The copyright © of this thesis belongs to its rightful author and/or other copyright owner. Copies can be accessed and downloaded for non-commercial or learning purposes without any charge and permission. The thesis cannot be reproduced or quoted as a whole without the permission from its rightful owner. No alteration or changes in format is allowed without permission from its rightful owner.

UNDERSTANDING ERP IMPLEMENTATION CHALLENGES: A CASE STUDY IN A TELECOMMUNICATIONS COMPANY

NURUL FATEHAH BINTI ABD JALAL

Universiti Utara Malaysia

MASTER OF SCIENCE
(INTERNATIONAL ACCOUNTING)
UNIVERSITI UTARA MALAYSIA
SEPTEMBER 2022

UNDERSTANDING ERP IMPLEMENTATION CHALLENGES: A CASE STUDY IN A TELECOMMUNICATIONS COMPANY

By

NURUL FATEHAH BINTI ABD JALAL

Universiti Utara Malaysia

Project Paper Submitted to
Tunku Puteri Intan Safinaz School of Accountancy,
Universiti Utara Malaysia,
In Partial Fulfilment of the Requirement for the Master of Science
(International Accounting)

Kolej Perniagaan
(College of Business)
Universiti Utara Malaysia

PERAKUAN KERJA DISERTASI/KERTAS PENYELIDIKAN/KERTAS PROJEK
(Certification of thesis / dissertation)

Kami, yang bertandatangan, memperakukan bahawa
(We, the undersigned, certify that)

NURUL FATEHAH BINTI ABD JALAL (825827)

calon untuk Ijazah **MASTER OF SCIENCE (INTERNATIONAL ACCOUNTING)**
(candidate for the degree of)

telah mengemukakan tesis / disertasi yang bertajuk:
(has presented his/her thesis / dissertation of the following title):

UNDERSTANDING ERP IMPLEMENTATION CHALLENGES: A CASE STUDY IN A TELECOMMUNICATIONS COMPANY

seperti yang tercatat di muka surat tajuk dan kulit tesis / disertasi.
(as it appears on the title page and front cover of the thesis / dissertation).

Bahawa tesis/disertasi tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan, sebagaimana yang ditunjukkan oleh calon dalam ujian lisan yang diadakan pada:

.

(That the said thesis/dissertation is acceptable in form and content and displays a satisfactory knowledge of the field of study as demonstrated by the candidate through an oral examination held on:

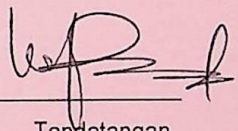
.

Pengerusi Viva : _____ Tandatangan _____
(Chairman for Viva) *(Signature)*

Pemeriksa Dalam : **DR. NORHAIZA KHAIRUDIN** Tandatangan _____
(Internal Examiner) *(Signature)*

Tarikh:
(Date)

Nama Pelajar (Name of Student)	:	**NURUL FATEHAH BINTI ABD JALAL (825827)**
Tajuk Tesis / Disertasi *(Title of the Thesis / Dissertation)*	:	**UNDERSTANDING ERP IMPLEMENTATION CHALLENGES: A CASE STUDY IN A TELECOMMUNICATIONS COMPANY**
Program Pengajian *(Programme of Study)*	:	**M20D – MASTER OF SCIENCE (INTERNATIONAL ACCOUNTING)**
Nama Penyelia/Penyelia-penyelia *(Name of Supervisor/Supervisors)*	:	**DR. HAFIZAH MOHAMAD HSBOLLAH**



Tandatangan

PERMISSION TO USE

In presenting this project paper as partial fulfilment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the library of this university may make it freely available for inspection. I also agree that permission for copying this project paper in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of the Tunku Puteri Intan Safinaz School of Accountancy where I did my project paper. It is understood that any copying or publication or use of this project's paper parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my project paper.

Request for permission to copy or to other use materials on this project paper in whole or in part should be addressed to:

Dean of Tunku Puteri Intan Safinaz School of Accountancy
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman

Universiti Utara Malaysia

ABSTRACT

An enterprise resource planning (ERP) system is a software that helps organisations to manage their core processes, including assets, inventory, order requests, financial accounting, and human resources. This study explores the ERP implementation challenges in a telecommunications company. This study is a qualitative study, where a single case study approach was used (in a company given the pseudonym FESB) to collect data using a semi-structured interview. The data was analysed by using thematic analysis. The findings suggest that the main challenges faced by FESB during ERP implementation are technology, data migration, training and learning and management. In this context, these factors contribute to the delayed ERP implementation in FESB, which is targeted to be implemented in July 2022. The findings suggest that FESB should utilise the system's capabilities more than currently; the system implementation is at the data migration stage and is not fully used. This research contributes to the challenges to ERP implementation in the context of a telecommunications company.

Keywords: Enterprise Resource Planning (ERP) System, ERP Implementation, ERP challenges, Telecommunications, Software, Qualitative

Universiti Utara Malaysia

ABSTRAK

Sistem perancangan sumber perusahaan (ERP) ialah perisian yang membantu organisasi mengurus proses teras mereka, termasuk aset, inventori, permintaan pesanan, perakaunan kewangan dan sumber manusia. Kajian ini meneroka cabaran pelaksanaan ERP dalam sebuah syarikat telekomunikasi. Kajian ini merupakan kajian kualitatif, di mana pendekatan kajian kes tunggal digunakan (dalam syarikat yang diberi nama samaran FESB) untuk mengumpul data dengan menggunakan cara temu bual separa berstruktur. Data dianalisis dengan menggunakan analisis tematik. Penemuan menunjukkan bahawa cabaran utama yang dihadapi oleh FESB semasa pelaksanaan ERP ialah teknologi, migrasi data, latihan dan pembelajaran serta pihak pengurusan. Dalam konteks ini, faktor-faktor ini menyumbang kepada pelaksanaan ERP yang tertangguh dalam FESB, yang disasarkan untuk dilaksanakan pada Julai 2022. Penemuan menunjukkan bahawa FESB harus menggunakan keupayaan sistem lebih daripada sekarang; di mana pelaksanaan sistem berada di peringkat pemindahan data dan masih belum digunakan sepenuhnya. Penyelidikan ini menyumbang kepada cabaran pelaksanaan ERP dalam konteks syarikat telekomunikasi.

Kata kunci: Sistem Perancangan Sumber Perusahaan (ERP), Pelaksanaan ERP, cabaran ERP, Telekomunikasi, Perisian, Kualitatif

Universiti Utara Malaysia

ACKNOWLEDGEMENT

Foremost, I would like to say Alhamdulillah, and deepest gratitude to Allah the Almighty God, until finally I finished the master project paper with His will.

Next, I would like to extend my sincere appreciation to Dr Hafizah Binti Mohamad Hsbollah for the valuable guidance and for her enthusiastic encouragement and precious guidance for my master project.

Also, I would like to dedicate my gratefulness to my family members, especially my husband, Fadlan Nafiz bin Abd Wahab, for the endless love and moral support in giving me time to complete this project paper on time. Not to be forgotten, my fellow friends, especially my managing director, Mr Adrian Cham and my office mates, for their endless support and continuous encouragement throughout my study. This accomplishment would not have been possible without them.

Finally, thank you for the cooperation, encouragement, and enthusiasm for those who are directly or indirectly involved in preparing this project paper. The journey of completing this project paper will be wonderful memories of my life.

Thank you.

Universiti Utara Malaysia

TABLE OF CONTENT

CERTIFICATION OF PROJECT WORK ii
PERMISSION TO USE iii
ABSTRACT iv
ABSTRAK v
ACKNOWLEDGEMENT vi
TABLE OF CONTENT vii
LIST OF TABLES x
LIST OF FIGURES xi
LIST OF ABBREVIATIONS xii
CHAPTER 1: INTRODUCTION 1
1.0 Introduction 1
1.1 Background of the study 1
1.2 Problem Statement 2
1.3 Research Questions 8
1.4 Research Objectives 8
1.5 Scope and Limitation of the Study 8
1.6 Organisation of the Study 9
CHAPTER 2: LITERATURE REVIEW 10
2.0 Introduction 10
2.1 Enterprise Resource Planning (ERP) 10
2.2 ERP Development 12
2.3 Benefits of ERP 13
2.4 ERP Implementation Challenges 15
2.4.1 Lack of Top Management Support 16
2.4.2 Organisational Resistance 17
2.4.3 Re-engineering 17
2.4.4 Implementation Time 18
2.4.5 Implementation Costs 18
2.4.6 Lack of Skilled Employees 19
2.4.7 Training Employees 19
2.4.8 Data migration 20

Universiti Utara Malaysia

2.5 Challenges of ERP implementation in SMEs 20
2.6 Critical Success Factors 21
2.7 The Impact of Failure ERP System on Organisational Performance 22
2.8 Chapter Summary 23
CHAPTER 3: RESEARCH METHODOLOGY 24
3.0 Introduction 24
3.1 Research Paradigm 24
3.2 Research Approach 25
3.3 Research Method 25
3.3.1 The Case 26
3.3.2 ERP implementation status 27
3.4 Data collection 27
3.5 Sampling 28
3.6 Data Analysis 29
3.7 Chapter Summary 30
CHAPTER 4: FINDINGS AND DISCUSSION 31
4.0 Introduction 31
4.1 Demographic information 31
4.2 The Coding Process 32
4.2.1 Technology 33
4.2.2 Data Migration 34
4.2.3 Training and Learning 35
4.2.4 Management 36
4.3 Discussion 37
4.3.1 Technology 37
4.3.2 Data Migration 38
4.3.3 Training and Learning 41
4.3.4 Management 41
4.4 Chapter Summary 42
CHAPTER 5: SUMMARY AND RECOMMENDATION 44
5.0 Introduction 44
5.1 Summary of Findings 44
5.2 Significance and Contributions of the Study 45

Universiti Utara Malaysia

5.3 Limitations 46
5.4 Recommendations 46
5.5 Chapter Summary 47
REFERENCE 48
APPENDICES 60

Universiti Utara Malaysia

LIST OF TABLES

Table 1 List of Participants 29

Table 2 Summary of demographic information of interviewees from FESB 31

Table 3 Emerged themes and codes from collected data 32

Universiti Utara Malaysia

LIST OF FIGURES

Figure 1 ERP Modules 11

Figure 2 Research Approach 25

Figure 3 A proposed Model for Challenges of ERP implementations 44

Universiti Utara Malaysia

LIST OF ABBREVIATIONS

ERP	Enterprise Resource Planning
SMEs	Small and Medium Enterprises
IoT	Internet of Things
ICT	Information and Communication Technologies
IT	Information Technology
SCM	Supply Chain Management
CRM	Customer Relationship Management
BI	Business Intelligence
MSMEs	Micro, Small and Medium Enterprises
GDP	Gross Domestic Product
PO	Purchase Order
HR	Human Resources

Universiti Utara Malaysia

CHAPTER 1
INTRODUCTION

1.0 Introduction

This chapter outlines the background of the study, the problem statement, research questions and research objectives, the scope and limitation of the study, and the organisation of the thesis.

