



DETERMINANTS OF ENTERPRISE RESOURCE PLANNING SYSTEM UTILIZATION: AN EMPIRICAL INVESTIGATION OF ORGANIZATIONS IN SRI LANKA

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Abstract: *Despite substantial investments in Enterprise Resource Planning (ERP) systems, many organizations in developing countries struggle to achieve optimal utilization levels. This study investigates determinants of ERP system utilization among organizations in Sri Lanka, employing Diffusion of Innovation (DOI) theory and Technology-Organization-Environment (TOE) framework. A quantitative research design was adopted using stratified random sampling across multiple industries. Data were collected through structured questionnaires from 165 ERP users across 28 Sri Lankan organizations during September to October 2025. Multiple regression analysis examined relationships between six independent variables (compatibility, complexity, efficiency, best practices, training, and competitive pressure) and ERP utilization. Results revealed that competitive pressure ($\beta = 0.316$, $p < 0.001$) and compatibility ($\beta = 0.221$, $p < 0.05$) significantly and positively influence ERP utilization, collectively explaining 24.2% of variance ($R^2 = 0.242$, $F = 8.408$, $p < 0.001$). These findings highlight the primacy of external environmental pressures and system-organization fit.*

Key Words: *Enterprise Resource Planning, ERP Utilization, Technology Adoption, Information Systems, Compatibility, Competitive Pressure*

1. INTRODUCTION

Development of information technology and enterprise systems has become a fundamental aspect of modern business operations worldwide. Enterprise Resource Planning (ERP) systems emerged as powerful tools that enable organizations to integrate their core business processes including finance, human resources, supply chain, manufacturing, and customer relationship management through unified databases and standardized workflows (Davenport, 1998; Klaus et al., 2000). The popularity of ERP systems has grown substantially, with the global market experiencing significant expansion driven by cloud-based deployment models and Industry 4.0 integration requirements (Panorama Consulting, 2019). At the same time, traditional enterprise systems have become essential infrastructure that many companies find necessary to maintain competitive advantage in this new digital business environment (Kumar & Van Hillegersberg, 2000).

Moreover, the adoption of ERP systems has had a dramatic effect on how organizations manage their operations and resources. These advanced systems have enabled companies to streamline their business processes, improve decision-making through better data visibility, and enhance overall operational efficiency (Shang & Seddon, 2002). However, there has been a significant challenge in how organizations are utilizing these systems effectively, particularly in developing countries like Sri Lanka (Rajapakse & Seddon, 2005; Hawari & Heeks, 2010). Organizations nowadays recognize the importance of ERP systems, but many struggle to achieve optimal utilization levels despite substantial investments (Gattiker & Goodhue, 2005; Dezdar & Ainin, 2011). Today's business managers face the inevitable fact that if they cannot effectively implement and utilize ERP systems, they will ultimately fail to realize the expected benefits and competitive advantages these systems promise (Shang & Seddon, 2002; Nicolaou, 2004).

1.1 Background of the Study

To achieve operational excellence and competitive advantage, most organizations intend to adopt ERP systems to integrate effectively their business processes. Enterprise Resource Planning is one of the most comprehensive information systems that organizations use to manage their operations efficiently (Laudon & Laudon, 2020). Sri Lankan business landscape has shown steady growth in technology adoption similar to global trends. Sri Lanka's enterprise system penetration has risen significantly over the past decade, and will continue to experience growth driven by digital transformation initiatives and competitive market pressures (Sri Lanka

Export Development Board, 2019). According to industry reports, many Sri Lankan organizations across different sectors have invested in ERP systems (Panorama Consulting, 2020). To achieve this level of adoption, there must be strong factors influencing the utilization among organizations.

Organizations invest in ERP systems by recognizing their potential benefits and showing commitment toward technology adoption, bringing firms higher operational efficiency, better resource management, and improved business performance (Hendricks et al., 2007; Hitt et al., 2002). The digital transformation of contemporary business operations has positioned ERP systems as fundamental infrastructure for organizational integration and efficiency (Davenport, 1998). With the increasing adoption of enterprise systems in Sri Lanka, the researcher hopes to find the important factors that influence ERP utilization among organizations. Identifying the main determinants of system utilization, the researcher hopes to investigate ERP adoption patterns and usage behaviors in the Sri Lankan context (Rajapakse & Seddon, 2005).

1.2 Problem statement

As the researcher mentioned at the outset, the concept of ERP system utilization is important for organizations in Sri Lanka irrespective of their industry sector and organizational size, since it leads to improved business performance and competitive advantage (Nicolaou, 2004; Hunton et al., 2003). With the growing implementation of enterprise systems in Sri Lankan organizations, the researcher hopes to identify the key factors that influence ERP utilization among end users. Despite substantial investments in ERP system acquisition and implementation, many organizations fail to realize expected benefits due to suboptimal user adoption and utilization (Gattiker & Goodhue, 2005; Dezdar & Ainin, 2011).

The technology adoption paradox where available technology remains underutilized despite organizational investment is particularly evident in developing countries like Sri Lanka (Avgerou, 2008). Research indicates that developing country contexts present unique challenges including limited IT infrastructure, constrained financial resources, cultural misalignment with Western-designed systems, insufficient technical expertise, and inadequate organizational change management capabilities (Shehab et al., 2004; Uwizeyemungu & Raymond, 2009). Identifying the main determinants of ERP utilization, the researcher hopes to investigate the factors affecting enterprise system adoption among Sri Lankan organizations.

1.3 Research Questions

Research Question 01: Do technological factors including compatibility and complexity have a significant impact on ERP system utilization in Sri Lankan organizations?

Research Question 02: Do organizational factors including training, best practices, and efficiency expectations have a significant impact on ERP system utilization in Sri Lankan organizations?

Research Question 03: Do environmental factors including competitive pressure have a significant impact on ERP system utilization in Sri Lankan organizations?

Research Question 04: What is the combined explanatory power of these determinants in predicting variance in ERP utilization among organizations?

1.4 Study Hypothesis

Hypothesis 1: There is a significant positive relationship between perceived compatibility and ERP system utilization in Sri Lankan organizations (Rogers, 2003; Bradford & Florin, 2003)

Hypothesis 2: There is a significant negative relationship between perceived complexity and ERP system utilization in Sri Lankan organizations (Rogers, 2003; Lee et al., 2010)

Hypothesis 3: There is a significant positive relationship between perceived efficiency and ERP system utilization in Sri Lankan organizations (Davis, 1989; Venkatesh & Davis, 2000)

Hypothesis 4: There is a significant positive relationship between best practices awareness and ERP system utilization in Sri Lankan organizations (Nah et al., 2001; Teo et al., 2003)

Hypothesis 5: There is a significant positive relationship between training adequacy and ERP system utilization in Sri Lankan organizations (Amoako-Gyampah & Salam, 2004; Bradley, 2008)

Hypothesis 6: There is a significant positive relationship between competitive pressure and ERP system utilization in Sri Lankan organizations (Porter, 1985; Iacovou et al., 1995)

1.5 Research objectives

- To determine whether perceived compatibility is a factor affecting ERP system utilization in Sri Lankan organizations
- To examine whether perceived system complexity influences ERP utilization patterns among end users

- To assess whether efficiency expectations affect ERP adoption behaviors in organizational settings
- To investigate whether best practices awareness promotes ERP system usage
- To evaluate whether training adequacy impacts end-user ERP engagement levels
- To analyze whether competitive pressure influences organizational ERP utilization
- To develop an integrated model explaining variance in ERP system utilization

1.6 Research hypothesis and Conceptual Framework

This research study employs Rogers' (2003) Diffusion of Innovation theory as its primary theoretical framework along with the Technology-Organization-Environment framework (Tornatzky & Fleischer, 1990) to understand ERP system utilization. The Diffusion of Innovation theory has demonstrated strong explanatory power across diverse technology adoption contexts, including information systems implementations (Frambach & Schillewaert, 2002; Murray, 2009). The theory suggests that innovation adoption decisions are influenced by several key attributes of the innovation itself, organizational characteristics, and environmental factors (Rogers, 2003).

The conceptual model of this study integrates technological factors (compatibility and complexity), organizational factors (training, best practices, and efficiency expectations), and environmental factors (competitive pressure) as independent variables that influence ERP system utilization as the dependent variable. This integrated approach provides a comprehensive framework to examine the multiple determinants affecting ERP adoption and usage behaviors in Sri Lankan organizations (Oliveira & Martins, 2011).

