

**MODELLING THE MARKET GROWTH OF
ENTERPRISE RESOURCE PLANNING SOLUTIONS
PROVIDERS**

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Degree of Master of Science

Department of Mathematics

University of Moratuwa

Sri Lanka

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**Dissertation submitted in fulfilment of the requirements for the
degree Master of Science in Operational Research**

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March 2023

DECLARATION OF THE CANDIDATE

I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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ABSTRACT

This thesis delves into the intricate dynamics of the market growth experienced by Enterprise Resource Planning (ERP) solutions providers in Sri Lanka. With the increasing demand for digitalization and process automation in the corporate sector, ERP systems have become a popular choice for businesses of all sizes. However, despite the growing market potential, ERP providers in Sri Lanka have faced challenges in expanding their customer base and achieving sustainable growth. The research was conducted using a questionnaire-based survey that collected primary data from 300 middle-level managers, marketing staff, and technical staff working in 10 ERP solutions developing companies. A stratified random sampling method was used to select 30 employees from each company to fill out the questionnaire. Descriptive and statistical analyses were performed on the collected data, and regression analysis was used to measure the impact of factors that directly affect the market growth of ERP solutions providers in Sri Lanka.

The main findings of the study are that the "Existing barriers to technical capabilities of staff", "Barriers to financing capabilities of local software developers", and "Existing barriers to domestic firms' price competitiveness have a negative impact on the market growth of ERP solution providers. In contrast, "Infrastructure Availability" has a positive impact on market growth. Moreover, the "Existing barriers to country attractiveness & marketing skills" have a negative impact on market growth. The Adjusted R-square of this model is 0.570, indicating that other factors not included in the model also affect the market growth of ERP solution providers. Additionally, the study identified two outliers in the data set, which are far away from the main cluster of points. These findings suggest that the factors analysed in this study can help organizations in the ERP industry to identify and address the barriers to growth and develop strategies for sustainable growth in the market.

Key words: Enterprise Resource Planning (ERP), Regression analysis, Market growth, sustainable growth

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CHAPTER 01

INTRODUCTION

1.1. Introduction

The inaugural chapter of this research document introduces the subject under investigation and delineates the aims and techniques employed in the study. Commencing with a comprehensive overview of the historical backdrop and situational context of the research, the chapter underscores the significance of the issue under scrutiny. Subsequently, the research query and goals are expounded upon, succeeded by a elucidation of the research blueprint and methodology harnessed to tackle the query. Culminating the chapter is an outline of the report's composition, offering insights into the substance and arrangement of each succeeding chapter. In essence, this section serves as a guide for the reader, furnishing a lucid comprehension of the upcoming chapters and the research expedition.

1.2. Background to the research

Enterprise Resource Planning (ERP) solutions have evolved into a pivotal facet of the corporate realm, affording enterprises the capacity to unify and oversee a multitude of business operations within a solitary framework. The trajectory of the ERP market has witnessed remarkable expansion throughout time, with projections indicating its persistent upward trend. Nevertheless, this growth manifests with disparities across diverse geographical regions and nations. Hence, a comprehensive scrutiny of the determinants influencing the market expansion of ERP solution providers assumes significance, particularly within developing nations where the uptake of such solutions remains comparably constrained.

According to Majed Al-Mashari et al. (2003) the adoption of ERP solutions is influenced by several factors, including organizational readiness, top management support, and system quality. These factors have a significant impact on the adoption and implementation of ERP systems in both developed and developing countries. (Majed Al-Mashari, Abdullah Al-Mudimigh, Mohamed Zairi, 2003)

In a study by Gunasekaran et al. (2008) (Angappa Gunasekaran, Kee-hung Lai, T.C. Edwin Cheng, 2008), the authors found that cultural factors, such as individualism and collectivism, influence the adoption of ERP solutions in different countries. Developed countries tend to have a more individualistic culture, which makes them more open to technological innovation, while developing countries tend to have a more collectivist culture, which can lead to resistance to change.

As evidenced by KPMG's research in 2019, their survey underscored prominent obstacles to Enterprise Resource Planning (ERP) adoption in developing nations. Chief among these barriers are limited budgetary allocation, scarcity of skilled personnel, and an inadequate comprehension of the advantages offered by ERP systems.