1.1 Background of the study

An Enterprise Resource Planning (ERP) system is a software that assists organisations in managing their core processes, including assets, inventory, order requests, financial accounting, and human resources. An ERP system can help organisations of different sizes in various ways, such as assisting in data management. An ERP system can prevent problems caused by multiple systems, by tracking data in one centralised system. Al-Mudimigh et al. (2001) stated that the ERP system integrates all key business activities at every level in order for organisations to gain a competitive advantage.

Strong and Volkoff (2004) posited that an ERP roadmap could help an organisation to achieve technological and organisational objectives and gain significant benefits. For example, the ERP system can allow small and medium enterprises (SMEs) the complete integration of business activities, leading to efficiency and effectiveness in decision-making (Sahran et al., 2010; Menon et al., 2019). ERP system also allows sharing of information or data in real-time, which can be assessed online and allows for customisation to fit the organisations workflow.

Implementing the ERP system is challenging, and organisations must handle the implementation costs and issues accordingly. In fact, the process of implementation ERP are hectic and challenging as the implementations cost a significant amount of money, time, and consultants services (Menon et al., 2019). According to Sahran et al., (2010), it is a socio-technological challenge in ERP implementation especially in Malaysian SMEs which it needs to modifying and re-engineering critical business processes to facilitate ERP implementations. Besides, telecommunications company faces challenges such as a complex of operational processes, the need of care customer services, large number of account transactions, and managing inventory (Hans, 2022). Therefore, to ensure the organisational success in implementing ERP system, it is crucial to explore the challenges during ERP implementation in a telecommunications company.

1.2 Problem Statement

Today, Malaysia's telecommunications industry is being driven by digital adoption for digital transformation to a higher level. The demand for the Internet of Things (IoT) technology has been increasing, which is one reasons why the telecommunications industry is facing exponential growth. Telecommunications are serving as the backbone of internet technology; this industry is expected to lead digitalisation efforts and greater connectivity. Generally, IoT can provide real-time data by tracking and monitoring the information sent automatically to the ERP system, thereby eliminating the need for manual processes.

The ERP system integrates all corporate units and business functions into a single computer system. Gartner, a worldwide consulting firm in information technology (IT),

defines an ERP system as a system with "the ability to provide a set of integrated enterprise applications". In other words, the ERP system integrates operational processes and enterprise functions, including finance, sales, production, human resources, distribution and marketing (Gartner, 2012). The integration within the ERP functions offers various advantages, including improving internal processes, communications, financial compliance, real-data flow, supply chain management (SCM) and customer relationship (Nair & Chellasamy, 2017; Gargeya et al., 2020).

ERP systems are essential tools for integrating project management activities, which could improve project management quality (Chen et al., 2009). Project management in a business refers to the application of processes, methods, skills, and knowledge to achieve set objectives within time and budgetary constraints. Managing projects in telecommunications companies require ability and project management knowledge as the project managers have to manage and control the project execution from planning projects to compressing time and costs. The allocated timeframe for the delivery of products or services is a crucial indicator of project management. An ERP system can help project managers integrate project planning, cost monitoring, performance tracking and business intelligence to improve profitability (Sweis et al., 2018). Therefore, the inter-link between managing projects and ICT has driven telecommunication companies to have an information system that can enhance project management.

SMEs have contributed extensively to Malaysia's economy, including to economic growth, and creating job opportunities (Aremu et al., 2019). The ERP system can improve operational productivity and enhance efficiency to help SMEs grow and gain

Universiti Utara Malaysia

a competitive advantage (Subbarao & Lorganaden, 2022). Therefore, like larger organisations exploit technology innovation, SMEs can use technology to improve productivity (Kiran & Reddy, 2019). The ERP system offers various benefits to SMEs, such as information, communication, growth and learning and strategic benefits (Rouhani & Mehri, 2018); as well as more effective management systems, excellent planning, scheduling capability, reduced cost, enhanced productivity and technological changes (Kadir et al., 2015; Shahawai & Idrus, 2010). In addition, ERP can also increase transparency by improving the entire supply chain process and integrating functionalities (Maguire et al., 2010; Haji Salum & Abd Rozan, 2016). According to Jiwasiddi and Mondong (2018), ERP enables enhanced process flow, data analysis, and an increase in profit margin.

Despite the potential advantages that ERP could offer SMEs, there are certain challenges faced by the SMEs in implementing ERP such as lack of knowledge, process flow, management and financial (Alaskari et al., 2021; Chatti et al., 2021). Due to these challenges, the motivation behind adopting ERP is very low (Haji Salum & Abd Rozan, 2016). SMEs often have a limited budget and standard business process engineering (Lutfi et al., 2022). Due to the high acquisition and maintenance costs, SMEs misunderstand that the ERP system is only suitable for large-scale organisations (Lutfi et al., 2022). Another challenge that SMEs have to deal with is a lack of resources. SMEs do not have many qualified IT professionals who can make suggestions and guide the implementation team in the right direction (Hasan et al., 2018). Thus, the deployment of ERP appears difficult for SMEs because of a shortage of skilled personnel, among others. Recent studies have found that low annual turnover, low ICT

Universiti Utara Malaysia

usage and limited technology transformation contribute to the low motivation to implement ERP systems (Lutfi et al., 2022). Besides that, the ERP system itself is complex, which causes high costs and pressure on SMEs to adopt the new system (Fernandez et al., 2018). As such, SME employees tend to fear the implementation of an ERP system and resist it.

Various studies have highlighted that the ERP system consumes a significant amount of time, money, and the professional services of system consultants (see, for example, Noureldeen et al., 2021; Fernandez et al., 2018; Hasan et al., 2018). The high failure rate of ERP implementation among SMEs is caused by a lack of understanding of its critical success factors, such as top management commitment and support, clear understanding of objectives, adequate and trained IT staff, ERP teamwork, user involvement, project management, project team competence, organisational culture, change management, communication and data quality, the right ERP system and monitoring and evaluation of performance (see, for example, Loh & Koh, 2004; Menon et al., 2019; Aremu et al., 2019; Alaskari et al., 2021; Chatti et al., 2021; Jiwasiddi & Mondong, 2018; Pérez Estébanez, 2021; Noureldeen et al., 2021; Shahawai & Idrus, 2010).

Many studies have been conducted to understand ERP implementation, by focusing on the critical success factors and challenges, cost drivers and the requisite elements for ERP pre-implementation and implementation processes among SMEs (see, for example; Aremu et al., 2019; Haji Salum & Abd Rozan, 2016; Menon et al., 2019; Tongsuksai et al., 2019; Shahawai & Idrus, 2010). Several attempts have also been made to specifically study the effectiveness of the ERP system in Malaysian

Universiti Utara Malaysia

telecommunication companies during both the ERP implementation and post-ERP implementation (Kadir et al., 2015; Ismail et al., 2013). However, what challenges the telecommunications industry faces during ERP implementation is still unknown. So far, very little focus has been given to the telecommunications industry, meaning that studies regarding ERP in the Malaysian telecommunications industry are limited, which is why this study is relevant. Some studies are available on the vendors' and accountants' perspective and technological change (see, for example, Tongsuksai et al., 2019; Nair & Chellasamy, 2017; Pérez Estébanez, 2021), but no previous study has looked into this area from the perspective of management. It is necessary to assess the view of the management of SMEs regarding ERP implementation and identify the challenges that the SMEs are presently facing.

Most research on ERP in SMEs has been carried out using the quantitative method; not many studies have been conducted using the qualitative approach (see, for example, Chatti et al., 2021; Fernandez et al., 2018). Shahawai and Idrus (2010) focused on pre-considered factors affecting ERP system adoption in Malaysian SMEs using the quantitative approach; they found that the following factors must be taken into consideration to fully understand the factors that contribute to ERP adoption: industry, employee, annual revenue, ICT consumption levels, ICT support tools, investment for ICT, business transformation levels, financial supports, awareness of IT, suitable ERP and level of competitive pressure. Aremu et al. (2019) studied the impact of ERP systems on the relationship between SME performance and communication process, organisation structure, technological change and technology infrastructure support, using the quantitative method. Nair et al. (2021) used the quantitative approach to

Universiti Utara Malaysia

investigate the relationship between the operational, tactical and strategic benefits, and ERP system implementation among Malaysian SMEs. The vast majority of studies on ERP implementation among SMEs have used the quantitative method. Thus, very few studies have used the exploratory qualitative method to examine ERP implementation, with very little focus on Malaysia's telecommunication companies.

Due to the problem highlighted above, this study explores the challenges to ERP implementation in a Malaysian telecommunications company. This study is a single source case study on FESB (a pseudonym). The main reason to conduct this study is that there are very few studies on ERP in telecommunication companies. Kadir et al. (2015) and Ismail et al. (2013) looked into the effectiveness of ERP implementation in telecommunication companies in Malaysia; hence, there is a gap in knowledge of how the ERP system is being implemented in the SME telecommunication companies in Malaysia.

Universiti Utara Malaysia

FESB is implementing the SAGE 300 ERP project, and the company is at 40% of completion (end of June 2022); it is still handling data migration from the old system, SQL, to the new system, SAGE 300 ERP. This data migration officially started in March 2022 and was expected to be completed at the end of June 2022. However, FESB failed to achieve the target. The actual reason for this failure is unknown, resulting in a practical knowledge gap. Therefore, it is necessary to identify why the ERP implementation process was not completed on time and the causes of failure. It is hoped that this study's findings can provide FESB with the knowledge and the understanding of the challenges during ERP implementation, and why it may not have been possible to complete on time. Besides that, with the help of the analysis of the challenges that

FESB is facing, other companies in Malaysia facing similar problems can benefit. This research can help in understanding how the challenges can be handled towards a smoother implementation of the ERP system.

1.3 Research Questions

This study explores the challenges to ERP implementation in Malaysia in a telecommunications company.

This study addresses the following questions:

1. What are the actual challenges faced by FESB during ERP implementation?
2. Why has FESB failed to achieve the target of ERP implementation?

1.4 Research Objectives

The objectives of this study are:

1. To investigate the challenges of ERP implementation in FESB.
2. To examine the causes of FESB's failure to implement ERP within the timeframe.