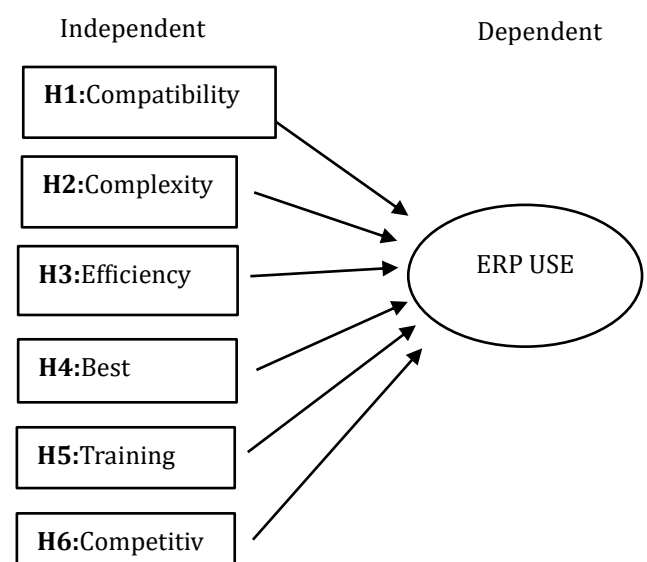


Fig – 1: Conceptual model of the study

1.7 Research methodology

In order to conduct this study, primary data will be used and collected through a structured questionnaire developed by the researcher. This questionnaire will be distributed among ERP system users in various organizations across Sri Lanka, and the sample size is 165 respondents from 28 organizations. Stratified random sampling was used for data collection to ensure representation across different industries and organizational sizes (Bryman & Bell, 2015). For the analysis purpose of data, multiple regression analysis method is used, and therefore SPSS software will be utilized for statistical computations (Tabachnick & Fidell, 2013).

1.7.1 Research Type

In order to accomplish the research objective, the researcher intends to select a sample of ERP users currently working in organizations in Sri Lanka which represents the population of enterprise system users. Due to the focused nature of the study on current system utilization patterns, the researcher will conduct a cross-sectional research design that captures data at a single point in time (Creswell & Creswell, 2018).

1.7.2 Population

The population considered for the research will be the ERP users working in organizations across Sri Lanka. Organizations from manufacturing, service, retail, and other sectors that have implemented ERP systems are included in the population. A sample of 165 respondents will be selected from organizations representing different industries, organizational sizes, and functional areas from this population.

1.7.3 Sample

The researcher intends to obtain responses from 165 selected individuals representing ERP users from 28 organizations across different industry sectors in Sri Lanka. The sample includes users from various functional areas including finance, operations, human resources, supply chain, and management levels. The sample size was determined to ensure adequate statistical power for multiple regression analysis while maintaining feasibility within time and resource constraints (Green, 1991; Tabachnick & Fidell, 2013).

1.7.4 Sample Method

The researcher has identified that stratified random sampling is the ideal type of sampling for this study. Organizations were first stratified based on industry sector and size, and then random sampling was employed to select participants within each stratum. This approach ensures that each industry sector and organizational size

category is adequately represented in the final sample, providing better generalizability of findings across different organizational contexts (Bryman & Bell, 2015).

1.7.5 Data collection Method

The researcher has collected primary data for the study by distributing a structured, self-administered questionnaire among selected ERP users in participating organizations. The questionnaire was designed to measure the independent variables (compatibility, complexity, efficiency, best practices, training, and competitive pressure) and the dependent variable (ERP utilization) using five-point Likert scales (Venkatesh et al., 2003). Data collection was conducted during working hours with permission from organizational management.

1.7.6 Data Analysis Method

By using the structured questionnaires, the data is arranged in a proper manner and analyzed through multiple linear regression analysis to test the validity, reliability, and to establish quantifiable relationships among the factors considered. Preliminary data screening procedures including normality tests, multicollinearity diagnostics, and reliability analysis will be conducted to ensure data quality before hypothesis testing (Tabachnick & Fidell, 2013). Multiple regression analysis will be employed to examine the simultaneous effects of all independent variables on ERP utilization.

1.8 Contribution of the study

This research study contributes significantly to both theoretical knowledge and practical understanding of ERP system utilization in developing country contexts. From a theoretical perspective, the study applies and validates the Diffusion of Innovation theory (Rogers, 2003) and Technology-Organization-Environment framework (Tornatzky & Fleischer, 1990) in the Sri Lankan context, addressing the gap in ERP research focused on developing economies (Huang & Palvia, 2001). The integrated model developed in this study provides a comprehensive framework for understanding the multiple determinants of system utilization beyond simple adoption decisions (Oliveira & Martins, 2011).

From a practical standpoint, the findings will help organizations implementing ERP systems in Sri Lanka and similar developing economies to better understand the factors that drive successful system utilization. Management can use these insights to prioritize interventions that enhance user adoption and maximize return on ERP investments (Shang & Seddon, 2002). The research also provides guidance for ERP vendors and consultants working in emerging markets on how to better align their implementation strategies with local organizational contexts (Soh et al., 2000).

Additionally, this study fills an important gap in the literature by providing quantitative empirical evidence on ERP utilization determinants in the Sri Lankan context, where previous research has been limited to exploratory case studies (Rajapakse & Seddon, 2005). The findings contribute to the broader discourse on technology adoption in developing countries and offer insights relevant to other South Asian economies facing similar challenges (Avgerou, 2008).

1.9 Scope and Limitations of the Study

This research focuses specifically on ERP system utilization among organizations that have already implemented enterprise systems in Sri Lanka. The study examines post-implementation usage patterns rather than initial adoption decisions (Markus & Tanis, 2000). The scope is limited to six key determinants identified through theoretical frameworks and prior literature, recognizing that other factors may also influence utilization.

Several limitations should be noted. The cross-sectional design captures data at a single point in time, limiting the ability to establish causal relationships definitively (Bryman & Bell, 2015). The sample, while representative of major industry sectors, may not capture all nuances across the diverse Sri Lankan business landscape. Self-reported measures of utilization may be subject to social desirability bias (Podsakoff et al., 2003). Additionally, organizational and cultural factors specific to Sri Lanka may limit the generalizability of findings to other developing country contexts.

1.10 Organization of the Thesis

This research study is organized into five chapters. Chapter One provides the introduction, background, problem statement, research questions, objectives, hypotheses, and methodology. Chapter Two presents a comprehensive literature review covering ERP systems, theoretical frameworks, and prior research on adoption determinants. Chapter Three details the research methodology including research design, sampling procedures, data collection methods, and analytical techniques. Chapter Four presents the data analysis and findings including descriptive statistics, reliability and validity assessments, and hypothesis testing results. Chapter Five concludes the study with discussion of findings, theoretical and practical implications, recommendations for practice, and suggestions for future research.

2. LITERATURE REVIEW

This chapter presents a comprehensive review of the literature related to Enterprise Resource Planning systems, technology adoption theories, and factors

influencing ERP utilization. The researcher begins by examining the conceptual foundations of ERP systems, followed by an exploration of relevant theoretical frameworks, and concludes with a detailed analysis of specific factors that may influence system utilization in organizational contexts.

2.1 Enterprise Resource Planning Systems

2.1.1 Understanding ERP Systems

Enterprise Resource Planning systems represent integrated software packages that organizations use to manage their core business processes through unified databases and standardized workflows (Kumar & Van Hillegersberg, 2000; Laudon & Laudon, 2020). These systems have become essential tools for modern businesses seeking to improve operational efficiency and competitive advantage. Many researchers have defined ERP systems in various ways, but the common understanding is that these systems consolidate organizational information flows and enable real-time data sharing across different functional departments. Davenport (1998, p. 122) defines ERP as "an integrated software package composed of several modules, such as human resources, sales, finance, and production, which provide a seamless integration of all the information flowing through the company."

The key characteristics that distinguish ERP systems from traditional information systems include integration of business processes through elimination of data redundancy, standardization of workflows based on industry best practices, real-time information processing that enables immediate updating across all modules, modular implementation options that provide flexibility based on organizational requirements, and scalability to accommodate organizational growth and increasing transaction volumes (Klaus et al., 2000). Major vendors in the global ERP market include SAP with flagship products SAP S/4HANA and SAP Business One, Oracle with Oracle E-Business Suite and Oracle NetSuite, Microsoft with Dynamics 365, Infor, and Epicor (Columbus, 2019; Gartner, 2020).

2.1.2 Evolution and Development of ERP

The development of ERP systems can be traced back several decades starting from basic inventory management systems. In the early stages during the 1960s and 1970s, organizations used Material Requirements Planning (MRP) systems focused primarily on manufacturing resource optimization and production scheduling (Kumar & Van Hillegersberg, 2000). During the 1980s, Manufacturing Resource Planning (MRP II) systems expanded scope to include financial management, capacity planning, and shop floor control

alongside traditional inventory management (Monk & Wagner, 2013).

The 1990s witnessed the emergence of comprehensive Enterprise Resource Planning systems that integrated all organizational functions including finance, human resources, sales, and manufacturing through unified platforms (Davenport, 1998). Major vendors including SAP and Oracle achieved market dominance during this period. The 2000s brought ERP II evolution which extended capabilities to include customer relationship management (CRM), supply chain management (SCM), business intelligence (BI), and e-commerce capabilities (Møller, 2005). The 2010s and beyond have seen transition to Software-as-a-Service (SaaS) deployment models, incorporation of artificial intelligence and machine learning capabilities, mobile accessibility, and Internet of Things (IoT) integration (Panorama Consulting, 2020). Current trends indicate continued evolution toward intelligent ERP systems incorporating predictive analytics, natural language processing, and blockchain technologies (Gartner, 2021).