Moreover, Maditati et al.'s 2020 study delved into the interplay of government policies and regulations concerning ERP adoption within developing countries. The research revealed a substantial impact of governmental interventions, with policies capable of furnishing incentives and backing to incentivize organizations to embrace ERP solutions, thereby catalyzing potential market expansion.

Further insight provided by the World Bank in 2020 highlights a distinct digital divide, with developing countries trailing behind their developed counterparts in terms of digital infrastructure and connectivity. This disparity can potentially impede the assimilation and execution of ERP solutions by organizations in developing nations, consequently hindering the pace of market growth.

A study by Satpathy and Patra (2019) found that the level of education and training of employees also influences the adoption of ERP solutions. In developing countries, where education levels are generally lower, organizations may face challenges in finding and training employees who can effectively use these solutions.

In a study by Suresh and Shanthi (2019), the authors found that the level of competition in the ERP market can also affect market growth. In developing countries, where there are fewer ERP providers, the competition may be less intense, which can slow down market growth.

Overall, the factors affecting the market growth of ERP solutions providers vary across different regions and countries. While some factors, such as organizational readiness and top management support, are universal, others, such as cultural factors and

government policies, are more region-specific. Understanding these factors is essential for ERP solutions providers to develop effective strategies to drive market growth in both developed and developing countries.

Globally, the adoption of Enterprise Resource Planning (ERP) systems is on a notable rise, and Sri Lankan enterprises are aligning with this trend, allocating substantial resources to integrate these solutions. In the expansive landscape of software development, the ERP solutions sector emerges as a swiftly expanding domain, attracting significant investments from Sri Lankan software firms seeking to carve out a niche within this profitable sphere. Nonetheless, the ascent of ERP solutions providers in Sri Lanka encounters impediments that curtail their market growth trajectory.

The objective of this study centers on the identification of pivotal factors exerting influence on the market growth of ERP solutions providers in Sri Lanka, along with an exploration of their implications for future growth. An intimate understanding of these constraining factors equips Sri Lankan ERP solutions providers with the insight necessary to craft effective strategies capable of surmounting these obstacles, thereby amplifying their presence within the industry.

While various research initiatives have examined the factors governing the adoption and integration of ERP systems across diverse nations, it is noteworthy that scant attention has been devoted to comprehensively investigating the market growth of ERP solutions providers within Sri Lanka. This research seeks to fill this gap, contributing novel insights to this critical realm of inquiry.

A study by Jayaratna and Marasinghe (2019) identified several challenges faced by Sri Lankan companies when implementing ERP systems. These challenges include resistance from employees, lack of understanding of ERP systems, and the high cost of implementation. These challenges can also affect the market growth of ERP solutions providers in Sri Lanka.

Ramanayake and Samarakoon (2018) conducted a study delving into the determinants shaping the adoption of ERP systems within Sri Lanka's manufacturing sector. Their investigation unveiled a spectrum of factors, such as organizational readiness, perceived usefulness, ease of use, and compatibility, that significantly influence the uptake of ERP systems. Importantly, these same factors possess the potential to exert an analogous impact on the growth prospects of ERP solutions providers in Sri Lanka.

Furthermore, a study undertaken by Rathnayaka and Karunananda (2017) focused on discerning the factors steering the adoption of ERP systems within the Sri Lankan public sector. Their findings spotlighted several determinants, encompassing top management support, user training, system quality, and information quality, that hold sway over ERP system adoption. Evidently, these very factors are poised to extend their sway over the landscape of ERP solutions providers' market growth in Sri Lanka.

In summation, although multiple studies have centered on the adoption and implementation of ERP systems within Sri Lanka, the dimension of factors impinging upon the market growth of ERP solutions providers has remained a relatively unexplored realm. This research undertakes the task of bridging this gap by identifying the pivotal factors influencing the market growth of ERP solutions providers in Sri Lanka and deciphering their ramifications for future growth. This understanding stands to empower ERP solutions providers to chart strategies capable of surmounting inhibitory elements and elevating their market share within the industry.

1.3. Motivation

The surge in the adoption of Enterprise Resource Planning (ERP) solutions within Sri Lankan businesses stems from the manifold advantages of these solutions in harmonizing diverse operational facets and augmenting efficiency. Nevertheless, the trajectory of market growth for ERP solutions providers in Sri Lanka is subject to multifaceted influences. This research undertakes the task of identifying and scrutinizing the pivotal factors that exert an impact on the growth of ERP solutions providers in the Sri Lankan landscape.