1.5 Scope and Limitation of the Study

The limitation of this research is that it is conducted in only one company, i.e., FESB. In this specific company, the challenges of implementing the ERP system are examined because:

1. Most of the staff who participated in the ERP feasibility study and system development phase are currently working in this area.
2. The system was first implemented in FESB, and the staff have more experience with this system.

Universiti Utara Malaysia

3. Almost all the staff who are working in this area carry out their daily tasks using ERP.

1.6 Organisation of the Study

This paper comprises five chapters. Chapter one is the background of the study, problem statement, research questions, research objectives, scope and limitation and organisation of the study. Chapter two explains the various theories and concepts related to ERP system implementation. Chapter three addresses the research approach, research method, data collection, the case, and data analysis. Chapter four is on findings and discussions. Finally, Chapter five summarises the findings and recommendations for future research.

Universiti Utara Malaysia

CHAPTER 2
LITERATURE REVIEW

2.0 Introduction

This chapter reviews the relevant literature regarding the concept of ERP, ERP development, the benefits of ERP systems and the challenges faced during ERP implementation.

2.1 Enterprise Resource Planning (ERP)

According to O'Leary (2000), ERP is a computerised system that integrates business activity, including planning, production, and customer services. Fixed asset management, financial accounting, manufacturing, human resources and project management, are also included in an ERP system. Almajali et al. (2016) viewed ERP as an application for data sharing, encompassing various departments, such as manufacturing, purchasing, sales and accounting. Generally, ERP is the integrated management of key business processes, often in real time and facilitated by software and technology. It can be used by organisations to collect, store, manage and analyse data from every business activity. Other than that, the ERP system can track sources of cash, raw materials, production capacity and the status of business commitments, i.e., purchase orders and payroll. ERP system shows the flow of information between all business functions and manages relationships with external stakeholders (Radovilsky, 2004).

Universiti Utara Malaysia

Figure 1

ERP Modules

Source: erpmeaning.com/erp-modules

Figure 1 illustrates the integrated ERP component that supports various business functions, such as finance, production, inventory, services, human resources, manufacturing, purchasing, customer relationship management (CRM) and sales. In this context, the data within the ERP is always up-to-date across business functions. Hence, ERP software is a full-fledged software adopted by organisations, whether large, medium, or small. In the past, ERP consultants focused on large organisations, but currently, smaller organisations are also beginning to be involved in ERP system implementation (Le, 2021; Adam et al., 2011). The ERP system can benefit any

organisation that wants to re-engineer its information system. According to Henry (2002), the ERP system integrates information systems and information-based processes across the modules of the ERP system in an organisation.

2.2 ERP Development

In the 1990s, the ERP system experienced rapid expansion. According to Monk and Wagner (2008), since the year 2000, the number of organisations that have replaced their old business system with the ERP system is increasing. “ERP II” was invented in 2000 in an article titled ERP Dead ERP II Live by Gartner Publications (Katuu, 2021). It describes web-based software that provides employees and partners with real-time access to the ERP system (such as suppliers and customers). ERP II is more adaptable than its predecessor. Instead of limiting the ERP systems’ capabilities to the confines of the organisation, it interacts with outside parties. Using various e-business technologies, ERP II enables collaborative initiatives between partner organisations, such as SCM, CRM, and business intelligence (BI) (Ruhi & Umar, 2016). Developers and ERP vendors are now making greater attempts to integrate mobile devices with ERP systems. Integration of hardware, applications, networks, and supply chains constitutes the technical significance of modern ERP. In this regard, ERP now has expanded functions and responsibilities, including decision-making, stakeholder relations, standardisation, and transparency (Shaul & Tauber, 2013).

With the aid of cutting-edge technology, companies use ERP systems to integrate diverse departments, including administration, payroll, inventory, and finance, onto a single platform (Sodomka & Klcova, 2016). According to Rouhani and Mehri (2018), it is intriguing to learn why companies, particularly larger ones, continue to invest

heavily in ERP application software. Prasad et al. (2018) stated that ERP enables businesses to re-engineer their business processes and remain competitive in the marketplace.

In Malaysia, SMEs are the backbone for the economy. According to the Micro, Small and Medium Enterprises (MSMEs) Performance (2021) Report, SMEs contributed to Gross Domestic Product (GDP) by 37.4% in 2021 compared to 32.7% in 2015. SMEs operate in most business sectors, and the government encourages SMEs to move towards technology adoption, such as the ERP system. According to Al- Johani and Youssef (2013), the adoption of an ERP system can reduce 50% of labour costs and 40–50% of project costs.

2.3 Benefits of ERP

Organisations that adopt the ERP system can get various benefits, among which is changing the workflow to become more effective (Fernandez et al., 2018). According to Chen et al. (2009), the change to using ERP is caused by the old system business process, which is not relevant anymore to the organisation, and the organisation is unable to maximise its efficiency anymore. Therefore, the benefits must be highlighted to the potential adopters of the ERP system. The ERP system can enhance communications between every business department or function by integrating decision-making functions (Kadir et al., 2015). Individuals who use the ERP system get various benefits, including a more effective workflow (Fernandez et al., 2018). The ERP system uses the data management system, which enables every function to share information or data in real-time, which can be assessed online (Gargeya et al., 2020).

Universiti Utara Malaysia

Basically, the ERP system can improve CRM, SCM and organisational flexibility, reduce project completion time and cost and help to upgrade business procedures.

According to Thomas and Kremzar (2001), ERP systems are tools to predict and balance demand and supply. Hence, it helps to forecast and plan by linking customers and suppliers and coordinating every business function. ERP system users can benefit from effective SCM, for example, by receiving orders from multiple channels and automatically processing based on total inventory availability.

ERP vendors provide setup options that allow businesses to insert their own business rules, but function gaps commonly remain even after setup is complete. Combining function gaps is possible for ERP customers through a variety of methods, each with their own advantages and/or disadvantages. Besides, ERP functionality can be delivered with changing business practices or organisational policies.

An ERP is a flexible software that can be adjusted to fit an organisation. Customisation of ERP will motivate the employee to adopt the system as it is built according to the organisation's requirements and specifications (Menon et al., 2019). Besides, the customisation of ERP will increase user acceptance (Fryling, 2010), and helps in gaining a competitive advantage over companies that only use standard features. Customisation is needed to maintain the process from before implementing the ERP system until it is implemented. It avoids wasting employees' time learning new processes and focusing on existing ones. According to Bradford (2015), disadvantages of adoption include more time and resources required to implement, maintain, and refine the interface or integration between suppliers and customers because of differences between systems; this limits the organisation's ability to upgrade ERP

software and creates an over-reliance on customisation, undermining the principles of ERP as a standardised software platform.

2.4 ERP Implementation Challenges

Every system implementation presents its own unique set of obstacles, particularly when the system is new to the organisation. Thus, the implementation of the ERP system also has various issues (Seo, 2013). Prasad et al. (2018) said that ERP implementation challenges arise because vendor software is a one-size-fits-all solution that limits organisations from achieving functional integration with internally designed systems. It is pricey and disrupts daily business operations or activities (Feldman et al., 2016). In addition, most organisations employ consultants to adapt and implement vendor-provided systems (Reitsma & Hilletofth, 2018).

According to Chung (2007), many engineering and construction companies understand the value of the ERP system but are hesitant to implement it because of the high cost and risk. Seo (2013) noted that lack of senior manager commitment, ineffective communication with users, failure to obtain user support, lack of an effective project management method, conflicts between user departments, project team composition, failure to redesign business processes, and misunderstanding of change requirements are ERP implementation challenges. Shanab et al. (2015) mentioned that the ERP system has a high probability of failure. Implementing such a system needs careful planning and guarding against the risks of failure.

According to Menon et al. (2019), challenges faced during the implementation of ERP include: (a) employee resistance; (b) working culture (the acceptance of implementing a new system in an organisation); (c) security concerns (a system or technique designed

Universiti Utara Malaysia

for one country may not be effective in another country); (d) cost factor (cost is an important factor to consider before implementing the ERP system); and (e) training and learning (the process of training and adaptation to the ERP system can be a lengthy and cumbersome one). Therefore, companies planning to invest in ERP need to have a good strategy and a clear idea of the cost of the ERP system.

Seo (2013) explains that, sometimes, ERP implementation has failed to achieve the organisations' objectives and desired results. In this regard, many studies (see, for example, Sahran et al., 2010; Shahawai & Idrus, 2010; Kiran & Reddy, 2019) have reported that the failure of ERP implementation is not caused by the ERP software itself, but by high complexity from the massive changes ERP causes in organisations. Hence, depending on failure according to our existing practical situations, the major ERP challenge areas are as follows.

2.4.1 Lack of Top Management Support

Universiti Utara Malaysia

According to Al-Fawaz et al. (2010), management may be unclear about the needs and requirements of the ERP system, why and how it will be adopted, or if such capital investment is necessary. A significant transformation will occur within an organisation, and its management must be meticulously planned and precisely implemented. Top management must lead the change and allocate funds for the ERP project to show their support (Bingi et al., 2006). At the same time, management must participate in every stage of ERP implementation. Therefore, top management support has been important for ERP implementation. Implementation of ERP will help the organisation to gain a competitive advantage. Hence, top management support is crucial and considers on strategic implications of the ERP systems. Besides, management intervention is

required to resolve any conflict that may occur. Thus, ERP implementation carries a high failure risk due to the lack of top management support.

2.4.2 Organisational Resistance

Chen et al. (2009) stated that regardless of how the organisation changes and adopted ERP systems, its primary target is the employees. Most employees will not cooperate with the changes because they are used to the old way of doing business, and it will end up being organisational resistance. In a similar vein, Nafjan and Mudimign (2011) stated that when implementing an ERP system, the organisation often faces negative attitudes from the employees as they resist the IT changes. Hence, organisational change resistance becomes one of the ERP implementations challenges (Shanab et al.,2015).

2.4.3 Re-engineering

Implementing an ERP system involves re-engineering the current business process to the business process standards (Bingi et al., 2006). Business process re-engineering provides a realistic understanding of the current process and enables organisations to implement ERP successfully by speeding up the implementation process. Prasad et al. (2018) stated that ERP enables businesses to re-engineer their business processes and remain competitive in the marketplace. After the process has been re-engineered, employees can readily adopt the new ERP system and have a holistic view of the total business (Mukherjee, 2021). However, aligning all processes to the ERP model could be difficult to get everyone in an organisation to agree on a standard procedure (Haji Salum & Abd Rozan, 2016). A business process procedure can be unique; an organisation must be preserved and adapt accordingly. When an organisation

Universiti Utara Malaysia

customises the ERP system according to its specific requirement, the total cost of implementation increase. Besides, not every re-engineering specification can fit into the ERP system; therefore, the organisation must re-engineer their procedures to accommodate the ERP system (Soh & Sia, 2005).

