the job

design (Ross and Vitale, 2000; Staehr et al., 2012). On the other hand, extensive changes of the ERP product to fit the established business processes could lead to poor benefits, as the organization could lose the benefits of the best practices imbedded in the system (Markus et al., 2000). Particularly, new ventures tend to adopt the ERP system because it can equip the organization with 'best practices' (Chen, 2009). Most importantly, the large amount of requested changes may create conflict with the ERP structure and logic, and as a result, the staff might prefer not to use the system, leading to marginal benefits (Markus et al., 2000; Robey et al., 2002; Soh et al., 2003). This paper aims to construct a classification for the barriers found in many studies, to be considered a theoretical base for this work. These main barriers are presented in Table 1.

Furthermore, many studies have found that ERP systems were unable to deliver the expected results because the staff did not use the system in effective ways, which can be attributed to a lack of human expertise and a lack of enthusiasm (Markus et al., 2000; Robey et al., 2002). In particular, Chen (2009) argued that newly established firms can acquire resources from related business groups to make the system work effectively and to obtain value from the ERP system. Furthermore, in many cases the organizations were disappointed with the technical features of the ERP system and its ability to deal with the historical data and the historical reporting mechanism (Markus et al., 2000; Ross and Vitale, 2000).

Table 1 provides a summary of the key barriers to benefits-realization from ERP systems.

Key barrier	**Literature**	**Explanations and findings from literature**
1. Organizational misfit	Gattiker and Goodhue, 2005; Hawari and Heeks, 2010; O'Donovan et al., 2010; Markus et al., 2000; Robey et al., 2002; Soh et al., 2003	Misfit between the existing systems, processes and culture from one side compared to the new ERP system, and the new processes and new ways of working from the other side.
2. Technical misfit	Carton and Adam, 2008; Markus et al., 2000; Ononiwu, 2013; Robey et al., 2002; Ross and Vitale, 2000	Dissatisfaction when the ERP system did not fulfil the needs of the business requirements, management reporting and historical data from the legacy systems.
3. People competence and availability	Anaya and Olsen, 2014; Boudreau and Robey, 2005; Chen, 2009; Kim et al., 2005; Markus et al., 2000; Ononiwu, 2013; Robey et al., 2002; Ross and Vitale, 2000; Saraf et al., 2013; Seddon et al., 2010; Staehr et al., 2012	Weaknesses in dedicated team members, who should be carefully selected, competent, well-educated, motivated and available throughout and after the implementation.
4. Managing system implementation and managing the requested changes	Kim et al., 2005; Markus et al., 2000; Ross and Vitale, 2000; Sedmak, 2010; Somers and Nelson, 2004; Staehr et al., 2012	Ineffective change management or inappropriate software modifications. Modifying the ERP system to implement the existing processes and rejecting the consideration of ERP as best practice. Lack of effective management for the consequent changes that the system entails, such as changes in roles and responsibilities.

Table 1. Key barriers that influence benefits gained from ERP systems.

3 RESEARCH METHOD

3.1 Research Strategy

The objective of this exploratory study is to investigate whether implementing an ERP system in a newly established company differs from experiences reported in the existing literature. For this objective, the study employed an in-depth case study strategy. The case study strategy is known for its ability to conduct exploratory investigations for the phenomenon under study, consequently providing compelling explanations for the findings (Eisenhardt, 1989; Yin, 2009). Furthermore, the case study helps the researchers understand the context, which in this study is a new venture implementing an ERP system before the actual business operation begins. Despite the limitation of the case study in the findings' generalization, it was seen as the most appropriate strategy to handle the data richness (Walsham, 1995). In addition to that, the case study strategy enables the researchers to develop theoretical propositions revealed from the data (Eisenhardt, 1989; Seawright and Gerring, 2008).