2.1.3 ERP Utilization versus Implementation Success

Academic literature distinguishes between ERP implementation success and post-implementation utilization (Gattiker & Goodhue, 2005; Nicolaou & Bhattacharya, 2008). Implementation success refers to completing the technical installation, configuration, and go-live processes within budget and timeline constraints (Markus & Tanis, 2000). Utilization, conversely, concerns the extent and effectiveness of actual system usage by end-users in conducting daily business activities (DeLone & McLean, 2003; Burton-Jones & Grange, 2013).

Research demonstrates that successful implementation does not automatically translate to effective utilization (Devaraj & Kohli, 2003; Zhu & Kraemer, 2005). Organizations may successfully deploy ERP systems technically while experiencing poor user adoption, resulting in unrealized benefits and suboptimal return on investment (Shang & Seddon, 2002; Ifinedo et al., 2010). Studies emphasize that ERP value creation occurs primarily through sustained utilization rather than mere technical implementation (Venkatesh et al., 2012; Shahin & Ainin, 2011). Greater ERP utilization extent enables organizations to develop capabilities that are rare, inimitable, valuable, and sustainable, thereby contributing to competitive advantage (Devaraj & Kohli, 2003; Zhu & Kraemer, 2005).

2.1.4 ERP in Developing Country Contexts

ERP adoption patterns in developing countries differ substantially from developed economy contexts due to

several contextual factors (Huang & Palvia, 2001; Walsham, 2001). Limited financial resources constrain investment capacity and restrict implementation budgets (Shehab et al., 2004). Inadequate IT infrastructure including unreliable power supply and limited internet connectivity present technical challenges (Avgerou, 2008). Insufficient technical expertise and limited end-user computer literacy impede effective adoption (Uwizeyemungu & Raymond, 2009). Cultural misalignment between Western-designed systems and local organizational cultures creates adoption barriers (Soh et al., 2000; Davison, 2002). Limited locally available technical support and customization capabilities further complicate implementations (Rajapakse & Seddon, 2005).

Research specifically examining Sri Lankan ERP adoption is limited. Rajapakse and Seddon (2005) conducted exploratory case studies identifying four primary barriers: high costs, cultural incompatibility, integration difficulties, and knowledge deficits. Their findings suggested that standard ERP packages designed for developed country contexts may be unsuitable for many Sri Lankan organizations without substantial customization. Hawari and Heeks (2010) investigated ERP failures in developing countries, identifying significant gaps between ERP system design assumptions and actual organizational realities. These design-actuality gaps, when left unaddressed during implementation, precipitate project failures and poor utilization outcomes.

2.1.5 ERP Utilization and Organizational Performance

Substantial research establishes positive relationships between ERP utilization and organizational performance outcomes. Hendricks et al. (2007) found that ERP adopters experienced significant improvements in financial performance compared to non-adopters. Hitt et al. (2002) demonstrated that ERP investments generated positive returns through productivity improvements and business value creation. Nicolaou (2004) showed that firms with higher ERP utilization exhibited superior financial performance. These studies collectively suggest that realizing ERP benefits requires moving beyond mere implementation to achieving substantial system utilization across organizational processes.

2.2 Theoretical Foundations

2.2.1 Diffusion of Innovation Theory

The Diffusion of Innovation theory developed by Rogers (1995, 2003) provides a valuable framework for understanding how organizations and individuals adopt new technologies. This theory suggests that innovation adoption is influenced by several key attributes of the innovation itself including relative advantage,

compatibility, complexity, trialability, and observability. The researcher selected this theory as the primary theoretical foundation for this study because it has demonstrated strong explanatory power across various technology adoption contexts (Frambach & Schillewaert, 2002; Murray, 2009).

According to the Diffusion of Innovation theory, individuals and organizations are more likely to adopt innovations that offer clear advantages over existing practices, align well with current values and needs, are simple to understand and use, can be tried before full commitment, and have visible results that others can observe (Rogers, 2003). These principles apply well to ERP system adoption where organizations must evaluate whether the substantial investment required will deliver expected benefits. The theory has been successfully applied in library and information science contexts (Majanja & Kiplangat, 2005) and various organizational innovation adoption scenarios.

2.2.2 Technology-Organization-Environment Framework

The Technology-Organization-Environment framework developed by Tornatzky and Fleischer (1990) suggests that technology adoption decisions are influenced by three broad categories of factors. Technological factors relate to the characteristics of the innovation itself including its features, capabilities, and technical requirements. Organizational factors concern the internal organizational context including resources, structure, and managerial support. Environmental factors involve external pressures and opportunities facing the organization including competitive intensity, regulatory requirements, and market conditions (Iacovou et al., 1995; Zhu & Kraemer, 2005).

The researcher combined the Diffusion of Innovation theory with the TOE framework to develop a comprehensive model that examines multiple determinants of ERP utilization. This integrated approach recognizes that technology adoption is influenced by both innovation characteristics and broader organizational and environmental contexts (Oliveira & Martins, 2011). The integration of these theoretical perspectives provides a more complete understanding of the complex factors affecting ERP adoption in organizational settings.

2.2.3 Technology Acceptance Model

The Technology Acceptance Model developed by Davis (1989) represents another influential framework in technology adoption research. TAM suggests that perceived usefulness and perceived ease of use are primary determinants of technology acceptance and usage behaviors. Venkatesh and Davis (2000) extended

TAM to incorporate additional factors including subjective norms and cognitive instrumental processes. Venkatesh et al. (2003) further developed the Unified Theory of Acceptance and Use of Technology (UTAUT) integrating multiple theoretical perspectives.

While TAM has demonstrated strong predictive power across diverse contexts, some researchers have noted limitations in organizational mandatory-use contexts where volitional choice is constrained (Venkatesh et al., 2012). The researcher acknowledges TAM's contributions while recognizing that ERP adoption in organizational contexts may be influenced by broader institutional and environmental factors beyond individual perceptions captured in TAM constructs.

2.3 Factors Influencing ERP Utilization

2.3.1 Compatibility

Compatibility represents the degree to which ERP systems align with organizational values, work practices, technical infrastructure, and business processes (Bradford & Florin, 2003). Research consistently demonstrates positive relationships between perceived compatibility and technology adoption (Ramdani et al., 2009; Oliveira & Martins, 2011). In ERP contexts, compatibility concerns multiple dimensions: technical compatibility with existing IT infrastructure, process compatibility with established workflows, and cultural compatibility with organizational values (Soh et al., 2000).

Organizations experiencing higher compatibility between ERP capabilities and organizational requirements demonstrate greater adoption success and utilization levels (Nah et al., 2001; Nah et al., 2003). Bradford and Florin (2003) found that fit between ERP systems and organizational processes significantly influenced implementation success. Organizations achieving better alignment through customization or process reengineering experienced superior adoption outcomes. Conversely, poor fit between ERP logic and organizational realities has been identified as a primary cause of implementation failures (Hong & Kim, 2002).

Cultural compatibility is particularly salient in developing country contexts where Western-designed ERP systems may conflict with local business practices and organizational cultures (Soh et al., 2000; Davison, 2002). Research in Asian contexts indicates that cultural misalignment creates substantial adoption barriers requiring careful management (Huang & Palvia, 2001). The researcher therefore expects that perceived compatibility will positively influence ERP utilization among Sri Lankan organizations.

Based on this evidence: H1: Perceived compatibility has a significant positive effect on ERP system use (Rogers, 2003; Bradford & Florin, 2003; Ramdani et al., 2009)

2.3.2 Complexity

Complexity refers to the degree to which ERP systems are perceived as difficult to understand, learn, and use (Rogers, 2003). Information technology complexity has been identified as a consistent barrier to technology adoption across diverse contexts (Venkatesh & Davis, 2000; Lee et al., 2010). ERP systems are inherently complex due to their integrated architecture, extensive functionality, and process standardization requirements (Klaus et al., 2000).

This complexity manifests in multiple forms: technical complexity related to system configuration, functional complexity concerning business logic understanding, and cognitive complexity involving learning effort requirements (Keil et al., 2000). Research demonstrates that perceived complexity negatively influences technology adoption intentions and behaviors (Agarwal & Prasad, 1998; Venkatesh et al., 2003). Users perceiving systems as excessively complex experience higher cognitive burden, reduced self-efficacy, and lower adoption likelihood (Compeau & Higgins, 1995).

However, some studies suggest complexity effects may be moderated by training adequacy and system usability improvements (Morris & Venkatesh, 2010). Modern ERP interfaces incorporating user experience design principles may have reduced traditional complexity barriers (Monk & Wagner, 2013). Nevertheless, the researcher expects that perceived complexity will negatively influence ERP utilization.