2.4.4 Implementation Time

ERP implementation is time-consuming (Chen et al., 2009) due to its complexity and cannot be immediate implementation in its entirety. Usually, organisations employ a phased implementation strategy in which one module is implemented at a time. The length of implementation is significantly influenced by the number of modules being implemented, the functional units, the level of customisation, and the number of application interfaces. The more functional units, the longer the implementation takes time. In this context, Bingi et al. (2006) encapsulated that the design and implementation of ERP for a specific type of business or organisation will take a longer time, and it depends on the organisation's needs as well.

Universiti Utara Malaysia

2.4.5 Implementation Costs

Shanab et al. (2015) exerted that organisations must recognise the significant costs of ERP deployment and determine whether they are prepared for such costs. ERP implementation requires extensive knowledge and external expertise; without external assistance, it is difficult for any organisation to implement ERP successfully. ERP implementation costs include staff training and the customisation of the system to match the organisation's existing interfaces. Bingi et al. (2006) added that as customisation increases, implementation costs would increase. Up to 30% of the total budgets for the implementation may be consumed by the fees associated with hiring

consultants (Shahawai & Idrus, 2010). According to Sahran et al. (2010), most SMEs cannot afford to adopt ERP system due to the extremely high cost of the implementation.

2.4.6 Lack of Skilled Employees

Bingi et al. (2006) stated that an organisation intending to implement an ERP system must assign the right employee to the project. The right employee will lead the ERP team in an organisation to support the ERP implementation. The right employees should not only be experts in an organisation's processes but also be aware of the business practices in the industry. The right employee should be able to comprehend the organisation's needs as a whole and play a crucial role in guiding the project's efforts in the right direction. Therefore, it is important to choose the right employee to assist with ERP implementation. The failure of ERP implementation is largely attributable to the lack of understanding of the ERP project's requirements and the inability of the organisation's resources to provide leadership and direction. According to Shah et al. (2011), the implementation of an ERP system requires both technical and social changes within the organisation, and the role of the ERP team is to prepare the organisation's employees mentally for the anticipated changes and obstacles that may arise during ERP implementation.

2.4.7 Training Employees

Training and teaching employees about ERP are a significant challenge (Bingi et al., 2006) because people are one of the hidden ERP implementation costs. As such, ERP training is not as straightforward as Excel training, in which employees are given a few weeks of training and then placed on the job, where they fumble through. ERP systems

Universiti Utara Malaysia

are incredibly complex and require extensive training. It is challenging for trainers and consultants to impart knowledge to employees in a short period of time. Without proper training, 30 to 40 percent of employees will be hard to adapt to the new system. This "knowledge transfer" becomes more difficult if employees lack computer literacy or have a fear of computers. Jiwasiddi and Mondong (2018) indicates that inadequate training is a one of the causes of failed ERP projects. This includes not only the education of the technical employees but also the education of the user community that is supposed to work with the system (Reitsma & Hilletofth, 2018).

2.4.8 Data migration

Data migration refers to transferring, copying, and restructuring information from a current system to an ERP system. Migration is essential for successful deployment and takes considerable planning. Unfortunately, because migration is one of the final steps prior to the production phase, it is sometimes given minimal consideration. According to Mahmood et al. (2019), data migration is a complicated process and is hectic. A data migration from the old system to the new ERP system is a difficult and lengthy process, including various risks and both planned and unanticipated expenses (Vidacic et al., 2010).

2.5 Challenges of ERP implementation in SMEs

SMEs' motivation to implement ERP systems is low due to the challenges they must go through. According to Haji Salum and Abd Rozan (2016), SMEs did not know much about technology and software. Thus, they are not confident in adopting ERP systems. It also discovered that staff under SMEs lack ICT knowledge. ERP systems are costly for SMEs as it is expensive to hire external consultants to implement and maintain the

ERP system. Besides, upgrading employee skills to be ERP users is also a high cost to SMEs (Supramaniam et al., 2014).

The three main challenges of ERP system implementation failure in SMEs are process flow, software, and change management (Sahran et al., 2010). The process flow refers to deficient processes, such as poor project management, scope management, and data quality. Software refers to the complex ERP system, which lacks vendor leverage, no user manual, and the systems do not fit the business process. Change management refers to the top management that did not have the initiative to improve internal communications and didn't encourage users to change their working style.

2.6 Critical Success Factors

Companies may spend hundreds of millions of dollars and a number of years implementing ERP technology within their organisations. According to Chen et al. (2009), the majority of organisations implementing ERP fail, and the possibility of failure seems to be high. Hence, before deploying an ERP system, organisations must take into account its critical success factors. These considerations will ensure a smooth ERP system implementation and full realisation.

The critical factors for a successful ERP implementation include technology, process, communication, compatibility, shared understanding, adequate one-to-one relationships, and choosing the right consultant and the right individual for each task (Aremu et al., 2019; Maas et al., 2016). Organisations that want to benefit from the advantages of an ERP system must take into account internal issues and address internal challenges. According to Jagoda and Samaranayake (2017), it is essential to have a thorough understanding of an organisation's internal issues, such as the organisation's

Universiti Utara Malaysia

profile, the reasons for implementing ERP, and the factors that influence the successful implementation of an ERP system. In an organisation, the participation of top management is most important (Parhizkar & Comuzzi, 2017,). Communication between top management and managers and employees in implementing the ERP system will minimise the resistance to change and share the understanding of the ERP system within the organisations. Providing adequate training and preparation to employees can assist help them better understand the use of the system, then lead to the success of ERP implementation

2.7 The Impact of Failure ERP System on Organisational Performance

Although the main goal of the organisation in developing this system is to maximise profits and reduce operating costs, it is also important to know that profits are generated from productive employees where the organisation may reduce the labour cost with the efficiency of the ERP system (Shen et al., 2016). Various studies have been conducted to analyse the impact of the ERP system on organisational performance to prove the system's capabilities. Mixed findings have been found; some studies have shown the implementation of an ERP system does not lead to an improvement in organisational performance. Singla (2008) studied how ERP systems affect organisational coordination and transaction costs by using the economic organisation theory. Results from a sample of 50 companies show no change in costs as a percentage of revenue and significant cost reduction only for the cost of goods sold as a percentage of sales. Previous studies have stated that when technology is incorporated into the organisation, it will cause work changes and even a reduction in labour costs (Silva & Oliveira, 2015). The technology used must be able to reduce costs, especially in terms of labour costs.

Universiti Utara Malaysia

However, Kanellou and Spathis (2013) showed that the ERP system has failed to reduce labour costs, resulting in no change in costs to the organisation.

2.8 Chapter Summary

This chapter discusses the general concept of ERP, ERP development, the benefits of ERP and the challenges of ERP implementation. The major challenges of ERP implementation are lacking top management support, organisational resistance, re-engineering, implementation time, implementation costs, lack of skilled employees, training employees and data migration. Generally, implementation costs, training, and lack of skilled employees are the main challenges in implementing ERP system in SMEs. Besides that, this chapter also discusses the critical success factors of ERP implementation and the impact of the failure ERP system on organisational performance.

Universiti Utara Malaysia

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the methods used in this study. The purpose of this study is to understand the challenges faced during ERP implementation in a telecommunications company. This chapter comprises the research paradigm, research method, data collection and data analysis.

3.1 Research Paradigm

Ontology is a philosophical belief system related to the nature of reality (Creswell,1994). In the words of Crotty (1998), ontology is defined as "the study of being". According to Lincoln and Guba (2000), constructivism represents local and specific constructed realities wherein social phenomena are products of meaning-making activities of groups and individuals. Hence, this case used the constructivist ontology belief that people experience ERP implementation differently, to gain an in-depth understanding of the studied phenomena and to focus on studying the reality of ERP implementation.

Epistemology is a philosophical belief system that deals with the sources of knowledge. Epistemology explains how researchers gain the truth or knowledge (Crotty, 1998). In this case, interpretive epistemology is based on the belief that knowledge is constructed by how people work with ERP. Therefore, interpretive epistemology helps to understand the context of the failure of ERP implementation.

Universiti Utara Malaysia

Figure 2 *Research Approach*

3.2 Research Approach

A qualitative approach was adopted in the study. A qualitative approach can provide a deep understanding of the studied phenomena, i.e., ERP implementation failure following the timeline and the processes and events in real-life settings. The summary of the research approach is shown in Figure 2. According to Creswell (2014), qualitative research is an approach to understanding the meaning that groups or individuals assigned to a human or social problem. The qualitative approach involves the process and questions gathered in the participants' setting and inductively constructing the data into general themes. The researcher interprets the data's meaning (Creswell, 2014).

3.3 Research Method

The method adopted is a single case study. According to Creswell (2014), case study research is a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time through detailed, in-depth data collection involving multiple sources of information (for example, observations, interviews, documents, and reports) and reports a case description and case-based themes. Yin (2009) defined a case study by dividing the purpose into two parts. The first part focuses on the case study that refers to the case study as a "practical

investigation" of: a) contemporary phenomenon; b) through an in-depth exploration; c) in a real-life context; and d) no apparent boundaries between the phenomenon and context when conducting a case study. The second part is related to the data collection and analysis of the case in which there will be more variables (themes) of interest than the data offers.

The single case study intends to provide an in-depth understanding through data analysis of sources of information. It is relevant in conducting social research because it recounts the experience surrounding a particular event bound by time and place to inform others about it. Besides, rational case study designs cannot be satisfied by multiple cases. Therefore, this study adopted a single case study to get an in-depth understanding, and the results are more rational as it focuses on specific people or groups. Besides, this case is unique as different organisations will face different experiences and conditions of ERP implementation.

Universiti Utara Malaysia

3.3.1 The Case

FESB (a pseudonym) is Malaysia's fastest supplier of telecommunications products and services, founded on 17 February 2015 under the Malaysia Companies Act 1965. The company is continuously entrusted to manage network upgrade design, civil implementation, electrical services, radio technical installation and installation in building and maintaining network coverage for various partners across Malaysia. FESB employed 100 staff as of 2022.

3.3.2 ERP implementation status

Since 2020, FESB has been researching a suitable ERP for the company. At the beginning of the year 2021, the managing director took SAGE 300 as the ERP system for the company. The company adopted ERP mainly to keep on track with project management, including the cost for every project. The implementation starts with check-in and check-out of employees at every site to replace the traditional attendance method, which is a punch card. Therefore, customisation is needed as the ERP system needs to set up more than 500 sites to get a good project management report. The customisation also includes the process of accounting flow, requesting purchase order (PO) and invoice through the system, automatically sending payment advice to the suppliers, sending invoices to customers, and creating a layout of every report. However, the customisation status is only up to the accounting flow process: accounts receivable, accounts payable, PO, and asset management. Besides, FESB does not have a monthly management report which affected the implementation process in uploading the opening balance. Thus, the implementation was delayed until the beginning of the year 2022. It targeted the ERP implementation to be fully implemented in July 2022.