The technical prowess exhibited by ERP solutions providers emerges as a pivotal determinant of their prosperity within the Sri Lankan market. Bocij et al. (2019) conducted a study elucidating that technical capability reigns supreme in the considerations of businesses when selecting an ERP provider. Their findings underscored a preference among Sri Lankan enterprises for ERP providers furnishing solutions that span a wide array of features and functionalities, coupled with customization options tailored to their specific requisites.

The rapid stride of technological evolution has cast profound ramifications on Sri Lanka's ERP market. Gartner's study in 2019 prognosticates the global ERP market to

burgeon to \$41.69 billion by 2020, propelled by a Compound Annual Growth Rate (CAGR) of 7.5% between 2019 and 2020. This surge is attributably driven by escalating demand for cloud-based ERP solutions that proffer greater adaptability and scalability compared to traditional on-premise counterparts. While the adoption of cloud-based ERP solutions in Sri Lanka has been relatively cautious, concerns centering on data security and privacy, as elucidated in the study, have tempered the transition. Yet, as confidence in cloud technology burgeons across Sri Lankan enterprises, the trajectory anticipates a rise in the demand for cloud-based ERP solutions.

Local software companies' fiscal capacities stand as another determinant significantly swaying the growth of ERP solutions providers in Sri Lanka. According to the Sri Lanka Association of Software and Services Companies (SLASSCOM) (2020), local software firms grapple with an array of financial hurdles, encompassing limited access to funding and resources. These constraints, as expounded in the report, potentially constrain their ability to channel investments into research and development endeavors, thus limiting their competitive stance vis-a-vis international players in the ERP domain.

Effective marketing and country attractiveness are also critical factors in the success of ERP solutions providers in Sri Lanka. A study by Weerakoon et al. (2018) found that effective marketing strategies and the ability to position ERP solutions as value-added services can help ERP providers to attract more customers and gain a competitive advantage in the market. The country's overall attractiveness to businesses, including factors such as political stability, ease of doing business, and availability of skilled labor, also plays a significant role in attracting ERP solutions providers to the Sri Lankan market.

Price competitiveness is another key factor that affects the market growth of ERP solutions providers in Sri Lanka. The Sri Lankan market is highly price-sensitive, and businesses are often looking for cost-effective solutions that can provide value for money. ERP providers that can offer competitive pricing without compromising on quality are more likely to succeed in the Sri Lankan market.

Finally, an imperative determinant of success for ERP solutions providers in Sri Lanka is the availability of infrastructure. The World Bank's report in 2020 underscores Sri Lanka's noteworthy investments in enhancing its infrastructure, notably in transport and telecommunications domains. However, despite strides made, discrepancies persist in

infrastructure accessibility, particularly in rural and remote regions. ERP providers that can align their solutions with the contours of Sri Lanka's existing infrastructure are poised to navigate more successfully through the market terrain.

Government policies and regulations wield considerable influence over the trajectory of ERP solutions providers in Sri Lanka's market arena. A prime example is the recent tax imposition on software and digital services by the Sri Lankan government, a measure elucidated by Ratnaweera in 2018. This fiscal shift has engendered augmented costs for ERP solutions, particularly impacting small and medium-sized enterprises' capacity to adopt such solutions. This, in turn, could cast a pall over the expansion prospects of ERP providers in Sri Lanka.

The competitive landscape emerges as another pivotal factor shaping the growth narrative of ERP solutions providers in Sri Lanka. The domestic ERP market stands as a competitive battleground, hosting both local and international vendors vying for a slice of the market pie. According to Research And Markets.com's 2019 report, key players in the Sri Lankan ERP market include global giants like Microsoft, Oracle, SAP, and Sage. In this milieu, enduring competitiveness hinges upon continuous innovation and a capacity to offer solutions in sync with the ever-evolving business needs.

Lastly, the inclinations of customers assume paramount importance in the market dynamics of ERP solutions providers in Sri Lanka. As Sri Lankan businesses grow more cognizant of the advantages proffered by ERP solutions, their discernment escalates when choosing a provider. Research by Dissanayake and Weerakoon in 2018 accentuates the attraction of ERP solutions that are user-friendly, offer robust customer support, and remain affordable. ERP providers able to align with these discernments are poised for success within the Sri Lankan landscape.