However, the case selection procedure was based on theoretical sampling, in which the decision to choose a case was based on a specific purpose (Eisenhardt, 1989). Multiple techniques were used to choose the case under investigation. Initially, the 'Snowball technique' (Patton, 2002) was used. In this regards, we sought advice from experts and consultants in Palestine to suggest candidate cases. Afterwards, we purposely selected the case as 'Stratified purposeful sampling technique' (Patton, 2002). This study focused in newly established firms, so we ensured the selected company was newly established, as defined earlier, when the company implemented the ERP system. Selecting cases based on environmental variations can clarify the findings domain, and make the study's results highly pertinent to the environmental characteristics that are chosen to determine the selection (Eisenhardt, 1989). However, as the major stream of research address established firms, this study aims to fill a theoretical categorization ignored in the literature. Hence, we assume the case type is 'deviant' according to a classification by Seawright and Gerring (2008). Generally, the purpose of a deviant case study is to "probe for new—but as yet unspecified—explanations…there is also a second, less common reason for choosing a deviant case. If the researcher is interested in disconfirming a deterministic proposition, then any deviant case will do" (Seawright and Gerring, 2008, p. 302). In this study, we assume that many barriers suggested in existing literature, may not be applicable to start-up companies. Thus, we aim to develop a set of propositions, for further research, that can explain how the implementation of ERP system in newly established firms differ from implementing the same system in already established firms. These propositions can provide insights to what extent newly established firms face the challenges that encounter already-established ones. In doing so, we can disconfirm many assertions that argue organizations experience many challenges because of the legacy systems, existing business culture and entrenched business practices, as these aspects are absent in start-up companies.

3.2 Data Collection

This study adopted a qualitative approach, which was helpful to construct a clear and deep understanding concerning ERP implementation in a new venture. Achieving a high level of understanding required conducting several interviews with the many individuals who participated in the system implementation. Many of these individuals worked at the telecom company, but the investigation also included team members working for the consulting company that participated in the system implementation. Hence, the semi-structured interviews were the primary data source in this study. These interviews enabled the researchers to access the people-dependent knowledge by understanding the social world from the viewpoints of the people who are using the system or participated in the system's implementation (Walsham, 1995). Furthermore, besides conducting the interviews with the main people, other techniques were also used as observation and documents analysis. In order to ensure data validity, the study's results were discussed with external experts who are familiar with the ERP implementations in Palestine.

The researchers used the tape-recording technique to record the interviews. This technique is recommended in order to capture participants' views and interpretations in a more effective way (Walsham, 1995). This was supplemented with note-taking to draw the most important interpretations and to record non-verbal events. Finally, transcription was used to document all interviews' details.

Table 2 provides details about the interviewees, their business roles and the interview duration.

Business Role	**Duration (in minutes)**
Chief Financial Officer (CFO) & Project Sponsor	45
Head of Accounting Section & Functional Consultant	110
Financial Accountant	45
Inventory & Fixed Assets Accountant	50
Technical Consultant & Application Administrator	60
Cash Management Accountant	40
Head of Human Resources Section	60
HR Assistant	40

Table 2. Interviewees' details.

3.3 Data Analysis

Data analysis is the cornerstone of exploratory studies that aim to develop theory from case studies (Eisenhardt, 1989). This section will briefly discuss the technique that lead the researchers outline their conclusion from the huge details they had collected. We applied the 'within-case analysis technique' (Eisenhardt, 1989; Yin, 2009) to comprehensively understand the case from different aspects, but, mainly, we paid attention to the specific matters related to the objective of this work. In order to develop this comprehensive understanding, we adopted hermeneutics approach (Klein and Myers, 1999) that entails understanding the whole from the parts, and the parts from the whole. In particular, we analysed every interview, as one part, by looking for interesting concepts related to this study, and we coded these concepts or themes. This process was iterated through all interviews to develop the whole understanding. Furthermore, we were iteratively revisiting the data collected from the interviews, the notes and the secondary sources, like the website and company reports, to make sense of the case, and to ensure that different sources are consistent. However, to conclude a set of themes that are highly related to this study, those reported in the results section, we analysed these themes under the light of the literature by comparing the generated themes with the theoretical constructs developed earlier. In this case, the four key barriers were considered a theoretical template (Langley, 1999) to compare the empirical data through it.