Universiti Utara Malaysia

3.4 Data collection

In qualitative social research, a semi-structured interview is frequently used. This technique aims to obtain answers to specific questions that can be compared to data gathered from other interviews. Myers (2013) asserted that the semi-structured interview technique combines the advantages of both approaches. In this regard, such approaches provide consistency across multiple interviews and permit improvisation

for the researcher. The interviewees can provide crucial insights as they occur during the interview, but the predefined questions also provide focus.

The primary data collection technique utilised in this study was a semi-structured interview. One advantage of the semi-structured interview is the ability to explore topics as they arise during the interview. Besides, a semi-structured interview helps in gaining an in-depth understanding of the ERP implementation failure within the timeline, where the open-ended questions allow follow-up questions. According to Olson and Zhao (2007), This method permits a more spontaneous, informal, and expansive examination of the specific experiences of the interviewees regarding the topic. A sample of interview questions is in Appendices.

3.5 Sampling

The participants were selected using purposeful sampling, where the researcher identified individuals who matched certain characteristics, that is individuals who were involved in the ERP team. The participants were from the three ERP implementation teams, finance teams, human resources (HR) manager, and FESB directors (ie., management team). Finance manager can be described as internal ERP specialists; HR staff can be characterised as HR department key resources in the company; and directors can be described as decision-makers with ERP knowledge together with skills in project management, functional design, and development. The summary of the participants list is shown in Table 1.

Universiti Utara Malaysia

Table 1

List of Participants

Participant	Role	Status
MD	Managing director	Interviewee 1 (I1)
OD	Operations director	Interviewee 2 (I2)
HR	HR staff	Interviewee 3 (I3)
SEA	Senior finance executive	Interviewee 4 (I4)
AE	Finance executive	Interviewee 5 (I5)
SEA	Senior finance executive	Interviewee 6 (I6)
AE	Finance executive	Interviewee 7 (I7)

Universiti Utara Malaysia

3.6 Data Analysis

The researcher used thematic analysis to analyse the interview data in this study. This technique works with a smaller amount of data to organise and interpret it in categorisation form (Miles et al., 1994). Thematic analysis is one method for analysing data to identify themes within the data collected by researchers (Braun & Clarke, 2006). This method is an effective research technique for analysing qualitative data using patterns in a case study and describing the researcher's perception of the situations' occurrence (Fereday & Muir-Cochrane, 2006). Holloway and Todres (2003) stated that the basic analysis in qualitative research is thematic analysis.

The purpose of thematic analysis is to summarise data, interpret it, and identify its key characteristics. Nowell et al. (2017) advocated that thematic analysis is a helpful

method for interpreting the perspectives of different participants, identifying differences and similarities, and generating unforeseen insights. Thus, this study us

ed thematic analysis, which helped summarise the main key characteristics of the collected data and helped the researcher use a well-structured approach to sorting the data to get an organised final report.

3.7 Chapter Summary

In conclusion, this chapter explains the research methodology used for this study including the philosophical belief system that is being used in this study. Qualitative approach was applied in this chapter along with the single case study method. This chapter also explained the status of the ERP implementation status in FESB which are unsuccessful to implement according to the timeframe and list the interviewees involved in this study. At last, this study uses thematic analysis to produce findings.

Universiti Utara Malaysia

CHAPTER 4

FINDINGS AND DISCUSSION

4.0 Introduction

This chapter provides the results obtained from the interview session with the participants. This chapter covers findings which comprise demographic information, the coding process, and a discussion of the findings.

4.1 Demographic information

This section presents demographic information of interviewees from FESB. There are 7 interview sessions with interviewees. The summary of demographic information of the interviewee is shown in Table 2, which comprises the role of the interviewees, status in this study, age, gender, and years of working.

Table 2

Summary of demographic information of interviewees from FESB

Role	Status	Age	Gender	Years of working
Managing director	I1	33	Male	12
Operation director	I2	33	Male	12
HR staff	I3	30	Female	6
Finance staff	I4	31	Male	7
Finance staff	I5	21	Female	0.2
Finance staff	I6	33	Male	12
Finance staff	I7	27	Male	5

Universiti Utara Malaysia

As depicted in Table 2, about 70% of the interviewees are male and 30% are female. Three interviewees or 43% have work experiences of over 10 years, another 43% have work experiences over 5 years and less than 10 years, while 14% of interviewees just started their career and have work experience of fewer than 6 months.

4.2 The Coding Process

As mentioned earlier, the data collected from the interview were analysed using thematic analysis. Table 3 below summarises the coding and the themes that emerged:

Table 3

Emerged themes and codes from collected data

Themes	Code	Description
Technology	Change of IT	ERP system is better than the old system
	Design and implement	The designation of ERP system towards ERP implementation
	Complexity	Complexity of ERP system to the ERP implementation
Data Migration	Patching data	Process of transferring data from the old system to the ERP system
	Time consuming	Time taken for transferring data
	Insufficient ERP team	Not enough staff to transfer data with daily transactions
Training and Learning	Involvement	Which employee is involved
	Training	Training provided to the staff
	Uncertainty	The real system is different from that used in training
Management	Decision-making control	The top management has the authority in deciding to adopt ERP and which employee to involve.
	Financial	The cost incurred during ERP adoption and implementation

Universiti Utara Malaysia

	Cooperation among team	The mutual understanding between ERP team and management goals

Four major themes were identified in this data analysis, namely technology; data migration; training and learning; and management. All themes represent the group of codes related to the challenges of ERP implementation in a telecommunications company based on the interviews done at FESB.

The following subsections provide further explanations of the themes and codes.

4.2.1 Technology

Technology can be described as the complexity of the technology used resulting in the challenge in FESB as it relates to users and its relevance to FESB. The first theme was divided into three categories of codes: (1) change of IT; (2) design and implementation; and (3) complexity.

Universiti Utara Malaysia

4.2.1.1 Change of IT

This code refers to the changes in the system from the old system to the ERP system. One interviewee stated that the changes in IT have led to challenges in ERP implementation*:*

"The old system is not tidy, cannot find the exact data and can only be accessed at the office location. So, it will be challenging to tidy up all data into new system" (I2)

4.2.1.2 Design and Implementation

This code refers to the system design or compatibility of ERP. One interviewee mentioned that design and implementation of ERP system are the most challenging during the implementation.

"Organisation lead and key management must play an active role during the design and implementation stage to ensure that there will be no regrets after implementation as any amendments or changes could be costly" (I1)

Interviewees also expressed their opinion on ERP customisation based on user request, which led to challenges during the ERP implementation. For example, Interviewee 3 stated that *"The ERP should be able to custom based on user request instead of making us to follow their design"* (I3)

4.2.1.3 Complexity

This code describes the complexity of ERP system for the users. During the interview session, interviewees I3, I4, I5, I6 and I7 shared their experiences on how they had to face complexity issues.

"The invoice cannot amend after invoice posted even though wrong one word whilst the old system SQL can. This Sage system is troublesome where I must create a credit note and recreate the new invoice" (I6)

4.2.2 Data Migration

Data migration is the process of transferring all data from the old system to the ERP system. The second theme is divided into three categories of codes: (1) patching data; (2) time-consuming; and (3) insufficient ERP team.

4.2.2.1 Patching data

This code is defined as the process of transferring data from the old system to the ERP system. According to one of the interviewees', patching data is one of the most difficult challenges in ERP implementation. For example, *"The main challenges during ERP implementation are learning new system and patching data"* (I4)

4.2.2.2 Time-consuming

This code is defined as the time taken during data migration which contributed to the challenges of ERP implementation. One of the interviewees shared the experience of time consumed during data migration.

"Since we have to learn a new system, a very complex system it is very time-consuming where we all have to stay for overtime to complete it" (I6)

4.2.2.3 Insufficient ERP team

This code describes the struggles of having not enough team members to do data migration. *"Staff not enough for patching data from SQL to Sage"* (I6)

4.2.3 Training and Learning

Training and learning is the process of employees learning how the ERP system works. The third theme is divided into one category of codes, namely involvement, training, and uncertainty.

4.2.3.1 Involvement, Training, and Uncertainty

This code refers to the employees who were involved in ERP implementation, the training provided to them, and how uncertainty came about from the real system that differed from the training session. Most of the interviewees expressed that they only

received online training, and the uncertainty was due to the complexity of the ERP system.

"Training was provided before the implementation and its online recorded session where we can repeatedly watch and learn. We also practicing with dummy and when the uncertainty arises, we need to email to the consultant and wait for their response before we can move forward" (I2)

4.2.4 Management

Management refers to the top management in FESB. The fourth theme is divided into three categories of codes: (1) decision-making control; (2) financial; and (3) cooperation among the team.

4.2.4.1 Decision-making control

This code refers to the top management having the authority in deciding to adopt the ERP system. According to one of the interviewees, the top management decided to adopt ERP system since year 2019. *"Yes, I did involve in company's end to end of ERP system setup since 2019"* (I1)

4.2.4.2 Financial

This code is defined as the challenges of ERP implementation in terms of financial resources to adopt the ERP system. One of the interviewees mentioned that this code must be considered thoroughly to ensure the success of the implementation process.

"It all depends on the organisation's objective, as ERP comes with a lot of unknown challenges/cost/layers that will require very good consulting to get the right design done properly" (I1)

4.2.4.3 Cooperation among the team

This code refers to the mutual understanding between the ERP team and management. One of the interviewees expressed that mutual understanding of ERP implementation is important.

"Teamwork of whole company, if one of the departments doesn't give fully support, the whole process will stick there" (I6)

4.3 Discussion

The aim of this study is to explore the challenges during ERP implementation in a telecommunications company in Malaysia. In summary, four themes were extracted from the data collection: technology, data migration, training and learning, and management.

4.3.1 Technology

FESB adopted SAGE300 ERP, which brings new technology to the organisation replacing old systems. Adopting ERP systems as a new technology is challenging as it is developing change programs that involve everyone within the organisation. The process flow in the ERP system is different from the old system and the preparation to implement the procedure or change program takes longer. The ERP adoption plan started in 2019, but the implementation only started in 2022. *"The ERP setup already started in 2019 and we had work pressure in the first two years to implement the ERP system by choosing the right software, choosing the right ERP team, preparing data for consultant checking and providing appropriate details of the business transaction"* (I1). With the ERP system, all employees need to change their working style; for

example, they no longer use a punch card for attendance, but an ERP system linked to mobile devices.