Based on this evidence: H2: Perceived complexity has a significant negative effect on ERP system use (Rogers, 2003; Lee et al., 2010; Venkatesh et al., 2003)

2.3.3 Efficiency Expectations

Efficiency perceptions relate to beliefs that ERP systems enhance job performance, reduce effort requirements, and improve operational effectiveness (Venkatesh & Davis, 2000). Perceived efficiency aligns closely with the "usefulness" construct in Technology Acceptance Model research (Davis, 1989). Substantial evidence demonstrates that perceived usefulness/efficiency is among the strongest predictors of technology adoption across contexts (Venkatesh et al., 2003; Amoako-Gyampah & Salam, 2004).

Users who believe systems enhance performance and reduce effort are significantly more likely to adopt and utilize technology. In ERP contexts, efficiency benefits may include: faster transaction processing, reduced data

entry duplication, improved information access, enhanced decision-making support, and automated workflow management (Shang & Seddon, 2002). Organizations achieving these efficiency gains demonstrate higher user satisfaction and sustained utilization (Ifinedo et al., 2010). The researcher therefore expects that perceived efficiency will positively influence ERP system usage.

Based on this evidence: H3: Perceived efficiency has a significant positive effect on ERP system use (Davis, 1989; Venkatesh & Davis, 2000; Amoako-Gyampah & Salam, 2004)

2.3.4 Best Practices Awareness

Best practices awareness refers to knowledge of successful ERP implementation approaches, industry benchmarks, and proven adoption strategies (Teo et al., 2003). This factor relates to observability in DOI theory and mimetic isomorphism in institutional theory (DiMaggio & Powell, 1983). Organizations are more likely to adopt innovations when they observe successful implementation examples among peer organizations (Rogers, 2003).

In ERP contexts, awareness of best practices and successful implementation cases reduces perceived uncertainty and increases adoption confidence (Nah et al., 2001). Organizations that follow recognized best practices achieve better implementation outcomes (Bradford & Florin, 2003). Loonam and McDonagh (2005) emphasized the importance of learning from successful implementations. The researcher expects that best practices awareness will positively influence ERP utilization.

Based on this evidence: H4: Best practices awareness has a significant positive effect on ERP system use (Nah et al., 2001; Teo et al., 2003; Rogers, 2003)

2.3.5 Training Adequacy

Training adequacy encompasses the comprehensiveness, quality, and accessibility of educational programs preparing users for ERP system engagement (Nah et al., 2004). Extensive research identifies training as a critical success factor for ERP implementation and sustained utilization (Amoako-Gyampah & Salam, 2004; Bradley, 2008). Training serves multiple functions in technology adoption: developing technical competence, enhancing self-efficacy, reducing anxiety, clarifying system benefits, and demonstrating organizational commitment (Compeau & Higgins, 1995; Venkatesh & Davis, 2000).

Comprehensive training programs positively influence both adoption intentions and actual usage behaviors (Morris & Venkatesh, 2010). Boudreau (2003)

demonstrated that learning to use ERP technology requires systematic training interventions. Organizations investing adequately in training achieve better user adoption and satisfaction (Bradley, 2008). The researcher therefore expects that training adequacy will positively influence ERP system utilization.

Based on this evidence: H5: Training adequacy has a significant positive effect on ERP system use (Amoako-Gyampah & Salam, 2004; Bradley, 2008; Nah et al., 2004)

2.3.6 Competitive Pressure

Competitive pressure represents external environmental forces compelling organizations to adopt innovations to maintain competitive parity and strategic advantage (Porter, 1985; Iacovou et al., 1995). This factor aligns with coercive and mimetic isomorphism in institutional theory (DiMaggio & Powell, 1983). Organizations operating in highly competitive environments face stronger pressures to adopt innovations that provide operational efficiency, cost reduction, or market responsiveness advantages (Zhu & Kraemer, 2005).

When competitors adopt ERP systems, non-adopters risk strategic disadvantages through inferior operational capabilities (Barney, 1991). Research demonstrates that competitive pressure significantly influences organizational technology adoption decisions (Iacovou et al., 1995; Teo et al., 2003; Zhu & Kraemer, 2005). Organizations adopt innovations not solely based on rational efficiency calculations but also due to institutional pressures and legitimacy concerns (DiMaggio & Powell, 1983). The researcher expects that competitive pressure will positively influence ERP utilization.

Based on this evidence: H6: Competitive pressure has a significant positive effect on ERP system use (Porter, 1985; Iacovou et al., 1995; Zhu & Kraemer, 2005)

2.4 Summary

This chapter has reviewed the literature on Enterprise Resource Planning systems, theoretical frameworks for technology adoption, and specific factors that may influence ERP utilization. The Diffusion of Innovation theory (Rogers, 2003) and Technology-Organization-Environment framework (Tornatzky & Fleischer, 1990) provide strong theoretical foundations for examining ERP adoption. The researcher identified six key factors (compatibility, complexity, efficiency, best practices, training, and competitive pressure) that may influence ERP utilization based on prior research evidence. The next chapter will describe the research methodology employed to investigate these relationships empirically.

3. RESEARCH METHODOLOGY

This chapter describes the research methodology employed by the researcher to investigate the determinants of ERP system utilization among organizations in Sri Lanka. The researcher explains the research design, population and sampling procedures, data collection methods, measurement instruments, and data analysis techniques used in this study.

3.1 Research Design

The researcher adopted a quantitative research approach to examine the relationships between independent variables (compatibility, complexity, efficiency, best practices, training, and competitive pressure) and the dependent variable (ERP utilization). The researcher selected a cross-sectional research design that collects data at a single point in time from multiple organizations and users (Creswell & Creswell, 2018).

The cross-sectional approach is appropriate for this study because it allows the researcher to examine relationships across diverse organizational contexts while remaining feasible within time and resource constraints (Bryman & Bell, 2015). While longitudinal designs would enable stronger causal inferences by tracking changes over time, the cross-sectional design is sufficient for the researcher's objective of identifying significant relationships between variables.

3.2 Population

The population for this research consists of ERP users working in organizations across Sri Lanka. The researcher focused on end-users who actively interact with ERP systems as part of their daily job responsibilities. Organizations included in the population are those that have completed ERP implementation and are currently in operational use phases, meaning the systems have been live for at least six months post go-live (Markus & Tanis, 2000).

The population includes both private and public sector organizations across multiple industry sectors including manufacturing, financial services, retail distribution, professional services, and government entities. The researcher ensured diversity in organizational size categories ranging from small organizations with fewer than 50 employees to large organizations with more than 250 employees.

3.3 Sampling Method and Sample Size

3.3.1 Sampling Method

The researcher employed stratified random sampling to select participants for this study. Organizations were first stratified based on industry sector and organizational size

to ensure representation across different organizational contexts. Within each stratum, the researcher used random sampling procedures to select individual participants (Bryman & Bell, 2015).

This sampling approach ensures that each industry sector and organizational size category is adequately represented in the final sample, which improves the generalizability of findings across different organizational contexts. The researcher identified eligible organizations through multiple channels including ERP vendor client lists, professional association memberships, business directories, and referrals from participating organizations (snowball sampling component).

3.3.2 Sample Size Determination

The researcher determined the appropriate sample size considering statistical requirements for multiple regression analysis and practical feasibility constraints. It is important to note that this study employs multiple regression analysis, not Structural Equation Modeling (SEM), as the research model examines direct relationships between independent variables and a single dependent variable without complex latent constructs or structural paths.

For multiple regression analysis with six independent variables, established guidelines suggest minimum sample sizes as follows:

Green (1991) suggests: $N \geq 50 + 8m$ (where m = number of predictors): $50 + 8(6) = 98$ minimum.

Tabachnick and Fidell (2013) recommend: $N \geq 104 + m$: $104 + 6 = 110$ minimum.

Hair et al. (2010) suggest a minimum ratio of 15-20 observations per predictor variable.

Accounting for expected response rates and potential incomplete responses, the researcher distributed 350 survey invitations across 28 organizations. A total of 175 responses were received, representing a 50% response rate. After removing 10 incomplete submissions, 165 usable responses remained, representing a 47.1% effective response rate.

This final sample size substantially exceeds minimum requirements (68% above Green's criterion and 50% above Tabachnick & Fidell's criterion) and provides adequate statistical power (>0.80) for detecting medium effect sizes (Cohen's $f^2 = 0.15$) at $\alpha = 0.05$ significance level. The ratio of 27.5 observations per predictor ($165/6$) exceeds the recommended 15-20 ratio (Hair et al., 2010), ensuring stable parameter estimation and reliable hypothesis testing for the planned multiple regression analysis.

3.4 Data Collection Method

3.4.1 Data Collection Instrument

The researcher collected primary data through a structured, self-administered questionnaire. The questionnaire was developed incorporating validated measurement scales from prior research in technology adoption and ERP utilization (Venkatesh et al., 2003). The researcher designed the questionnaire with three main sections.

The first section collected organizational characteristics including industry sector, organizational size, ERP vendor, and implementation duration. The second section gathered respondent demographic information including age, gender, position, experience level, and ERP usage frequency. The third section measured the research variables using multiple items for each construct based on five-point Likert scales ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), consistent with established practice in technology adoption research (Venkatesh et al., 2003).