3.4 Case description

This study investigates a Palestinian company, called in this study 'Telco M'. This company provides mobile telecommunication services in Palestine, and started its business operations in 2009. Within its first three years of operation the company engaged about 600,000 subscribers in the West Bank alone. This success was despite the political and economic instability and crises that affect Palestine. Telco M has invested heavily in technology; in 2012 alone, the company invested U.S. $21.4 million for network upgrades and operational information systems. By the end of 2012, the company had 419 employees (of whom 397, representing about 95% of the company staff, had a bachelor's degree or higher), whereas it had only about 150 employees when the system's implementation was begun in early 2009. The company started the implementation of the Oracle E-Business Suite, which is classified as a tier 1 global product (Panorama Consulting, 2013). When the company launched its services to customers in November 2009, many fundamental modules (e.g. general ledger, accounts

receivable, accounts payable) of this wide and global system were ready to be used. This system has been viewed as an important component of the technological infrastructure of the company, helping to introduce its business services and streamlining business processes, and leading the company towards more growth.

4 RESULTS

Reviewing the existing literature provides a set of challenges, classified in Table 1. These principal barriers and challenges will be considered through a theoretical lens to examine the extent to which they exist in newly established firms. The findings will be presented according to the illustrated barriers.

4.1 Misfit between the existing culture or processes and the new ERP system

When Telco M implemented an Oracle ERP system in 2009, it had just been established. Therefore, the organizational culture was not yet completely formed. On the contrary, the ERP system was seen as an organizational initiative to effectively contribute to a modern culture for the company. The key functional consultant, who also served as the accounting section head, commented, "When we face a new business requirement or any business issue, the first thing we think about is how this emerged matter could be assimilated into the system, and what functionality and what features are in the system that could help us deal with this issue." Echoing this, the finance director noted that "in many cases and through the meetings with the company board, we stated some terms used in the ERP system as if they are business terms known to everybody, before being reminded by the board members that these terms were unclear to them." Therefore, the ERP system, including its terms and concepts, was used by the company staff, and the system brought in new terms to become part of the new corporate culture of the company. The human resources section head commented that "in order to recruit a new staff member and through the job interviews, we ask the applicants if they have worked with the Oracle ERP business suite, as this competence is desirable, and we mention to them that they will work on this ERP system and that this enterprise system will be the main information system that they will work on for most of the day." However, it is clear from the data that the system brought a new and acceptable culture to the company. The company considered the ERP system a regulation mechanism or a working platform that provided a base for the regular business procedures and rules. In fact, the informants did not see any significant conflict between their business procedures and rules and the ERP system, with some exceptions related to country rules, as the system was seen as a driving force to do work.

This conceptualization differs from the existing literature, which has found that ERP implementations in organizations, particularly in established companies, create a cultural dialectic between the existing working practices and culture on one side, and the practices implied by the ERP system on the other.

4.2 Technical barriers from the software

Since Telco M is newly established and the system has been adapted to use 'best practices', there was no obvious misfit between the business requirements and the ERP system. Although the ERP system provided a standard functionality for the company, many informants noted that the system lacked many important reports. Therefore, the company staff, in collaboration with external consultants and implementers, developed a wide range of reports necessary for the company. Most importantly, since the company was a new venture, there was no data migration. In contrast, the literature shows that inconsistencies between old data and new system functionality can create significant problems (Markus et al., 2000) and impede benefits-realization.

4.3 People competence and availability

The company began the implementation with a limited number of staff (120 employees), including only three in the IT department. In addition, the company hired external staff as technical and functional consultants, who were available throughout the implementation and in the first period after the implementation. Telco M also hired staff members, many of them were seniors, in different business functions that would use the system, and hired additional staff when required. By the time the ERP system was in operation, the number of staff was increasing, with approximately 450 employees by the end of 2012. Staff members underwent training sessions when they joined the company, and the ERP system functionality and procedures were the main topical areas. This meant the staff were learning about the system without unlearning previous procedures. The HR assistant noted, "I was very motivated to work on the system, and I was asking my colleagues, and looking at the system help files and on professional blogs, to learn some features and to learn how to use the system efficiently." It is worth mentioning that many of the staff who were hired after the implementation were competent in and had previous experience with ERP systems, and were motivated to use the system and to develop their experience working with such systems.