In summation, comprehending the spectrum of factors permeating the market growth of ERP solutions providers in Sri Lanka is pivotal for businesses treading this terrain. A meticulous analysis of these factors empowers businesses to make astute decisions about their market positioning and effective competitive engagement.

1.4. Problem Statement

The enterprise resource planning (ERP) sector in Sri Lanka has witnessed a rapid surge in growth in recent times. However, there remains a notable gap in comprehending the factors that wield influence over the market growth of ERP solutions providers within the country. Consequently, the purpose of this study is to delve into the intricate web of determinants that steer the market growth of ERP solutions providers in Sri Lanka.

While various studies have probed into the factors driving the growth of ERP solutions providers across diverse countries, the context of Sri Lanka has seen limited exploration on this front. This study thus seeks to address this gap and bring to light the specific dynamics that mold the market growth of ERP solutions providers within the Sri Lankan domain.

Technical capability emerges as a pivotal factor critically underpinning the market growth of ERP solutions providers. Research by Singh and Wadhwa (2016) distinctly asserts that technical proficiency stands as a pivotal determinant of the success trajectory for ERP solutions providers. This assertion is reinforced by De Silva and Samarasinghe's (2018) findings, which highlight the significance of technical capability in influencing the implementation of ERP solutions within Sri Lanka.

Another salient factor influencing market growth is the financial capability of local software firms. Arunatileka's study (2015) underscores the considerable hurdles that financial constraints pose for local software companies in Sri Lanka. Marketing prowess and the appeal of the country as a market also emerge as noteworthy factors. Chang and Lin's (2016) research accentuates the criticality of marketing skills for ERP solutions providers' triumph. This sentiment is echoed by Li et al. (2018), who emphasize the pivotal role played by a country's appeal in the success story of ERP solutions providers.

Price competitiveness surfaces as an imperative determinant shaping market growth. Sahu and Pattnaik's (2016) research underscores its crucial role in influencing the adoption of ERP solutions by organizations. Furthermore, infrastructure availability is a key element in this matrix. The study by Kumara and Dissanayake (2017) underscores the vital influence of infrastructure availability on the success of ERP implementation in Sri Lanka. In parallel, Herath and Hewapathirana's (2018) findings underscore the

significance of customization and user-friendliness in shaping the adoption and usage of ERP solutions. Alawattage and Wickramasinghe's (2015) study highlights the importance of skilled IT personnel in driving ERP solutions' implementation and success in Sri Lanka.

In light of the comprehensive literature review, this study undertakes an analytical journey of the key factors, namely "Existing barriers to technical capabilities of staff," "Barriers to financing capabilities of local software developers," "Existing barriers to domestic firms' price competitiveness," "Infrastructure Availability," and "Existing barriers to country attractiveness & marketing skills." Through this research, the goal is to meticulously identify and dissect the factors pivotal to the market growth of ERP solutions providers in Sri Lanka. The findings of this research endeavor are poised to enrich our comprehension of Sri Lanka's ERP industry and furnish valuable insights for ERP solutions providers to refine their strategies and amplify their market growth trajectory.

1.4. Research Question

1. What factors directly affect local ERP solution provider's market growth in local and international markets?
2. What is the relationship between "Existing barriers to technical capabilities of staff", "Barriers to financing capabilities of local software developers", "Existing barriers to domestic firms' price competitiveness", "Infrastructure Availability" and "Existing barriers to country attractiveness & marketing skills" impact on the market growth of local ERP solutions in Sri Lanka?

1.5. Research Objectives

1. This research will, identify what factors directly influence ERP solution providers market growth.
2. To identify the relationship between the "Existing barriers to technical capabilities of staff", "Barriers to financing capabilities of local software developers", "Existing barriers to domestic firms' price competitiveness", "Infrastructure Availability" and "Existing barriers to country attractiveness &

marketing skills" impact on the market growth of local ERP solutions in Sri Lanka.

1.6. Research Scope and Limitations of Study

This research endeavor has its sights set on the identification of determinants that wield influence over the market growth of Enterprise Resource Planning (ERP) solutions providers within Sri Lanka. Encompassing the local ERP solutions landscape, this study endeavors to yield insights that can equip local providers with potent growth strategies.

The research approach unfolds through a meticulously structured sequence of steps: Step 01: Scrutinizing the rationales underlying the inability of local ERP solution providers to amass substantial market share for their developed solutions. Step 02: Constructing a questionnaire survey aimed at deciphering the sway of each identified determinant and its consequent impact on the dependent variable. Step 03: Formulating actionable recommendations based on survey findings, intended to rectify identified issues and stimulate market growth for Sri Lankan ERP solution providers.