Moreover, investing in technology is costly, consistent with Bingi et al. (2006) and Shanab et al. (2015) that implementing the ERP system is costly. From the beginning, FESB spent significantly to implement the ERP system and invested more money in ERP teams than in the initial plan. Before deciding on the ERP system, FESB was facing technological challenges. The change from the old system to the new ERP system must improve the quality of data. Interviewee (I2) stated that "*the old system is not tidy and only can be accessed from office location*"; while Interviewee (I3) said, "*ERP system is an innovation system where the cloud base allows employees to work from home*". Besides, according to Interviewee (I5), "*old systems are not detailed*", as supported by Interviewee (I6) "*old system cannot drill down the data according to contract, project and cost by every site*". However, after FESB adopted the ERP system, the designation and implementation of ERP system has become very complex. According to Menon et al. (2019), the challenge around the interface issues brought to ERP customisation was not what the user expected. According to Interviewees (I4) and (I5), "*the designation of ERP should be able to custom based on user request*" and "*the ERP system is sometimes too complex to use*".

4.3.2 Data Migration

The study found data migration as one of the challenges for ERP implementation at FESB. This result is consistent with Mahmood et al. (2019), and Vidacic et al. (2010), who noted data migration as a hectic process. The data migration impacted three work

Universiti Utara Malaysia

components during the ERP implementation: quality of work, the quantity of work and job knowledge.

4.3.2.1 Quantity of Work

This component refers to the amount of work completed in a certain period. The quantity of work produced before ERP implementation was compared to the quantity of work during the implementation of the ERP. According to Sorheller et al. (2018), data migration from the old system is demanding and time-consuming. The seven interviewees who provided information related to the increase in the quantity of work, stated that the output or quantity of work they produced was more compared to before using ERP. There are several reasons that can be deduced from the interviewees' statements. With the ERP system, the process flow is clear, but more steps are needed to produce or complete the work compared to the old system. Due to increment in the quantity of work, the interviewees had to work overtime to complete the task. Besides that, patching data must go in parallel with daily tasks to ensure data are updated. Thus, the quantity of work during ERP implementation increased and became a challenge in FESB. I3, I4, I5, I6 and I7 all agreed that data migration was a challenge during ERP implementation. I5 said, "*data migration is time-consuming and needs to key in all data from starting again, and also needs to keep the data upload*".

4.3.2.2 Quality of Work

This component refers to the quality of work in accordance with standards that have been determined. All interviewees understand that ERP implementation will increase their quality of work since there are steps or procedures for completing the work. ERP system helps the procedures to become standardised compared to before implementing

Universiti Utara Malaysia

the ERP system, where all business processes that are still manual are computerised. Before the ERP implementation, there were often adjustments to work standards and procedures due to changes in conditions. Due to different work standards and procedures, it became a challenge during data migration, as ERP systems only stick to one standard of work processes and procedures. Besides, the data conversion during ERP implementations needs to be validated to ensure the data migration is correct (R. Stone & Zhang, 2021).

4.3.2.3 Job Knowledge

This component refers to knowledge about the job and any matters that are the responsibility of the employees. In the ERP system, everything related to the work of each module must be done by each user who has specific access to the ERP system. User authorisation is important as an internal control to ensure that data is correct. FESB's work system has become more individualistic with the ERP system because all employees' work has become standardised. As a result of the ERP system's ability to facilitate efficient and effective communication, they can improve divisional cooperation. However, during data migration, ERP work had to be as a team and not as individuals, which required them to know every function of every module. Besides, not everyone has ICT knowledge (Haji Salum & Abd Rozan,2016), Thus, it became a challenge as most team members only learned the ERP system through recorded training sessions, which were time-consuming and hard to understand and upgrading employee skills to ERP users is also a high cost (Supramaniam et al., 2014).

Universiti Utara Malaysia

4.3.3 Training and Learning

Based on the problems gathered through interviews, the results are consistent with Fernandez et al. (2018), that users of the ERP system lacked the knowledge required to manage the system. Bingi et al. (2006) and Shah et al. (2011) mentioned that lack of knowledge and inadequate training are some of the main causes of ERP teams' demotivation to use the system and this is consistent with this study, indicating that sufficient expertise of the system is required through proper training and by using the real system. Vendors of ERP systems provided video training sessions and a manual for the users' learning process, but it was inadequate as the system was complex and unique. The ERP system implementation started at the beginning of the year 2022 and took nine months (end of September) to complete approximately 80%. However, during the first few months, the system was chaotic because of data migration issues, the number of errors generated by new users and the many bugs that appeared. Interviewee (I6) stated, *'the system was complicated to use in the beginning, and we faced a lot of trouble".* A flowchart must be provided to demonstrate the information flow between departments and the operation of each module. More training sessions should be provided to ensure users' comprehension and teach them how to operate the system. According to the interviews, without this flowchart and training, users may find the system to be complicated and difficult to use (Noudoostbeni et al., 2010).

4.3.4 Management

The management understood the importance of the ERP system for FESB's current and future development. They, therefore, allocated an appropriate budget for the ERP implementation. The result is inconsistent with Bingi et al. (2006), Seo (2013), and Al-

Fawaz et al. (2010) on the lack of top management commitment. Interviewee (I1) had the authority and responsibility to direct the implementation process. Users were encouraged to adopt the system after he engaged the management in resolving user conflicts and resistance. Moreover, in the FESB sector, telecommunications are technology intensive. The company's management deemed the implementation of an ERP system to be crucial to the company's success, so it made substantial investments in this endeavour. Interviewee I1 noted that

"*The company's capital is its systems. As a telecom company, technology and processes are that there is always a constant need to continuously improve. So, any organisation must not stop after one phase of development. The process must continue"*.

Consequently, the company's management had faith in the system's capabilities and desired to implement the ERP system. The management clearly understood the effects of implementing an information system, and this technology change was crucial to the system's success. Managements' perspective facilitated the system's adoption before its implementation and facilitated the system-required changes; it encouraged all staff to utilise the system to realise its benefits. Management requested a weekly status report and a monthly presentation from the ERP project teams throughout the implementation process. This ERP team consisted of senior management and executives. This meeting was necessary to maintain the project's planned progression.

Universiti Utara Malaysia

4.4 Chapter Summary

This chapter has presented the results of data analysis performed by thematic analysis. At the beginning of the chapter, it describes the demographic analysis of the interviewee. It was followed by the coding process from the collected data and the

discussion of each theme. The major finding of the study indicated that technology, data migration, training and learning, and management are the main challenges in ERP implementation in FESB.

Universiti Utara Malaysia

CHAPTER 5

SUMMARY AND RECOMMENDATION

5.0 Introduction

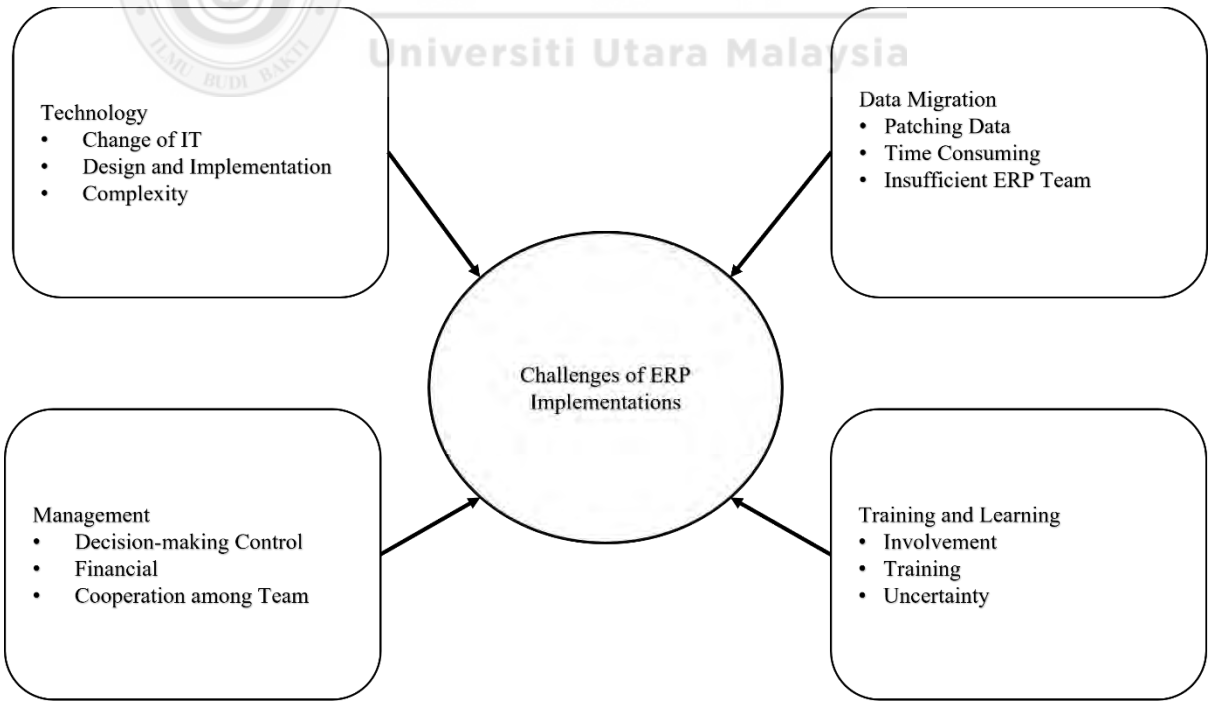
This chapter presents the summary of the findings, significance and contributions of the study, limitations, and recommendations for future research.

5.1 Summary of Findings

The findings of this study show that the majority of the interviewees viewed ERP implementation at FESB as challenging. The findings indicate four main themes; technology, data migration, training and learning, and management as presented in Figure 3.

Figure 3

The Challenges of ERP implementations



Universiti Utara Malaysia

For the first theme, technology was the challenge in FESB due to the changes in IT, design and implementation, and the complexity of the system. The majority of the interviewees believe that the old system is much easier, but the ERP system is more advanced. For the second theme, data migration was the challenge during ERP implementation in FESB. Since in FESB, up to October 2022, ERP implementation is at the data migration stage, the ERP system has not been fully used because of the data migration challenge, which required the ERP team to patch data from the old system from every module to the new ERP system, ensures the data is uploaded in the system and validate the accuracy the data migration. Besides that, the ERP team responded that there is a mix of manual work as the system is still in the process of data migration. The third theme, training and learning, shows that all ERP teams only underwent video training and learning instead of physical training. Since the ERP team kept changing from year 2020 to year 2022, any new training for new employees will only increase the implementation costs. Lastly, for the management theme, top management in FESB has always encouraged all employees and gives full support as well as budget allocation for the new ERP system. Additionally, as an overall observation of the system, ERP implementation reduced the purchasing cycle and receivable cycle and improved the efficiency of SCM and CRM.