The literature shows that one of the main barriers that obstructs ERP system use and benefits-achievement is staff competence. This is because the existing staff's skills are related to the previous system and they most likely lack the skills related to large-scale ERP systems.

4.4 Managing the implied changes

Telco M did not start its business operations until it had an ERP system. The company started implementation of its ERP system at the beginning of 2009 and continued for nine months, until the system was ready for use in September 2009, the same period during which the company launched its services. The financial director remarked, "We adopted the ERP system to bring best practices for the company and to start our business operation according to these international standards, so we were keen to implement the system without extensive modifications." It can be inferred from the interviewees that the system was seen as a cornerstone of the infrastructural system to drive business operations. Furthermore, because there were no pre-existing work practices, there were no system changes or extensive customizations. The technical consultant and the application administrator from the consulting company responsible for the system implementation said, "The customization was limited and it was just to address country needs, like the currency treatment." It is also important to mention that there were no new roles or changed job definitions, so there were no wide organizational changes. The job structures had been recently designed and the company had not yet finished the development of these designs, so there were no changes to job practices to be managed, as there would be in an established firm.

5 DISCUSSION

Telco M began its business operations after the ERP system had been put into use. When the company started using the system, it did not have any historical background or existing culture that could resist the new culture (including organized processes for decision-making and a profound reliance on technology and digital means) embedded in the implemented system. In this case, the organizational cultural conflict revealed in many studies (e.g. Markus et al., 2000; Soh et al., 2003) did not seem to exist. This means that Telco M was not attracted to traditional working practices; rather, it was a newly established company that needed an enterprise system as a basis for introducing a modern way of doing business, based on international standards.

The issue of ERP implementation in newly established firms has received little attention in the literature. This study accentuates the need to address this issue in information system research. We, therefore, posit a number of propositions to be addressed in further research.

The literature shows that many organizations prefer to adapt the system to the organization. These adaptations create tension between what is called the 'commodity standard product' and the organizational processes, which sometimes causes serious conflicts with business strategies or with the success of the whole system, especially in the assimilation stage, when people start using the system (Robey et al., 2002; Chen, 2009; Markus et al., 2000; Melin, 2010; Wagner and Newell, 2004; Wagner et al., 2010). However, the gap between the new system's functionality and the existing business practices necessitates changes on one of the sides. Organizations either change their business processes to embrace the system's functionality, with a low level of customization, or they change the system to fit the existing business processes (Markus et al., 2000; Melin, 2010; Staehr et al., 2012). This study found that it was beneficial for the case company to create organizational processes that were consistent with the system's functionality; they needed to delay defining the organizational processes until the ERP system was implemented. Therefore, the conflict between existing processes and the new system's functionality, which is apparent in many studies, was not present in this study.

We therefore propose:

P1: Newly established firms experience less organizational misfit between the ERP system and organizational processes than do established firms.

P2: Newly established firms experience fewer challenges in change management related to ERP implementations than do established firms.

However, as illustrated in previous studies (e.g. Markus et al., 2000; Ross and Vitale, 2000), some organizations become quite disappointed with ERP systems because their business requirements and reporting needs were not deliberately met or because they were undermined by the implementers.

There are challenges related to incorporating existing data with the ERP system, especially when some organizations need to retain legacy data for many years (e.g. for regulatory compliance or because their products remain in service for many years) (Markus et al., 2000). However, Telco M, as a new venture, did not encounter such challenges as the company had no historical data. Therefore, the absence of entrenched business practices and existing historical data helped this new venture to implement the new ERP system in a fresh environment without many obstructions, as cited in previous studies.

Hence, we propose:

P3: Newly established firms experience less technical misfit related to ERP implementations than do established firms.