Nonetheless, certain delimitations are integral to this study: Sample Size: This study's sample size is confined to 300 respondents from 10 local ERP solutions development companies in Sri Lanka. Consequently, the insights generated may not be readily extrapolated to encompass the entirety of local ERP solutions providers within the country. Timeframe: The scope of this study encapsulates data gathered up until the year 2022. Therefore, the findings might not accurately mirror the contemporary state of the ERP solutions industry in Sri Lanka. Research Approach: This study's methodology centers on quantitative research executed via a structured questionnaire. Qualitative methods or case studies have not been incorporated. Language: Given that the study is conducted in English, participation may be limited among respondents not proficient in the language. Geographic Scope: The research laser-focuses on the growth dynamics of local ERP solutions providers in Sri Lanka, deliberately omitting any coverage of the global ERP solutions market.

In spite of these constraints, this study imparts invaluable insights into the determinants influencing the market growth of local ERP solutions providers in Sri Lanka. Future research endeavors can then build upon these insights to furnish a more comprehensive panorama of the ERP solutions industry in Sri Lanka.

1.7. Significance of the study

The global landscape witnesses the widespread integration of enterprise resource planning (ERP) systems within businesses. Sri Lanka echoes this trend with a steady surge in demand for ERP solutions, poised for considerable expansion in the near future. Yet, the intricate web of factors influencing the market growth of ERP solutions providers within Sri Lanka remains an uncharted territory.

The study's paramount significance rests upon its potential to bridge this research lacuna and present an all-encompassing comprehension of the determinants sculpting the market growth of ERP solutions providers in Sri Lanka. The research ventures into the diverse spectrum of influences affecting the adoption and dissemination of ERP solutions within the Sri Lankan context. This includes a holistic examination of economic, social, cultural, and technological factors.

The implications of this study's findings bear immense practical value for an array of stakeholders within Sri Lanka's ERP industry. ERP solutions providers stand to harness insights gleaned from this study to refine their marketing strategies and tailor their offerings to optimally cater to the needs of Sri Lankan enterprises. Policymakers, too, can leverage these insights to create an environment conducive to the burgeoning of the ERP industry within the nation's borders. Such an environment could attract heightened investments and in turn, spur economic growth. Business proprietors who contemplate ERP system integration also stand to gain from a heightened understanding of the factors influencing the adoption and diffusion of these solutions within the Sri Lankan landscape.

In terms of theoretical contribution, this study has the potential to advance the understanding of the factors that affect the market growth of ERP solutions providers in Sri Lanka. By identifying the unique contextual factors that shape the Sri Lankan ERP market, this study can help to develop a more nuanced understanding of the challenges and opportunities faced by ERP solutions providers in this market. The study findings could also provide a basis for future research, serving as a foundation for further theoretical development and empirical testing.

In summary, this study has the potential to provide new insights into the factors that affect the market growth of ERP solutions providers in Sri Lanka, and to generate significant practical and theoretical contributions.

1.8. Chapter Outline

The structure of this document encompasses several distinct chapters, each serving a specific purpose:

Chapter 01 - Introduction: At the outset, this chapter functions as an orientation, setting the stage for the research project. It delineates the domain of study, elucidates the topic's particulars, and provides context for the research problem. Additionally, it establishes the questions the research endeavors to address.

Chapter 02 - Literature Review: This section undertakes a thorough exploration of existing literature pertinent to comprehending the evolution and contextualization of the research's results. The chapter engages with secondary sources of information, subjecting them to critical scrutiny and evaluation.

Chapter 03 - Methodology: In this chapter, the research's underpinning philosophical assumptions come to the forefront. It not only unveils the research strategy but also unveils the empirical techniques harnessed in the research's execution. Crucially, the methodology chapter demarcates the scope and constraints of the research design while embedding the research within the larger tapestry of information systems research traditions.

Chapter 04 - Findings and Analysis: Within this chapter, primary research data takes center stage, subject to thorough analysis through pertinent software and tools. The data undergoes scrutiny, and the analytical outcomes find expression through visually explanatory models, enhancing accessibility and clarity.