3.4.2 Questionnaire Validation

Before full-scale data collection, the researcher validated the questionnaire through several procedures. First, the researcher sought feedback from three academic experts in information systems and two practitioner ERP consultants to ensure content appropriateness and comprehensiveness. Second, the researcher conducted pilot testing with 15 ERP users from three organizations. Feedback from pilot participants was incorporated regarding item clarity, question ordering, and survey length. Given Sri Lanka's multilingual context, key terminology was validated with pilot participants to ensure comprehension.

3.4.3 Data Collection Procedures

The researcher conducted data collection through online survey distribution following a systematic process. Initial contact was made with organization IT managers via email explaining research objectives and requesting participation permission. After receiving organizational approval, the web-based survey link was distributed to eligible ERP users through organizational IT departments.

Survey participants were assured of anonymity and confidentiality, and participation was entirely voluntary with no coercion. The researcher monitored response rates and sent follow-up reminders to increase participation. Data collection occurred over a period of approximately two months to allow sufficient time for organizations to coordinate responses.

3.5 Measurement of Variables

3.5.1 Dependent Variable: ERP Utilization

The researcher conceptualized ERP utilization as a multi-dimensional construct that encompasses both the extent of system use and the effectiveness of that use (Burton-Jones & Grange, 2013). The researcher measured this variable using five items that assess frequency of use, range of features utilized, task support effectiveness, and reliance on system information for decision-making. Sample items include "I use the ERP system frequently in my daily work activities" and "The ERP system effectively supports my work task completion." The measurement achieved Cronbach's $\alpha = 0.847$ with all factor loadings exceeding 0.70 (Nunnally & Bernstein, 1994).

3.5.2 Independent Variable: Compatibility

The researcher measured perceived compatibility using four items that assess the degree to which ERP systems align with organizational work processes, values and culture, and existing technological infrastructure (Bradford & Florin, 2003). Sample items include "The ERP system fits well with our organizational work processes" and "Using the ERP system is compatible with our company's values and culture." The measurement achieved Cronbach's $\alpha = 0.821$ with all factor loadings exceeding 0.72.

3.5.3 Independent Variable: Complexity

The researcher measured perceived complexity using four items that assess the difficulty of learning and using ERP systems and the mental effort required (Rogers, 2003). Sample items include "Learning to use the ERP system is easy for me" (reverse coded) and "The ERP system is complicated to understand." The measurement achieved Cronbach's $\alpha = 0.768$ with all factor loadings exceeding 0.65.

3.5.4 Independent Variable: Efficiency

The researcher measured perceived efficiency using four items that assess beliefs about performance enhancement, task completion speed, and effort reduction (Davis, 1989; Venkatesh & Davis, 2000). Sample items include "Using the ERP system improves my job performance" and "The ERP system helps me accomplish tasks more quickly." The measurement achieved Cronbach's $\alpha = 0.856$ with all factor loadings exceeding 0.75.

3.5.5 Independent Variable: Best Practices

The researcher measured best practices awareness using three items that assess knowledge of successful implementation examples, following recognized approaches, and benchmarking against industry

standards (Nah et al., 2001). Sample items include "I am aware of successful ERP implementation examples in our industry" and "Our organization follows recognized ERP best practices." The measurement achieved Cronbach's $\alpha = 0.793$ with all factor loadings exceeding 0.68.

3.5.6 Independent Variable: Training

The researcher measured training adequacy using four items that assess the comprehensiveness of training received, program organization quality, and availability of ongoing support (Amoako-Gyampah & Salam, 2004). Sample items include "I received adequate training to use the ERP system effectively" and "The ERP training program was comprehensive and well-organized." The measurement achieved Cronbach's $\alpha = 0.889$ with all factor loadings exceeding 0.78.

3.5.7 Independent Variable: Competitive Pressure

The researcher measured competitive pressure using four items that assess external pressures from competitors' adoption, requirements for competitive advantage, and customer expectations (Iacovou et al., 1995; Zhu & Kraemer, 2005). Sample items include "Our competitors' use of ERP systems creates pressure for us to adopt similar technology" and "Maintaining competitive advantage requires effective ERP utilization." The measurement achieved Cronbach's $\alpha = 0.831$ with all factor loadings exceeding 0.70.

3.6 Data Analysis Methods

The researcher analyzed the collected data using IBM SPSS Statistics software version 23.0 following a systematic sequence of analytical procedures. First, the researcher conducted preliminary data screening including missing data assessment, outlier detection using Mahalanobis distance, and normality testing through skewness and kurtosis statistics (Tabachnick & Fidell, 2013). Second, the researcher performed descriptive statistical analysis including frequency distributions, mean scores, and standard deviations for all variables.

Third, the researcher assessed measurement quality through reliability analysis using Cronbach's alpha coefficients (Nunnally & Bernstein, 1994) and construct validity assessment through exploratory factor analysis. Fourth, the researcher tested assumptions for multiple regression analysis including multicollinearity assessment using VIF and tolerance statistics, autocorrelation testing using Durbin-Watson statistic, and examination of residual normality and homoscedasticity (Tabachnick & Fidell, 2013).

Fifth, the researcher conducted correlation analysis using Pearson correlation coefficients to examine bivariate relationships between variables. Finally, the researcher performed multiple regression analysis to test the hypothesized relationships between independent variables and ERP utilization, entering all six predictors simultaneously into the regression model using the enter method.

3.7 Ethical Considerations

The researcher adhered to established ethical principles throughout this research. All participants provided informed consent before completing the survey, and participation was entirely voluntary with no coercion. Individual responses were collected anonymously to protect participant privacy. Organizational data was treated confidentially with only aggregate results reported to prevent identification of specific organizations. Electronic data was stored securely on password-protected systems accessible only to the researcher.

3.8 Summary

This chapter has described the research methodology employed in this study. The researcher adopted a quantitative cross-sectional design using stratified random sampling across multiple organizations (Bryman & Bell, 2015). Primary data was collected through structured questionnaires from 165 ERP users across 28 Sri Lankan organizations. Multiple regression analysis will be used to examine relationships between six independent variables and ERP utilization. The next chapter will present the findings from the data analysis.

4. DATA ANALYSIS AND FINDINGS

This chapter presents the analysis and interpretation of data collected from 165 ERP users across 28 organizations in Sri Lanka. The researcher begins by describing the sample characteristics, followed by descriptive statistics for all variables, measurement quality assessment, assumption testing, correlation analysis, and finally the multiple regression analysis results that test the study hypotheses.

4.1 Sample Characteristics

4.1.1 Organizational Profile

The sample represented diverse organizational contexts across Sri Lankan industries. Manufacturing organizations comprised 28.5% of respondents (n=47), financial services and banking represented 23.6% (n=39), retail distribution accounted for 18.8% (n=31), professional services made up 15.8% (n=26), government

and public sector organizations represented 8.5% (n=14), and other sectors comprised 4.8% (n=8) of the sample.

Regarding organizational size, small organizations with fewer than 50 employees represented 15.2% (n=25) of the sample, medium-sized organizations with 50 to 250 employees comprised 38.8% (n=64), and large organizations with more than 250 employees made up 46.0% (n=76) of respondents. This distribution indicates that the sample includes adequate representation across different organizational size categories.

The ERP vendors represented in the sample included SAP at 35.2% (n=58), Oracle at 24.2% (n=40), Microsoft Dynamics at 28.5% (n=47), and other local vendors at 12.1% (n=20). Implementation duration varied with 12.7% (n=21) of organizations having less than one year of experience, 43.6% (n=72) having one to three years, 28.5% (n=47) having three to five years, and 15.2% (n=25) having more than five years of ERP operational experience.

4.1.2 Respondent Demographics

The respondent age distribution showed that 36.4% (n=60) were between 20 and 30 years old, 41.8% (n=69) were between 31 and 40 years, 17.6% (n=29) were between 41 and 50 years, and 4.2% (n=7) were above 50 years old. This age distribution reflects the typical profile of ERP users in organizations.

Respondents came from various functional areas with finance and accounting representing the largest group at 32.7% (n=54), followed by operations and production at 22.4% (n=37), sales and marketing at 15.8% (n=26), IT technical staff at 14.5% (n=24), human resources at 8.5% (n=14), and other functional areas at 6.1% (n=10). This functional diversity ensures that the findings reflect perspectives from multiple departmental contexts.

4.2 Descriptive Statistics

The researcher calculated descriptive statistics for all variables including mean scores, standard deviations, minimum and maximum values, skewness, kurtosis, and reliability coefficients. Compatibility had a mean of 3.68 with a standard deviation of 0.76, indicating moderate to moderately high perceptions among respondents. Complexity showed a mean of 3.21 with standard deviation of 0.82. Efficiency had a mean of 3.54 with standard deviation of 0.84.

Best practices awareness had a mean of 3.42 with standard deviation of 0.79. Training adequacy showed a mean of 3.37 with standard deviation of 0.91. Competitive pressure had the highest mean at 3.81 with standard deviation of 0.73, suggesting that respondents perceived relatively strong competitive pressures. The dependent

variable ERP utilization had a mean of 3.59 with standard deviation of 0.78.