Furthermore, many studies (e.g. Boudreau and Robey, 2005; Kim et al., 2005; Robey et al., 2002; Saraf et al., 2013) have highlighted the importance of a dedicated and motivated team with expertise and enthusiasm to use the system. These studies found that many barriers that obstruct ERP benefits-realization are attributed to the lack of staff members' competence. Such competence would enable them to understand the ERP system and its potential, and would significantly improve their ability to manage such wide-scale systems (Kim et al., 2005). Robey et al. (2002) found that a dedicated core team that is carefully selected, motivated with incentives and empowered to act, along with effectively managed consulting relationships, are critical for responding to configuration challenges; the absence

of such staff or their resistance can negatively influence the system's use and the benefits gained from it. However, Telco M only had 120 staff, including three employees in the IT department, when the ERP system was implemented. One challenge faced the company, which is the need for experienced people able to play effective role in the early stages. The company decided to hire a number of key persons who had worked in ERP system in telecom business to be served as advisors to other staff members, and to communicate with the consulting company implemented the system. This is aligned with Chen (2009) who suggested hiring staff in new ventures from relevant business groups. 'Telco M' was thus able to hire staff with adequate skills. The interviews showed that the new staff members were motivated to use the system and there was no significant user resistance. Interestingly, the findings revealed that more than 95% of the company's staff had a bachelor's or higher degree. We conjecture that when new ventures are able to hire competent and educated people, they are less likely to have problems dealing with wide-scale technological systems. This is related to cultural and technical competence, which is one barrier attributed to the lack of benefits-realization from enterprise systems in previous studies (Rajapakse and Seddon, 2005; Robey et al., 2002).

Accordingly, we propose:

P4: Newly established firms are more agile in terms of acquiring the required ERP competences than are established firms.

P5: Staff in newly established firms will demonstrate less resistance to using ERP systems than will staff in established firms.

Therefore, ERP implementation in new ventures seems to be less challenging because it is not laden with the many obstacles found in previous studies. Consequently, this study suggests that new ventures should give priority to implementing an ERP system early in the organizational life cycle and should allocate appropriate funds for it. The implementation will thus be less risky and challenges can be managed more easily. In addition, this can provide more benefits for newly established companies, such as providing a healthy base for business growth and a working environment based on best practices in the field.

We conjecture that it was essential for the case company to implement the ERP system to develop the organizational infrastructure. The company operates in the telecom industry, which is based on the technology, and the management believes in the role of technology to build strong capabilities. Businesses in other industries not have the same belief, and not pay attention to technology products early. Even if this company was newly established, the case revealed that the company hired 150 employees in the first year. The company also allocated a great deal of investment to implement technology products. This issue is most likely absent in many small and medium enterprises that lacks the resources and usually do not give priority for investment in technology products (Malhotra and Temponi, 2010). Furthermore, this company was planning to grow, and one reason for their adoption to the system was to help them build a solid base to leverage their future growth. The number of employees was 150 in 2009, and jumped to 419 at the end of 2012. Other businesses, particularly small organizations, do not usually have similar growth rate. We argue that implementing an ERP system in a start-up company can lay an important foundation for growth, but the implementation should take under consideration other factors. We advocate the factors suggested by Chen (2009), as they influence the implementation and even the decision to implement ERP systems in newly established firms. For example, factors like company's growth stages, the unique industrial characteristics, and having information technology capabilities found as critical contingencies revealed in Chen's work (2009) and supported in this study. Furthermore, research found that organizations that define their business objectives and align their business strategies with the ERP system implementations are able to create more value and override conflict possibilities (Chen, 2009; Soja, 2008). Thus, new ventures that define their objectives and pay attention to their strategic plans become more able to utilize their ERP systems to leverage growth.

6 CONCLUSION

Based on an exploratory case study, this research suggests that well-known barriers to achieving benefits from ERP systems can be far less problematic for newly established companies than for established companies. Furthermore, we provide interesting suggestions that can assist new ventures in their implementation of ERP systems. Early adoption of an ERP system provided, in our case, a solid foundation for business growth and was seen as a key enabler of business development. At the same time, many barriers that usually affect implementation and benefits from ERP systems in established companies are not clearly present in new companies. For example, dialectic tensions between the processes implied by the system and the existing organizational processes, and even staff resistance, were not considered very challenging in our case. The findings provide deep insights into the ERP implementation in a newly established company and a set of propositions for further research. It is recognized that employing a single case study has many limitations, especially the generalizability. Despite such limitation, developing the aforementioned propositions reveals the experience of the company under investigation, but certainly these propositions are suggested within many contextual or environmental characteristics discussed like industry environment, the potential to growth, and the capabilities and resources available or can be acquired in early times. Thus, we invite further research, preferably with large samples, to confirm whether organizations that rapidly adopt ERP systems before they have broad functional needs are likely to be more successful than organizations that delay adopting ERP systems until later stages of the organization's life. Finally, there is a need for further studies to investigate the challenges that face newly established firms in particular.