Chapter 05 - Recommendations & Conclusion: This conclusive chapter pivots on the synthesis of the entire research journey. It distills key themes, insights, and conclusions emerging from the research process. Furthermore, it steers towards the identification of avenues for future exploration. By presenting practical recommendations, this chapter lays the groundwork for improvement in the present context or in resolving the research's problem statement.

Collectively, this document's chapters serve as the structural scaffold facilitating a comprehensive and cohesive journey through the research's exploration, analysis, and ultimate implications.

CHAPTER 02

LITERATURE REVIEW

2.1 Chapter introduction

This segment of the research unfolds as an extensive analysis and amalgamation of the corpus of knowledge already in existence, intricately interwoven with the research's thematic locus. This chapter serves as a discerning lens, allowing for the discernment of crevices within the preexisting literature and accentuating the imperative for further investigation. The literature review herein is meticulously crafted to traverse the terrain of myriad studies, articles, and publications converging on the research's focal point. It endeavors to undertake a rigorous dissection of pivotal discoveries, methodologies, and theories, thus bestowing a critical lens onto the landscape. Through this introspective journey across the literature landscape, the overarching goal is to garner heightened comprehension of the research conundrum, concurrently shaping a robust theoretical framework that would undergird the entire study.

2.2. Definition and benefit of Enterprise resource planning (ERP) software

Enterprise resource planning (ERP) serves as a multifaceted software solution that orchestrates an organization's diverse business processes. In its essence, it encompasses a sophisticated and integrated suite of software solutions that facilitate the management of intricate business processes (Continelli, 2016).

Traditionally, ERP software primarily targeted back-office operations, encompassing functions such as production, inventory control, order management, finance, accounting, human resources, and marketing activities. These solutions comprised a multitude of software modules, each catering to a specific operational facet, often tailored to meet a company's specific needs. Deployment typically took the form of on-premise or cloud-based models, with the role of modern ERP evolving to transcend its initial focus on back-office functions, and assuming the mantle of a comprehensive, integrated business process solution (Chaudhri, S. And Ghone, A., 2015).

ERP systems, essentially commercial software packages, hold the promise of seamless integration of information emanating from a company's financial, accounting, human

resources, supply chain, and customer service functions (Davenport, 1998). These systems can be defined as configurable information systems that span multiple functional realms within a business (Singhal, S., Tandon, P. And Sharma, S. , 2011).

The ERP landscape offers two primary types: on-premise ERP and cloud-based ERP. The discernible divergence between the two lies in their deployment methods. While on-premise ERP entails manual installation, cloud-based ERP transpires online, adopting the form of a solution or Software-as-a-Service (SaaS) (Continelli, 2016).

Cloud-based systems offer the distinct advantage of lower operating costs compared to their traditional counterparts, alleviating the need for an organization to maintain requisite equipment, technical staff, and internal infrastructure. On the other hand, on-premise ERP necessitates the establishment and upkeep of software to facilitate connectivity with external systems (Soliman, 2015). Industries that have effectively implemented ERP solutions have witnessed a comprehensive reduction in the cost of business activities, while concurrently augmenting per capita productivity, response times, and customer focus, leading to elevated customer satisfaction and decreased inventory levels (Solutions, 2016).

Yu defines three pivotal stages for successful ERP implementation—pre-implementation, implementation, and post-implementation—which can be further subdivided to facilitate seamless planning and execution (Yu, C. S., 2005).

A report titled "World ERP Software Market - Opportunities and Forecasts, 2013 – 2020" underscores the driving force behind ERP adoption: organizations' need to enhance operational efficiency and elevate the transparency of internal activities (Chaudhri, S. And Ghone, A., 2015). The same report identifies high costs and limited availability of open-source applications as restraining factors that hinder ERP's growth trajectory (Chaudhri, S. And Ghone, A., 2015).

2.3. Market potential and growth for local ERP Solution Providers

The global ERP market is currently experiencing moderate growth, with a Compound Annual Growth Rate (CAGR) of 7.2%.



Figure 3.1 Global ERP Market 2014-2020

Source: (Chaudhri, S. And Ghone, A., 2015)

Projections indicate that the ERP market is anticipated to reach approximately US\$ 41.69 billion by the year 2020. Within this landscape, on-premise ERP solutions are poised to command a significant market share, accounting for approximately 57% of the total market. Conversely, cloud-based ERP is predicted to exhibit a swifter growth rate of around 10% during this same period.