5.2 Significance and Contributions of the Study

This single case study contributes to the area of challenges in ERP implementation in the context of a telecommunications company. The findings also show the lessons learned and some general recommendations for the upcoming ERP system in the telecommunications company.

5.3 Limitations

The first limitation is this study only focused on an SME telecommunications company. Further investigation should be conducted on more SMEs in the same area so that the similarities and differences can highlight how telecommunications companies handle the challenges during ERP implementation. The second limitation is the interviewees' lack of ERP knowledge. It is found that five out of seven interviewees do not understand "what is ERP", and it was expected because of their indirect placement under the ERP team. Further research should focus on the employee at all levels to explore more issues during the ERP implementation.

5.4 Recommendations

To achieve all the expected benefits of the system, FESB must try to utilise all the system's capabilities, hence minimising the need for manual working techniques and increasing the productivity of both employees and the business. Next, FESB must indicate which units of functions have already been integrated and which are pending integration; then FESB can calculate the rest before it reaches 100% utilisation. Since the main goal of implementing an ERP system is to achieve organisational goals and objectives, the right training for the right target group can be given so that the system can be used better, especially to understand what an ERP system is. As shown by O'Leary (2000), training should not only happen before or after the implementation but at every stage of the ERP life cycle.

Universiti Utara Malaysia

5.5 Chapter Summary

This chapter presented a summary of the findings for this study which are shown in the figure 3 which are indicate four main themes: technology, data migration, training and learning, and management. Next, it followed by the significant and contribution of this study, limitation, and recommendations to FESB. The major limitation was the interviewee's lack understanding of ERP system. Hence, the main recommendation would suggest to FESB to provide more training; to give the knowledge and understanding of ERP system to all the employees and users.

Universiti Utara Malaysia

REFERENCE

Al-Johani, A., & E. Youssef, A. (2013). A framework for ERP systems in SME based on Cloud Computing Technology. *International Journal on Cloud Computing: Services and Architecture*, *3*(3), 1–14. https://doi.org/10.5121/ijccsa.2013.3301

Adam, R., Merwe, A. van der, & Kotzé, P. (2011). Acceptance of Enterprise Resource Planning Systems by Small Manufacturing Enterprises. *Proceedings of the 13th International Conference on Enterprise Information Systems*. 229-238. https://doi.org/10.5220/0003500302290238

Al-Mudimigh, A., Zairi, M., & Al-Mashari, M. (2001). ERP software implementation: An integrative framework. *European Journal of Information Systems*, *10*(4), 216–226. https://doi.org/10.1057/palgrave.ejis.3000406

Alaskari, O., Pinedo-Cuenca, R., & Ahmad, M. M. (2021). Framework for implementation of enterprise resource planning (ERP) systems in small and medium enterprises (SMEs): A case study. *Procedia Manufacturing*, *55*, 424–430. https://doi.org/10.1016/j.promfg.2021.10.058

Almajali, D. A., Masa'deh, R., & Tarhini, A. (2016). Antecedents of ERP systems implementation success: A study on Jordanian healthcare sector. *Journal of Enterprise Information Management*, *29*(4), 549–565. https://doi.org/10.1108/jeim-03-2015-0024

Aremu, A. Y., Shahzad, A., & Hassan, S. (2019). The empirical evidence of Enterprise Resource Planning System adoption and implementation on firm's performance among medium-sized enterprises. *Global Business Review*, *22*(6), 1375–1404. https://doi.org/10.1177/0972150919849751

Universiti Utara Malaysia

Bingi, P., Sharma, M. K., & Godla, J. K. (2006). Critical issues affecting an ERP implementation. *Information Systems Management*, *16*(3), 7–14. https://doi.org/10.1201/1078/43197.16.3.19990601/31310.2

Bradford, M., & Gerard, G. J. (2015). Using process mapping to reveal process redesign opportunities during ERP planning. *Journal of Emerging Technologies in Accounting*, *12*(1), 169–188. https://doi.org/10.2308/jeta-51253

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Chatti, H., Radouche, T., & Asfoura, E. (2021). Framework for The Evaluation of The ERP Implementation Success: Case Study in SMEs. *Journal of Management Information and Decision Sciences*, *24*(4), 1-25.

Chen, C. C., Law, C., & Yang, S. C. (2009). Managing ERP implementation failure: A Project Management Perspective. *IEEE Transactions on Engineering Management*, *56*(1), 157–170. https://doi.org/10.1109/tem.2008.2009802

Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*, Sage, London.

Chung, B. (2007). *An analysis of success and failure factors for ERP systems in engineering and construction firms*. [Ph.D. Thesis, University of Maryland]. College Park, Maryland.

Creswell, J. W. (1994). *Research Design: Qualitative and Quantitative Approaches*. Sage Publications.

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (4th Edition)*. Thousand Oaks. CA: Sage.

Fawaz, K. A., Eldabi, T., & Naseer, A. (2010). Challenges and influential factors in ERP adoption and implementation. *Online Proceedings of the European, Mediterranean & Middle Eastern. Conference on Information Systems (EMCIS),* 12–13 April, Le Royal Méridien, Abu Dhabi, 1-15.

Feldman, G., Shah, H., Chapman, C., & Amini, A. (2016). Enterprise systems: The upgrade process model. *Journal of Enterprise Information Management*, *29*(6), 822–840. https://doi.org/10.1108/jeim-12-2014-0122

Fernandez, D., Ahmad, H., & Z. Zaino. (2018). An investigation of challenges in Enterprise Resource Planning (ERP) implementation: The case of public sector in Malaysia. *International Journal of Supply Chain Management, 7*(3), 113-117.

Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods*, *5*(1), 80–92. https://doi.org/10.1177/160940690600500107

Fryling, M. (2010). Estimating the impact of enterprise resource planning project management decisions on post-implementation maintenance costs: A case study using simulation modelling. *Enterprise Information Systems*, *4*(4), 391–421. https://doi.org/10.1080/17517575.2010.519785

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. https://doi.org/10.1108/14637150510619858

Gartner_Inc. (2012). *Definition of Enterprise Resource Planning (ERP) - Gartner Information Technology Glossary*. Gartner.

https://www.gartner.com/en/information-technology/glossary/enterprise-resource-planning-erp

Global Monitor (2022, September 10). *Malaysia Telecommunication Market Report (2020-2025)*. https://www.globalmonitor.us/product/malaysia-telecommunication-market-report

Haji Salum, K., & Abd Rozan, M. Z. (2016). Exploring the challenge impacted SMEs to adopt Cloud ERP. *Indian Journal of Science and Technology*, *9*(45). https://doi.org/10.17485/ijst/2016/v9i45/100452

Hans, R. (2022, December 1). *ERP for telecommunication industry*. Deskera Blog. https://www.deskera.com/blog/erp-for-telecommunications-industry/#challenges-in-telecommunication-industry

Hasan, B. (2018). Effects of general and ERP self-efficacy beliefs on the acceptance of ERP systems. *Journal of Information & Knowledge Management*, *17*(03), 1850031. https://doi.org/10.1142/s0219649218500314

Henry, S. (2002). *Basic Principles for ERP Implementation*. 4th Ed. New York. Homeland International Limited.

Holloway, I., & Todres, L. (2003). The status of method: Flexibility, consistency, and coherence. *Qualitative Research*, *3*(3), 345–357. https://doi.org/10.1177/1468794103033004

Ismail, N. A., Kadir, M. R. A., Mat Yatin, S. F., & Mustafa, S. (2013). *Measuring Enterprise Resource Planning (ERP) effectiveness in telecommunications industry*. Academia.edu. https://www.academia.edu/6874073/https://www.academia.edu/6874073/Meas

uringEnterpriseResourcePlanning(ERP)EffectivenessinTelecommunicationsIndustry

Jagoda, K., & Samaranayake, P. (2017). An integrated framework for ERP system implementation. *International Journal of Accounting & Information Management*, *25*(1), 91–109. https://doi.org/10.1108/ijaim-04-2016-0038

Jiwasiddi, A., & Mondong, B. (2018). Analysing ERP Implementation Critical Success Factors for SME: A Study of SAP One Implementation in Jakarta. *Pertanika Journal of Social Sciences & Humanities*. 2018 Special Issue, 26T, 139-146.

Kadir, R. A., Ismail, N. A., & Yatin, S. F. (2015). The benefits of implementing ERP system in Telecommunications. *Procedia - Social and Behavioral Sciences*, *211*, 1216–1222. https://doi.org/10.1016/j.sbspro.2015.11.162

Kanellou, A., & Spathis, C. (2013). Accounting benefits and satisfaction in an ERP environment. *International Journal of Accounting Information Systems*, *14*(3), 209–234. https://doi.org/10.1016/j.accinf.2012.12.002

Katuu, S. (2021). Managing records in enterprise resource planning systems. *2021 IEEE International Conference on Big Data (Big Data)*. 2240-2245. https://doi.org/10.1109/bigdata52589.2021.9672034

Kiran, T. S., & Reddy, A. V. (2019). Critical success factors of ERP implementation in SMEs. *Journal of Project Management*, *4*, 267–280. https://doi.org/10.5267/j.jpm.2019.6.001

Le, M. D. (2021). User acceptance of enterprise resource planning systems: A study in small and medium enterprises in Vietnam. *International Journal of Entrepreneurship and Innovation Management*, *25*(1), 72. https://doi.org/10.1504/ijeim.2021.10036507

Lincoln, Y. S., & Guba, E. G. (2000*). Paradigmatic controversies, contradictions, and emerging confluences*. Sage Publications.