References

Anaya, L. A. and D. H. Olsen (2014). "Implementing ERP in a Challenging Environment: The Case of a Palestinian Telecom Company." Paper presented at the 8th European Conference on IS Management and Evaluation (ECIME), Ghent, Belgium, September 2014.

Birley, S. and P. Westhead (1994). "A taxonomy of business start-up reasons and their impact on firm growth and size." *Journal of Business Venturing* 9 (1), 7–31.

Boudreau, M.-C. and D. Robey (2005). "Enacting integrated information technology: A human agency perspective." *Organization Science* 16 (1), 3–18.

Carton, F. and F. Adam (2008). "ERP and functional fit: How integrated systems fail to provide improved control." *The Electronic Journal Information Systems Evaluation* 11 (2), 51–60, available online at www.ejise.com

Chen, J.-R. (2009). "An exploratory study of alignment ERP implementation and organizational development activities in a newly established firm." *Journal of Enterprise Information Management* 22 (3), 298–316.

Davenport, T. H. (1998). "Putting the enterprise into the enterprise system." *Harvard Business Review* 76 (4), 121–131.

Davenport, T. H., J. G. Harris and S. Cantrell (2004). "Enterprise systems and ongoing process change." *Business Process Management Journal* 10 (1), 16–26.

Eisenhardt, K. M. (1989). "Building theories from case study research." *Academy of Management Review* 14 (4), 532–550.

Hawari, A. and R. Heeks (2010). "Explaining ERP failure in a developing country: A Jordanian case study." *Journal of Enterprise Information Management* 23 (2), p. 135.

Hawking, P., A. Stein and S. Foster (2004). "Revisiting ERP Systems: Benefit Realisation". In Proceedings of the 37th Hawaii International Conference on System Sciences.

Gattiker, T. F. and D. L. Goodhue (2005). "What happens after ERP implementation: Understanding the impact of inter-dependence and differentiation on plant-level outcomes." *MIS Quarterly* 29 (3), 559–585.

Langley, A. (1999). "Strategies for Theorizing from Process Data." *The Academy of Management Review, 24*(4), 691-710.

Kim, Y., Z. Lee and S. Gosain (2005). "Impediments to successful ERP implementation process." *Business Process Management Journal* 11 (2), 158–170.

Klein, H. K., & Myers, M. D. (1999). "A set of principles for conducting and evaluating interpretive field studies in information systems. " *MIS Quarterly*, 67-93.

Malhotra, R., and Temponi, C. (2010). "Critical decisions for ERP integration: Small business issues. " *International Journal of Information Management, 30*(1), 28-37.

Markus, M. L., S. Axline, D. Petrie and C. Tanis (2000). "Learning from adopters' experiences with ERP: Problems encountered and success achieved." *Journal of Information Technology* 15 (4), 245–265.

McDougall, P. P. and B. M. Oviatt (1996). "New venture internationalization, strategic change, and performance: A follow-up study." *Journal of Business Venturing* 11 (1), 23–40.

McDougall, P. P., B. M. Oviatt and R. C. Shrader (2003). "A comparison of international and domestic new ventures." *Journal of International Entrepreneurship* 1 (1), 59–82.

Melin, U. (2010). "The enterprise system as a part of an organization's administrative paradox." *Journal of Enterprise Information Management* 23 (2), 181–200.

Miller, A. and B. Camp (1985). "Exploring determinants of success in corporate ventures." *Journal of Business Venturing* 1(1), 87–105.

O'Donovan, B, L. Seymour, J. Geldenhuys, M. Isaacs and K. Kaulule (2010). "The influence of organisational memory mismatches and coping strategies on ERP outcomes. *Electronic Journal Information Systems Evaluation* 13 (2), 165–176, available online at www.ejise.com.