A glance at the global ERP software market share for the year 2012 reveals a marked concentration, with the top ten market players collectively controlling 68% of the market share (Columbus, 2013).

Worldwide ERP Software Market Share, 2012
Market Size: \$24.5B; 2.2% Growth Over 2011

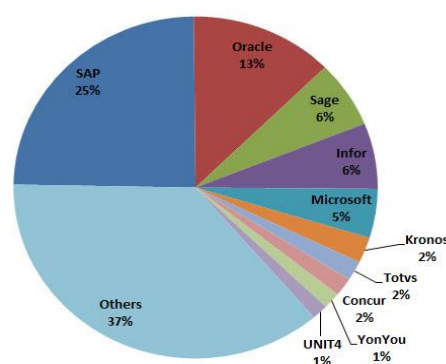


Figure 1.2: ERP Market Share Update: SAP Solidifies Market Leadership, 2013

Source: (Columbus, 2013)

In a broader global context, businesses across the world are progressively inclined towards embracing ERP systems (Kanellou, A. and Spathis, C., 2013). However, Sri

Lankan ERP solution providers have not encountered substantial success in capturing a significant share of the ERP market.

An examination of the ERP value chain uncovers four principal stakeholders. Commencing with element providers and extending through application developers, service providers, and culminating with end-users, each stage contributes a distinct value proposition to the final composition of the ERP solution's value.

Under current scenario, we find software solution providers developing applications, which they either sell directly or through distribution channel to foreign and local customers. Each player enhances the value of ERP solution through innovation and solutions. Distributors who act in partnership implement changes within system as additions to the core ERP customizing the product to client's needs. Customers they self-go on to make changes either by configuration or customization (Chaudhri, S. And Ghone, A., 2015).

2.4. Factors affecting Market potential and growth for local ERP Solution Providers

2.4.1. Importance of Technical Capabilities for developing successful ERP solutions

Developing ERP system for business requires client involvement in project planning, frequent changes in project planning, setting result milestones, confronting clients over budget and time overruns. Project planning is poor with Sri Lankan implementers (Bae, B. And Ashcroft, P. , 2004).

No matter what type of business ERP system is being implemented, technical team of the organization need to work closely with top management of the organization, develop project teams competencies, develop interdepartmental corporation and communication, set clear goals and objectives, project management skills, and manage expectations. Technical team needs to involve skilful and experienced project champions who drive projects can forward (Hedman, 2010).

Inadequate project planning and mismanagement of ERP implementations have emerged as prominent contributors to the failure of numerous ERP solutions introduced within the Indian context. This has resulted in considerable challenges and financial

losses for various stakeholders involved.. (Parijat Upadhyay, Saeed Jahanyan, Pranab K. Dan, 2011).

Business process reengineering (BPR) involves analysis and redesigning of workflows within the business enterprises itself and between each other. It involves optimizing of end to end processes and automation of non-value adding task. For this consultant need to be able to understand clients business and processes involved (Dodaro, G. And Crowley, B., 1997). Many times it is found lack of competencies by consultants on product knowledge, domain knowledge, and business process knowledge have resulted in consultants being not able to find answers to particular client requirements (Jayawickrama, U. And Yapa, S., 2013).

Scholars have emphasized the pivotal role of transferring system knowledge from the technical team to the client before concluding their on-site engagement. Employing efficient and constructive training methods has been underscored as a crucial aspect during this knowledge transfer process (Shi-Ming Huang, I-Chu C., Shing-H., Ming-T., 2004).

A scarcity of technical personnel has prompted clients to gravitate towards Cloud solutions, given their capacity for substantial customization to cater to specific individual demands (Continelli, 2016).

During ERP system installation, the involvement of IT experts and adept Project Management assumes paramount significance in ensuring successful implementation. Previous research highlights that a staggering 90 percent of ERP projects encounter setbacks primarily due to inadequate project management (Sumit Chakraborty and Sushil K. Sharma, 2007).

2.4.2. Importance of financial capability and strength for achieving market growth

Established software developer models adopt has two components to its pricing strategy to finance extensive capital costs involved at development phase. These organizations use upfront licensing fees and ongoing maintenance fee over the contract period. The ratios involved vary from services provider to provider. It can be said rough estimation of 50- 50 as upfront payment and balance over customer life period. This way these companies are in a position to use upfront 50 percent payment for financing future developments, and push products towards broader customer market (ICAEW, 2011).