Loh, T. C., & Koh, S. C. (2004). Critical elements for a successful enterprise resource planning implementation in small-and medium-sized enterprises. *International Journal of Production Research*, *42*(17), 3433–3455. https://doi.org/10.1080/00207540410001671679

Lutfi, A., Alsyouf, A., Almaiah, M. A., Alrawad, M., Abdo, A. A., Al-Khasawneh, A. L., Ibrahim, N., & Saad, M. (2022). Factors influencing the adoption of big data analytics in the digital transformation era: case study of Jordanian SMEs. *Sustainability*, *14*(3), 1802. https://doi.org/10.3390/su14031802

Maas, J.-B., Van Fenema, P. C., & Soeters, J. (2016). ERP as an organizational innovation: Key users and cross-boundary knowledge management. *Journal of Knowledge Management*, *20*(3), 557–577. https://doi.org/10.1108/jkm-05-2015-0195

Maguire, S., Ojiako, U., & Said, A. (2010). ERP implementation in Omantel: A case study. *Industrial Management & Data Systems*, *110*(1), 78–92. https://doi.org/10.1108/02635571011008416

Mahmood, F., Khan, A. Z., & Bokhari, R. H. (2019). ERP issues and challenges: A research synthesis. *Kybernetes*, *49*(3), 629–659. https://doi.org/10.1108/k-12-2018-0699

Malaysia's Official Statistics. (2022, November 5). *Micro, Small & Medium Enterprises (MSMEs) Performance 2021*. Department of Statistics Malaysia Official Portal. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=159&b

Universiti Utara Malaysia

ul_id=aFRNc2Zid295Tm1yczN5dWJNS1NwQT09&menu_id=TE5CRUZCblh4ZTZMODZIbmk2aWRRQT09

Menon, S. A., Muchnick, M., Butler, C., & Pizur, T. (2019). Critical challenges in enterprise resource planning (ERP) implementation. *International Journal of Business and Management*, *14*(7), 54. https://doi.org/10.5539/ijbm.v14n7p54

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, Sage Publications.

Monk, E. F., & Wagner, B. J. (2008). *Enterprise resource planning.* Course Technology, Cengage.

Mukherjee, S. (2021). Measuring the Benefits of Enterprise Resource Planning (ERP) Software. *International Journal of Management (IJM)*, *12*(1), 777–785. https://doi.org/10.34218/IJM.12.1.2021.068

Myers, M.D. (2013). *Qualitative Research in Business & Management*. 2nd Edition, Sage Publications.

Nafjan, A. N., & Al-Mudimigh, A. S. (2011). The Impact of Change Management in ERP System: A Case Study of MADAR. *Journal of Theoretical and Applied Information Technology, 23*(2), pp. 209-214.

Nair, J., & Chellasamy, A. (2017). Technological change perspective for ERP implementation in small and Medium Enterprises. *International Journal of Strategic Information Technology and Applications*, *8*(2), 29–39. https://doi.org/10.4018/ijsita.2017040103

Noudoostbeni, A., Azina Ismail, N., Jenatabadi, H. S., & Mohd Yasin, N. (2010). An effective end-user knowledge concern training method in Enterprise Resource Planning (ERP) based on critical factors (CFS) in Malaysian SMEs.

Universiti Utara Malaysia

International Journal of Business and Management, 5(7), 63-76. https://doi.org/10.5539/ijbm.v5n7p63

Noureldeen, A., Salaheldeen, M., & Battour, M. (2021). Critical success factors for ERP implementation: A study on mobile telecommunication companies in Egypt. *Proceedings of International Conference on Emerging Technologies and Intelligent Systems*, 691–701. https://doi.org/10.1007/978-3-030-82616-1_57

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis. *International Journal of Qualitative Methods*, *16*(1), 1-13. https://doi.org/10.1177/1609406917733847

O'Leary, D. E. (2000). *Enterprise Resource Planning Systems, life cycle, electronic commerce, and risk*. Cambridge University Press.

Olson, D. L., & Zhao, F. (2007). Cios' perspectives of critical success factors in ERP upgrade projects. *Enterprise Information Systems*, *1*(1), 129–138. https://doi.org/10.1080/17517570601088364

Parhizkar, M., & Comuzzi, M. (2017). Impact analysis of ERP post-implementation modifications: Design, Tool Support and Evaluation. *Computers in Industry*, *84*, 25–38. https://doi.org/10.1016/j.compind.2016.11.003

Pérez Estébanez, R. (2021). Assessing the benefits of an ERP implementation in SMEs. an approach from the. *Scientific Annals of Economics and Business*, *68*(1), 63–73. https://doi.org/10.47743/saeb-2021-0006

Prasad, D. S., Pradhan, R. P., Gaurav, K., Chatterjee, P. P., Kaur, I., Dash, S., & Nayak, S. (2018). Analysing the critical success factors for implementation of Sustainable Supply Chain Management: An Indian case study. *Decision*, *45*(1), 3–25. https://doi.org/10.1007/s40622-017-0171-7

R. Stone, A., & Zhang, X. (2021). Understanding success factors for ERP implementation: An integration of literature and experience. *Issues In Information Systems*. *22*(2), 146-156. https://doi.org/10.48009/2_iis_2021_150-161

Radovilsky, Z. (2004). Enterprise resource planning (ERP). *The Internet Encyclopedia*. https://doi.org/10.1002/047148296x.tie060

Reitsma, E., & Hilletofth, P. (2018). Critical success factors for ERP system implementation: A user perspective. *European Business Review*, *30*(3), 285–310. https://doi.org/10.1108/ebr-04-2017-0075

Rouhani, S., & Mehri, M. (2018). Empowering benefits of ERP systems implementation: Empirical study of industrial firms. *Journal of Systems and Information Technology*, *20*(1), 54–72. https://doi.org/10.1108/jsit-05-2017-0038

Ruhi, U. (2016). An experiential learning pedagogical framework for enterprise systems education in business schools. *The International Journal of Management Education*, *14*(2), 198–211. https://doi.org/10.1016/j.ijme.2016.04.006

Sahran, S., Goni, F. A., & Mukhtar, M. (2010). ERP implementation challenges in small and medium enterprise: A framework and case study. *Advanced Materials Research*, *139-141*, 1636–1639. https://doi.org/10.4028/www.scientific.net/amr.139-141.1636

Seo, G. (2013). *Challenges in implementing enterprise resource planning (ERP) system in large organizations: similarities and differences between corporate and*

university environment. [Master's thesis, Massachusetts Institute of Technology]. MIT Libraries. https://dspace.mit.edu/handle/1721.1/80683

Shah, S. I. H., Khan, A. Z., Bokhari, R. H., & Raza, M. A. (2011). Exploring the impediments of successful ERP implementation: A case study in a public organization. *International Journal of Business and Social Science*, *2*(22), 289-296.

Shahawai, S. S., & Idrus, R. (2010). Pre-considered factors affecting ERP system adoption in Malaysian SMEs using a technology-organization-environment framework. *In Information Technology (ITSim), 2010 International Symposium in.* 2010. IEEE. https://doi.org/10.1109/itsim.2010.5561522

Shanab, E. A., Khairallah, M., & Shehab, E. A. (2015). Critical Success Factors for ERP Implementation: The Case of Jordan. *International Arab Journal of e-Technology*, *4*, 1-7.

Shaul, L., & Tauber, D. (2013). Critical success factors in enterprise resource planning systems. *ACM Computing Surveys*, *45*(4), 1–39. https://doi.org/10.1145/2501654.2501669

Shen, Y. C., Chen, P. S., & Wang, C. H. (2016). A Study of Enterprise Resource Planning (ERP) system performance measurement using the Quantitative Balanced Scorecard approach. *Computers in Industry*, *75*, 127–139. https://doi.org/10.1016/j.compind.2015.05.006

Silva, S. L., & Oliveira, S. B. (2015). Planning and scope definition to implement ERP: The case study of federal rural university of Rio de Janeiro (UFRRJ). *Procedia Computer Science*, *64*, 196–203. https://doi.org/10.1016/j.procs.2015.08.481

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

Sodomka, P., & Klcova, H. (2016). Classification of ERP system services. *Journal of Systems Integration*, *7*(3), 66–78. https://doi.org/10.20470/jsi.v7i3.263

Soh, C., & Sia, S. I. K. (2005). The Challenges of Implementing "Vanilla" Versions of Enterprise Systems. *MIS Quarterly Executive, 4*(3), Article 6, 2005, pp. 373-384.

Sorheller, V. U., Hovik, E. J., Hustad, E., & Vassilakopoulou, P. (2018). Implementing cloud ERP solutions: A review of sociotechnical concerns. *Procedia Computer Science*, *138*, 470–477. https://doi.org/10.1016/j.procs.2018.10.065

Strong, D. M., & Volkoff, O. (2004). A roadmap for enterprise system implementation. *Computer 37*(6), pp. 22-29, June 2004. https://doi: 10.1109/MC.2004.3

Subbarao, A., & Lorganaden, A. (2022). Push and Pull Factors: Enterprise Resource Planning Implementation in Klang Valley Small Medium Enterprises. *Computational Intelligence and Data Analytics,* 609–618. https://doi.org/10.17605/OSF.IO/DVEP7

Supramaniam, M., Abdullah, A., & Ponnan, R. (2014). Cost analysis on ERP system implementation amongst Malaysian SMEs. *International Journal of Trade, Economics and Finance*, 72–76. https://doi.org/10.7763/ijtef.2014.v5.343

Sweis, R. J., Abuhussein, R., Jandali, D., Mashaleh, M., & Al Debei, M. (2018). Factors affecting ERP projects from a Project Management Perspective: A literature review. *International Journal of Business Information Systems*, *29*(3), 281. https://doi.org/10.1504/ijbis.2018.10016462

Thomas, W. F., & Kremzar, M. H. (2001). *ERP: Making it happen: The implementers' guide to success with enterprise resource planning*. The Oliver Wight Companies.

Tongsuksai, S., Mathrani, S., & Taskin, N. (2019). A framework to assess the critical success factors for cloud enterprise resource planning adoption in small and medium-sized enterprises. *International Conference on Information Resources Management (CONF-IRM) 2019*. 7. https://aisel.aisnet.org/confirm2019/7

Vidacic, S., Pihir, I., & Fabac, R. (2010). Method of data migration from one ERP system to another in real time. *Proceedings of the 21st Central European Conference on Information and Intelligent Systems*, p.501.

Yin, R. K. (2009). *Case study research: Design and methods (4th Ed.)*. Thousand Oaks, CA: Sage.

Universiti Utara Malaysia

APPENDICES

Interview Questions

1. What is your name and position?

2. How long have you held the position?

3. Do you know when ERP implementation started? Do you involve in the ERP planning & implementation?

4. In your opinion, what are the challenges before ERP implementation which lead to make decision to use ERP system?

5. In your opinion, what are the challenges during ERP implementation?

   a. Any conflict or struggle you facing?

   b. How do you overcome any conflict during ERP implementation?

   c. Is there any training provided before or during ERP implementation?

   d. Do you think data migration is the main challenges during ERP implementation?

6. Any additional comments on ERP implementation and challenges?

7. Do you have anything you would like to add that may help explain the key factors associated with successful ERP system implementation in a FESB?

Universiti Utara Malaysia

Universiti Utara Malaysia