Ononiwu, C. G. (2013). "A delphi examination of inhibitors of the effective use of process industry Enterprise Resource Planning (ERP) systems: A case study of New Zealand's process industry." *Electronic Journal Information Systems Evaluation* 16 (2), 116–133, available online at www.ejise.com.

Panorama Consulting (2013). *2013 ERP Report: A Panorama Consulting Solutions Research Report*.

Peng, G. C. and M. B. Nunes (2009). "Identification and assessment of risks associated with ERP post-implementation in China." *Journal of Enterprise Information Management* 22 (5), 587–614.

Rabaa'i, A. (2009). "The impact of organisational culture on ERP systems implementation: Lessons from Jordan." In *Proceedings of the Pacific Asia Conference on Information Systems 2009*.

Rajapakse, J. and P. Seddon (2005). "Why ERP may not be suitable for organisations in developing countries in Asia." In *Proceedings of PACIS 2005*, Bangkok, 1382–1388.

Robey, D., J. W. Ross and M.-C. Boudreau (2002). "Learning to implement enterprise systems: An exploratory study of the dialectics of change." *Journal of Management Information Systems* 19 (1), 17–46.

Ross, J. W. and M. R. Vitale (2000). "The ERP revolution: Surviving versus thriving." *Information Systems Frontiers* 2 (2), 233–241.

Saraf, N., H. Liang, Y. Xue and Q. Hu (2013). "How does organisational absorptive capacity matter in the assimilation of enterprise information systems?" *Information Systems Journal* 23, 245–267.

Schubert, P. and S. Williams (2011). "A framework for identifying and understanding enterprise systems benefits." *Business Process Management Journal* 17 (5), 808–828.

Seawright, J., and Gerring, J. 2008. "Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options. " *Political Research Quarterly* 61(2), 294–308.

Seddon, P. B., C. Calvert and S. Yang (2010). "A multi-project model of key factors affecting organizational benefits from enterprise systems." *MIS Quarterly* 34 (2), 305–328.

Sedmak, M. (2010). Studying the processes during implementation of enterprise systems." *Knowledge and Process Management* 17 (1), 1–11.

Shang, S. and P. Seddon (2000). "A comprehensive framework for classifying the benefits of ERP systems." The Americas Conference on Information Systems.

Soh, C., S. Kien Sia, W. Fong Boh and M. Tang (2003). "Misalignments in ERP implementation: A dialectic perspective." *International Journal of Human-Computer Interaction* 16 (1), 81–100.

Soja, P. (2008). "Examining the conditions of ERP implementations : lessons learnt from adopters. " *Business Process Management Journal, 14*(1), 105-123.

Somers, T. M. and K. G. Nelson (2004). "A taxonomy of players and activities across the ERP project life cycle." *Information and Management* 41 (3), p. 257.

Staehr, L., G. Shanks and P. B. Seddon (2012). "An explanatory framework for achieving business benefits from ERP systems." *Journal of the Association for Information Systems* 13 (6), 424–465.

Patton, MQ. (2002). *Qualitative Research and Evaluation Methods* (2nd Edition). Thousand oaks, CA: Sage Publications.

Wagner, E. L. and S. Newell (2004). "'Best' for whom?: The tension between 'best practice' ERP packages and diverse epistemic cultures in a university context." *Journal of Strategic Information Systems* 13 (4), 305–328.

Wagner, E. L., S. V. Scott and R. D. Galliers (2006). "The creation of 'best practice' software: Myth, reality and ethics." *Information and Organization* 16 (3), 251–275.

Wagner, E. L., S. Newell and G. Piccoli (2010). "Understanding project survival in an ES environment: A sociomaterial practice perspective." *Journal of the Association for Information Systems* 11 (5), 276–297.

Walsham, G. (1995). "Interpretive case studies in IS research: Nature and method." *European Journal of Information Systems* 4 (2) 74–81.

Williams, R. and N. Pollock (2012). "Research commentary - Moving beyond the single site implementation study: How (and why) we should study the biography of packaged enterprise solutions." *Information Systems Research* 23 (1), 1–22.

Yin, R. K. (2009). *Case Study Research: Design and Methods*. Volume 4. Thousand Oaks: Sage Publications.