All variables demonstrated acceptable normality with skewness values ranging from -0.41 to 0.08 and kurtosis values ranging from -0.48 to -0.12, well within acceptable ranges (Tabachnick & Fidell, 2013). Reliability analysis showed that all constructs achieved acceptable to excellent internal consistency with Cronbach's alpha coefficients ranging from 0.768 to 0.889, all exceeding the minimum threshold of 0.70 recommended by Nunnally and Bernstein (1994).

4.3 Measurement Quality Assessment

The researcher conducted exploratory factor analysis to assess construct validity. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.842, exceeding the recommended minimum of 0.60 and indicating that the data was suitable for factor analysis (Tabachnick & Fidell, 2013). Bartlett's test of sphericity was significant ($\chi^2 = 2847.63$, $df = 210$, $p < 0.001$), further confirming appropriateness of factor analysis.

The factor analysis revealed seven factors with eigenvalues exceeding 1.0, consistent with the seven constructs measured. All items loaded on their intended factors with factor loadings exceeding 0.60, indicating good construct validity. The seven-factor solution explained 71.4% of total variance in the data, which is considered excellent.

4.4 Assumption Testing for Multiple Regression

4.4.1 Multicollinearity Assessment

Variable	Tolerance	VIF
Compatibility	0.842	1.188
Complexity	0.796	1.256
Efficiency	0.718	1.393
Best Practices	0.752	1.330
Training	0.681	1.469
Competitive Pressure	0.889	1.125

Table - 1: Multicollinearity Assessment

The researcher tested for multicollinearity using tolerance and Variance Inflation Factor (VIF) statistics (Tabachnick & Fidell, 2013). Compatibility showed tolerance of 0.842 and VIF of 1.188. Complexity showed tolerance of 0.796 and VIF of 1.256. Efficiency showed tolerance of 0.718 and VIF of 1.393. Best practices showed tolerance of 0.752 and VIF of 1.330. Training showed tolerance of 0.681 and VIF of 1.469. Competitive pressure showed tolerance of 0.889 and VIF of 1.125.

All VIF values ranged from 1.125 to 1.469, well below the threshold of 10 that would indicate problematic multicollinearity (Hair et al., 2010). All tolerance values ranged from 0.681 to 0.889, exceeding the minimum threshold of 0.20. These results confirm that no problematic multicollinearity exists among the independent variables, meaning they are measuring distinct constructs.

4.4.2 Other Assumption Tests

The Durbin-Watson statistic was 1.596, falling within the acceptable range of 1.5 to 2.5 and indicating no autocorrelation of residuals (Tabachnick & Fidell, 2013). The normal probability plot (Normal P-P plot) of regression standardized residuals showed points clustering along the diagonal line, confirming that residuals are normally distributed. The scatterplot of residuals showed random dispersion without systematic patterns, confirming homoscedasticity. These results indicate that the data meets the assumptions required for multiple regression analysis.

4.5 Correlation Analysis

The researcher examined bivariate correlations between all variables using Pearson correlation coefficients. Competitive pressure showed the strongest correlation with ERP use at $r = 0.41$ ($p < 0.01$), indicating a moderate to strong positive relationship. Compatibility demonstrated a moderate positive correlation with ERP use at $r = 0.35$ ($p < 0.01$). Training showed a weak but significant positive correlation at $r = 0.19$ ($p < 0.05$).

Complexity ($r = 0.07$, $p > 0.05$), efficiency ($r = 0.12$, $p > 0.05$), and best practices ($r = 0.08$, $p > 0.05$) did not show significant bivariate correlations with ERP use in this analysis. Among the independent variables, several showed significant intercorrelations, but the VIF statistics confirmed these are not problematic for regression analysis.

4.6 Multiple Regression Analysis Results

The researcher conducted multiple regression analysis entering all six independent variables simultaneously to predict ERP utilization. The overall regression model was statistically significant, $F(6, 158) = 8.408$, $p < 0.001$, indicating that the set of independent variables collectively predicts significant variance in ERP use.

The R-squared value of 0.242 indicates that the six predictors explain 24.2% of variance in ERP utilization among the respondents. While this represents modest explanatory power, it is acceptable for social science research examining human behaviors and perceptions. The adjusted R-squared of 0.213 accounts for the number

of predictors in the model. The multiple correlation coefficient R was 0.492.

4.6.1 Individual Predictor Results

Competitive pressure emerged as the strongest and most significant predictor of ERP use with an unstandardized coefficient of $B = 0.337$, standard error of 0.091, standardized coefficient of $\beta = 0.316$, t -value of 3.709, and significance level of $p < 0.001$. This indicates that as competitive pressure increases, ERP utilization significantly increases, providing strong support for Hypothesis 6 (Porter, 1985; Iacovou et al., 1995; Zhu & Kraemer, 2005).

Compatibility demonstrated a significant positive effect on ERP use with $B = 0.227$, standard error of 0.101, $\beta = 0.221$, $t = 2.247$, and $p = 0.027$. This indicates that when ERP systems align better with organizational processes and values, users exhibit higher utilization levels, providing support for Hypothesis 1 (Rogers, 2003; Bradford & Florin, 2003).

Training showed a positive relationship that approached but did not achieve conventional statistical significance with $B = 0.130$, standard error of 0.085, $\beta = 0.152$, $t = 1.527$, and $p = 0.130$. While the effect is in the expected positive direction, it falls slightly above the $p < 0.05$ threshold, providing only marginal support for Hypothesis 5 (Amoako-Gyampah & Salam, 2004; Bradley, 2008).

Complexity did not demonstrate a significant relationship with ERP use with $B = 0.032$, standard error of 0.077, $\beta = 0.034$, $t = 0.416$, and $p = 0.678$. Interestingly, the direction was positive rather than the hypothesized negative direction, and the effect was not statistically significant. Therefore, Hypothesis 2 is not supported (Rogers, 2003; Lee et al., 2010).

Efficiency perceptions did not significantly predict ERP use with $B = 0.047$, standard error of 0.084, $\beta = 0.051$, $t = 0.554$, and $p = 0.581$. While the relationship direction was positive as hypothesized, the effect was statistically non-significant. Therefore, Hypothesis 3 is not supported (Davis, 1989; Venkatesh & Davis, 2000).

Best practices awareness showed no significant relationship with ERP use with $B = 0.025$, standard error of 0.077, $\beta = 0.025$, $t = 0.324$, and $p = 0.747$. The effect was very weak and not statistically significant. Therefore, Hypothesis 4 is not supported (Nah et al., 2001; Teo et al., 2003).

4.7 Summary of Hypothesis Testing Results

Based on the multiple regression analysis results, the researcher found the following:

Hypothesis	β	p	Result
H1	0.221	0.027*	Supported
H2	0.034	0.678	Not Supported
H3	0.051	0.581	Not Supported
H4	0.025	0.747	Not Supported
H5	0.152	0.130	Marginally Supported
H6	0.316	<.001**	Strongly Supported

Table - 2: Summary of Hypothesis Testing

Hypothesis 1 stating that perceived compatibility has a significant positive effect on ERP system use is **SUPPORTED** ($\beta = 0.221$, $p = 0.027$). This finding aligns with Rogers (2003) and Bradford and Florin (2003).

Hypothesis 2 stating that perceived complexity has a significant negative effect on ERP system use is **NOT SUPPORTED** ($\beta = 0.034$, $p = 0.678$). This contradicts Rogers (2003) and Lee et al. (2010).

Hypothesis 3 stating that perceived efficiency has a significant positive effect on ERP system use is **NOT SUPPORTED** ($\beta = 0.051$, $p = 0.581$). This diverges from Davis (1989) and Venkatesh and Davis (2000).

Hypothesis 4 stating that best practices awareness has a significant positive effect on ERP system use is **NOT SUPPORTED** ($\beta = 0.025$, $p = 0.747$). This contradicts Nah et al. (2001) and Teo et al. (2003).

Hypothesis 5 stating that training adequacy has a significant positive effect on ERP system use is **MARGINALLY SUPPORTED** ($\beta = 0.152$, $p = 0.130$). This partially aligns with Amoako-Gyampah and Salam (2004) and Bradley (2008).

Hypothesis 6 stating that competitive pressure has a significant positive effect on ERP system use is **STRONGLY SUPPORTED** ($\beta = 0.316$, $p < 0.001$). This strongly confirms Porter (1985), Iacovou et al. (1995), and Zhu and Kraemer (2005).

4.8 Summary

This chapter presented the data analysis and findings from the study. The researcher described sample characteristics showing diversity across industries, organizational sizes, and functional areas. Descriptive statistics indicated moderate perceptions across all variables with acceptable reliability and normality (Nunnally & Bernstein, 1994). Multiple regression analysis revealed that competitive pressure and compatibility significantly influence ERP utilization, explaining 24.2% of variance collectively. Training showed marginally positive effects, while complexity, efficiency, and best practices did not demonstrate

significant relationships. The next chapter will discuss these findings and their implications.

5. DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This final chapter of the research study presents the researcher's interpretation and discussion of the findings presented in Chapter Four. The researcher discusses the theoretical and practical implications of the results, acknowledges limitations of the study, and provides recommendations for both practitioners and future researchers. The chapter concludes with final reflections on the contributions of this research.

5.1 Discussion of Findings

5.1.1 Competitive Pressure as the Strongest Driver

The finding that competitive pressure is the strongest predictor of ERP utilization ($\beta = 0.316$, $p < 0.001$) is a very important discovery from this research. This result suggests that external environmental forces play a more substantial role in driving ERP adoption than internal factors such as efficiency beliefs or best practices awareness. Organizations facing strong competitive intensity appear to utilize ERP systems more extensively, regardless of their individual perceptions about system characteristics.

From a theoretical perspective, this finding aligns well with institutional theory which emphasizes how organizations adopt innovations due to external pressures rather than purely rational efficiency calculations (DiMaggio & Powell, 1983). When competitors are using ERP systems effectively, non-adopting organizations risk falling behind in operational capabilities and market competitiveness. This creates strong pressures for organizations to match competitor capabilities even if the internal benefits are not immediately apparent (Porter, 1985; Barney, 1991).

The practical implication for Sri Lankan organizations is that competitive positioning considerations should be recognized as a major driver of ERP investment and utilization. Organizations should monitor their competitors' technology capabilities and understand that falling behind in ERP adoption may create strategic disadvantages that are difficult to overcome later (Iacovou et al., 1995; Zhu & Kraemer, 2005). This finding is consistent with research by Teo et al. (2003) who found that competitive pressure significantly influences technology adoption in organizational contexts.

5.1.2 Importance of System-Organization Compatibility

The significant positive effect of compatibility ($\beta = 0.221$, $p = 0.027$) confirms what many previous researchers have found regarding the importance of fit between innovations and organizational contexts (Rogers, 2003; Bradford & Florin, 2003; Ramdani et al., 2009). This finding emphasizes that organizations should invest substantial effort in evaluating how well ERP systems align with their existing business processes, values, and technical infrastructure during the selection phase.

For Sri Lankan organizations specifically, this finding suggests that simply adopting popular international ERP packages without considering local business practices and cultural factors may lead to poor utilization outcomes (Soh et al., 2000; Davison, 2002). Organizations should either customize ERP systems to better fit their requirements or reengineer their processes to align with ERP best practices (Hong & Kim, 2002). The key is ensuring good alignment rather than accepting poor fit.

The researcher believes that compatibility assessment should be a priority during ERP vendor selection and implementation planning phases. Organizations that achieve better compatibility through careful planning and customization are more likely to experience successful adoption and sustained utilization (Nah et al., 2003; Bradford & Florin, 2003).

5.1.3 Surprising Findings Regarding Complexity

The non-significant relationship between complexity and ERP use ($\beta = 0.034$, $p = 0.678$) represents a surprising finding that challenges traditional Diffusion of Innovation theory predictions (Rogers, 2003). The researcher expected that perceived complexity would negatively influence utilization, but the data did not support this hypothesis. This contradicts findings by Lee et al. (2010) and Venkatesh et al. (2003) who found complexity to be a barrier to adoption.

Several possible explanations exist for this unexpected result. First, modern ERP systems may incorporate better user interfaces and design principles that reduce traditional complexity concerns (Monk & Wagner, 2013). Second, comprehensive training programs may help users overcome complexity barriers by building competence and confidence (Compeau & Higgins, 1995). Third, in organizational contexts where ERP use is mandatory, perceived complexity may have limited influence because users must engage with the system regardless of difficulty perceptions (Morris & Venkatesh, 2010).

The researcher suggests that while complexity remains an important consideration during system design and training development (Keil et al., 2000), it may not be as

significant a barrier to utilization as traditionally assumed, at least in contemporary ERP implementations where training and support are adequately provided.

5.1.4 Unexpected Results for Efficiency

Perceptions

The non-significant relationship between perceived efficiency and ERP use ($\beta = 0.051$, $p = 0.581$) represents the most counterintuitive finding in this research. Previous research has consistently identified perceived usefulness as one of the strongest predictors of technology adoption (Davis, 1989; Venkatesh & Davis, 2000; Venkatesh et al., 2003). The researcher expected similar results for ERP utilization but the data showed otherwise.

The researcher offers several possible explanations for this unexpected finding. First, the relationship between efficiency perceptions and usage may be reciprocal rather than unidirectional (Venkatesh et al., 2012). Users may develop efficiency perceptions after extended usage rather than efficiency perceptions driving initial usage. Second, in organizational contexts where ERP use is mandatory, efficiency beliefs may play a smaller role because users must engage with systems regardless of perceived benefits (Morris & Venkatesh, 2010).

Third, users may recognize long-term strategic and competitive benefits of ERP systems without necessarily perceiving immediate efficiency gains in their daily work activities (Shang & Seddon, 2002). The benefits may accrue at organizational levels rather than individual task levels (Nicolaou, 2004; Hendricks et al., 2007). Fourth, measurement timing may influence results since efficiency perceptions may develop gradually over extended usage periods (Ifinedo et al., 2010).

5.1.5 Limited Role of Best Practices and Training

The non-significant relationship between best practices awareness and ERP use ($\beta = 0.025$, $p = 0.747$) suggests that simply being aware of successful implementation examples does not strongly influence individual user adoption behaviors. This may indicate that best practices knowledge operates more at organizational decision-making levels rather than individual user levels (Nah et al., 2001). While Rogers (2003) emphasizes observability as important for adoption, the researcher's findings suggest this may apply more to organizational-level adoption decisions than individual user utilization behaviors.

Training showed a marginally positive relationship ($\beta = 0.152$, $p = 0.130$) that approached but did not achieve statistical significance. While the researcher expected a stronger effect based on prior research (Amoako-

Gyampah & Salam, 2004; Bradley, 2008), the positive direction suggests that training remains important for supporting utilization even if not statistically significant in this particular sample. Organizations should continue investing in comprehensive training programs as part of their implementation strategies (Nah et al., 2004; Boudreau, 2003).

5.2 Theoretical Contributions

This research makes several important contributions to academic knowledge. First, the study extends Diffusion of Innovation theory (Rogers, 2003) application to ERP systems in developing country contexts, specifically South Asian environments that have been understudied in previous research (Huang & Palvia, 2001; Rajapakse & Seddon, 2005). Second, the integration of Diffusion of Innovation and Technology-Organization-Environment frameworks (Tornatzky & Fleischer, 1990) demonstrates the value of multi-theoretical approaches to understanding technology adoption (Oliveira & Martins, 2011).

Third, the finding that environmental factors play a more significant role than technological and organizational factors challenges some conventional assumptions in technology acceptance research (Davis, 1989; Venkatesh et al., 2003). This aligns more closely with institutional theory perspectives (DiMaggio & Powell, 1983) than rational choice models. Fourth, the study highlights important differences between implementation success and post-implementation utilization (Markus & Tanis, 2000; Gattiker & Goodhue, 2005), suggesting that factors influencing these two phases may differ substantially.

5.3 Practical Implications

5.3.1 For Organizations Implementing ERP Systems

Based on the research findings, the researcher recommends that organizations should prioritize system-organization compatibility assessment during ERP vendor selection phases (Hong & Kim, 2002; Bradford & Florin, 2003). Organizations should invest substantial effort evaluating how well prospective systems align with existing business processes before making purchase decisions.

Organizations should monitor competitors' ERP capabilities and recognize that competitive positioning considerations justify ERP investments even when immediate efficiency benefits are not apparent (Porter, 1985; Zhu & Kraemer, 2005). Organizations should develop comprehensive change management strategies that emphasize both competitive necessity and strategic alignment rather than focusing solely on efficiency benefits (Shang & Seddon, 2002).

Organizations should continue investing in comprehensive training programs even though the statistical effect was only marginal in this study (Amoako-Gyampah & Salam, 2004; Bradley, 2008). Training remains valuable for building user competence and confidence during implementation and ongoing operations (Compeau & Higgins, 1995).

5.3.2 For ERP Vendors and Consultants

ERP vendors and consultants working in developing country markets like Sri Lanka should invest in localization efforts that go beyond simple language translation (Soh et al., 2000; Davison, 2002). Systems should be adapted to align with local business practices, regulatory requirements, and cultural preferences to improve compatibility (Huang & Palvia, 2001; Rajapakse & Seddon, 2005).

Vendors should continue simplifying user interfaces and improving system usability to reduce complexity concerns (Monk & Wagner, 2013). Marketing and implementation strategies should emphasize competitive necessity arguments alongside efficiency benefits when communicating value propositions to prospective clients (Iacovou et al., 1995).

Vendors should develop industry-specific versions that address unique requirements of different sectors rather than relying solely on generic enterprise packages (Shehab et al., 2004).

5.4 Limitations of the Study

While the sample size of 165 respondents is adequate for the multiple regression analysis employed in this study, future research using more complex analytical techniques such as Structural Equation Modeling (SEM) would require larger sample sizes (typically 300+) to ensure stable parameter estimation for measurement and structural models.

The researcher acknowledges several limitations of this research. First, the cross-sectional research design limits the ability to establish definitive causal relationships (Bryman & Bell, 2015). Longitudinal research designs tracking users over extended periods would provide stronger evidence about how determinants influence adoption over time.

Second, all variables were measured through self-reported perceptual scales rather than objective behavioral metrics (Podsakoff et al., 2003). Future research incorporating actual system usage data from server logs would strengthen findings and reduce common method bias concerns.

Third, the research focused exclusively on Sri Lankan organizations, limiting generalizability to other

developing country contexts or developed economies (Walsham, 2001). Cultural and contextual factors specific to Sri Lanka may influence results (Avgerou, 2008).

Fourth, the regression model explained only 24.2% of variance in ERP utilization, indicating that 75.8% is attributable to factors not examined in this study. Other potentially important factors include organizational culture, top management support (Loonam & McDonagh, 2005), user characteristics such as computer self-efficacy (Compeau & Higgins, 1995), and system quality (DeLone & McLean, 2003).

5.5 Recommendations for Future Research

Based on the findings and limitations of this study, the researcher proposes several directions for future research. First, longitudinal studies that track ERP users from pre-implementation through extended post-implementation periods would provide better understanding of how determinants influence adoption over time and whether relationships change across implementation phases (Markus & Tanis, 2000).

Second, future research should incorporate additional variables including organizational factors such as top management support (Loonam & McDonagh, 2005) and organizational culture (Davison, 2002), user characteristics such as computer self-efficacy (Compeau & Higgins, 1995) and resistance to change, and system characteristics such as quality and usability (DeLone & McLean, 2003).

Third, research examining mediating and moderating mechanisms would enhance understanding (Venkatesh et al., 2012). For example, how does training influence the relationship between complexity and usage? Does the importance of compatibility differ across organizational types or industry sectors? These questions merit investigation.

Fourth, incorporating objective usage measures from system logs showing actual usage frequency, duration, and feature utilization would complement perceptual measures and provide more robust evidence (Burton-Jones & Grange, 2013). This would address common method bias concerns (Podsakoff et al., 2003).

Fifth, cross-cultural comparative research conducting parallel studies across multiple developing countries would improve understanding of how cultural and contextual factors influence ERP adoption patterns (Huang & Palvia, 2001; Walsham, 2001).

Sixth, qualitative research methods including interviews and case studies would help explore the unexpected findings regarding efficiency and complexity in greater depth (Rajapakse & Seddon, 2005; Hawari & Heeks,

2010). Understanding why these factors did not demonstrate expected effects would provide valuable insights.

5.6 Conclusion

This research study was conducted to investigate the determinants of ERP system utilization among organizations in Sri Lanka. The researcher collected data from 165 ERP users across 28 organizations representing diverse industry sectors and organizational sizes. Multiple regression analysis revealed that competitive pressure ($\beta = 0.316$, $p < 0.001$) and compatibility ($\beta = 0.221$, $p = 0.027$) significantly influence ERP utilization, collectively explaining 24.2% of variance.

The findings highlight the importance of external environmental pressures and system-organization fit as primary drivers of ERP adoption in the Sri Lankan context (Porter, 1985; Iacovou et al., 1995; Rogers, 2003). Traditional factors emphasized in technology acceptance literature including perceived efficiency, complexity, and best practices played surprisingly limited roles in influencing utilization patterns, challenging conventional assumptions from Davis (1989) and Venkatesh et al. (2003).

For practitioners, this research provides evidence-based guidance emphasizing the importance of compatibility assessment during ERP selection (Bradford & Florin, 2003), recognition of competitive pressures as legitimate drivers of adoption (Zhu & Kraemer, 2005), and continued investment in comprehensive training programs (Amoako-Gyampah & Salam, 2004). For ERP vendors, the findings suggest that localization and customization for developing country markets remains essential (Soh et al., 2000; Huang & Palvia, 2001).

The researcher hopes that this study contributes to both academic understanding and practical implementation of ERP systems in developing country contexts. As Sri Lanka and similar emerging economies continue their digital transformation journeys, empirical evidence regarding technology adoption patterns becomes increasingly valuable for informing both organizational decisions and public policy initiatives (Avgerou, 2008; Sri Lanka Export Development Board, 2019).

5.7 Summary

This final chapter has discussed the research findings and their implications. The researcher interpreted the significant effects of competitive pressure (Porter, 1985; Iacovou et al., 1995) and compatibility (Rogers, 2003; Bradford & Florin, 2003) while exploring possible explanations for unexpected findings regarding complexity (Rogers, 2003) and efficiency (Davis, 1989). Theoretical contributions, practical implications,

limitations, and recommendations for future research were presented. The research demonstrates that environmental pressures and system-organization alignment are primary drivers of ERP utilization in Sri Lankan contexts, providing valuable insights for both academic researchers and practicing managers implementing enterprise systems.

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Appendix

Questioner

Section 1- Demographic Information

Position/ Destination:

Gender: (a) male (b) Female

Age (years)

Work experience on the employment (years)

(Month):

Duration of ERP Experience; (Year)

- Less than 1 year
- 1-5 Years
- 5-10 Years
- 10-15 years
- More than 15 Years

Division

- Finance / Accounts
- HRM
- Auditing
- IT
- Marketing /Sales
- Maintenance /Service
- Distribution
- Manufacturing
- Any other: (Please specify)

Level of Education

- A/L
- Certificate /Diploma
- Degree
- Post Graduate

Section 2: Institutional details

1. Name of the organization :
2. Please identify the primary industry your organization is dealing with:
 - Aerospace & defiance
 - Pharmaceutical
 - Professional services
 - Chemical
 - Higher educational
 - Publishing & printing
 - Consumer goods
 - Leisure and hospitality
 - Retail Estate
 - Distribution
 - Manufacturing
 - Telecommunication
 - Engineering and cons.
 - Media and entertainment
 - Transport Services
 - Banking
 - Mining and metal
 - Utility
 - Insurance
 - Oil and gas
 - Whole sale
 - Financial Services
 - Other non-profit
 - Health care
 - Other please specify:
3. What is the software information systems that your organization is using presently?
 - 240Seven Office
 - Lawson Financials
 - ORION
 - AccPac
 - MFG/PRO
 - Peoplesoft
 - BAAN
 - Microsoft Dynamics
 - Ramco e. Applications
 - BPCS
 - MXP
 - Sage MAS 500
 - PCOR Enterprise
 - NetERP
 - SAP/ R3
 - kVASy4
 - Oracle

- Syteline
- Other (Please Specify):

Section 3: Constructs of hypothetic research model and scale design for the questionnaire.

1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N =Neither disagree nor agree), 4 = Agree (A), and 5 = Strongly Agree (SA).

Compatibility – Please rate degree to which		1	2	3	4	5
A1	Your System is compatible with others software					
A2	Your System is compatible with others hardware					
A3	Your System is compatible with others networks					

Complexity – According to user's interaction with ERP		1	2	3	4	5
B1	The existing ERP system easy, it is for you to learn the system					
B2	High intuitive (natural) is to you use the system					
B3	Very comfortable to you feel in using it					

Efficiency –according to your interaction with ERP		1	2	3	4	5
C1	High efficiency in executing (performing) repetitive tasks					
C2	Very high effectiveness of your interface (boundary)					
C3	High speed and reliability of the System					

Best Practices – According to ERP standard package (best practices) fitting firm's processes		1	2	3	4	5
D1	The users set up the application.					
D2	I can map workflows based on local recruitments(Such as VAT , SEPA)					
D3	High system adaptability to business needs					

Training – Please rate the degree to which training Programme make sure use		1	2	3	4	5
E1	Are being trained on the system?					
E2	High understand about the content training material					
E3	The company was navigate through the topic formats applied to daily tasks					

Competitive pressure		1	2	3	4	5
F1	Your Firm has experienced competitive pleasure to use ERP					
F2	Your firm would have experienced competitive disadvantage if ERP had not be adopted					
F3	The ERP usage in your firm's competitors effect your market					

Collaboration – according to users' interaction with ERP		1	2	3	4	5
G1	High collaborate with colleagues					
G2	High collaborate with the system					
G3	Good communicate with suppliers , partners, and customers					

Analytics – according to ERP system,		1	2	3	4	5
H1	Very comprehensive reporting (KPIs, Dashboards, etc.)					
H2	Real time access to information					
H3	Data visibility across departments					

ERP Value (Firm performance)		1	2	3	4	5
I1	User satisfaction					
I2	Individual productivity					
I3	Customer satisfaction					
I4	Management control					

ERP use - According to ERP usage how		1	2	3	4	5
J1	Many employees use the system daily					
J2	Much time per day to employees work with the system					
J3	Many reports are generated per day					