SAP FICO is an important module in ERP Solution. The company Fair Issac provides operational and analytical applications to its customers who are mainly banks and other financial institutions. The term FI stands for “Financial Accounting” and CO for “Controlling,” is an important module for recording and processing financial transactions data. Company uses transactional basis charging system to support its financing requirements (Abell, 2016).

ERP Solutions market is segmented on basis of deployment, functions, vertical, end user and geography. This makes market fragmented and many small time competitors exist in market place. Key player in the market like Oracle, Sage, NetSuite, IBM, Microsoft and SAP have penetrated into serving different segments (Leaonard, 2016).

The burgeoning popularity of social media platforms and the widespread adoption of mobile technology are propelling the corporate sector towards embracing cloud-based ERP technologies and solutions. Notably, certain ERP solutions providers have responded to this trend by offering ERP solutions that are conveniently downloadable or accessible through mobile phones and tablet PCs. (Continelli, 2016).

2.4.3. Price competitiveness of products developed by ERP Solution Providers

Sri Lankan ERP solution providers who have a significant cost advantage when operating in ERP market as there cost of production is comparatively lower to most European and US ERP solutions (Times, 2015).

Cloud ERP solutions are expected to grow more compared to on-site ERP solutions among customers as a result of lower IT cost involved with it (Leaonard, 2016).

Compared to cloud based solution, traditional ERP systems have lower upfront cost and operating cost. Although company may save money in the short run, cloud systems are saddled with subscription fees and has no control over how equipment, network, system works or protected. With cloud based systems security of the company data lies with others. It is estimated the cost of data breach is to far exceed the saving made by organization by maintaining Cloud system over traditional ERP solution (Jorgenson, 2014)

Findings reveal two thirds of midsize business organization running onsite ERP solutions across the world, are now running out dated versions of their ERP software

as they find it difficult to keep re-implementing incremental releases. For this organization with each upgrade results in loss of critical customization and integrations. Therefore it is important for most organizations to choose a system which they can easily update while preserving the customization (Rashid, M., Hossain, L. And Patrick, J., 2022).

There are three factors which influence customers determine how much they are going to pay for their software. They are identified as how much it is going to contribute towards business value, what is its market value and what enterprise development costs are involved with it.

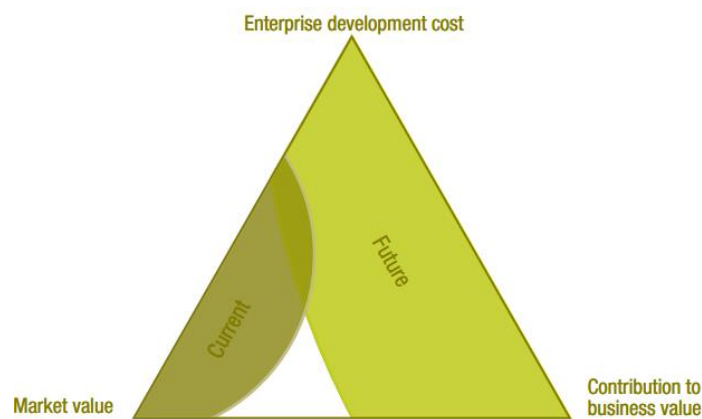


Figure 2.3: The Pricing Triangle Source (PWC, 2007)

As organizations are finding increasingly difficult to relate software cost and business benefit leading retailers are adopting more direct pricing, assessing value, what the market is ready to bear and what costs are involved in delivering the software (Marulkar, R., Dharmadhikari, V. And Cadambi, B. , 2012).

ERP solution developed should be able to streamline process, improve visibility within organization and most importantly reduce cost for organization. It should be able to completely change the way organization carries out its business not overnight but over a period of time.

It should be able to encompass complex front office and back office systems, e-commerce, accounting, inventory management to customer relationship marketing integrating processes to create seamless experience for its customers (Zigiaris, 2000).

The investigation conducted by Price Waterhouse Coopers into software pricing trends has revealed a notable shift in the pricing structure adopted by software solution providers. This transition towards marketing software as a service carries substantial implications, leading to the adoption of novel business models. Consequently, these changes influence various facets, including vendor dynamics, economic and financial aspects, research and development endeavors, and the assimilation of fresh sales practices. (PWC, 2007).

PWC report on pricing trends for software developing industry, underscore the fluid nature of the current industry environment (PWC, 2007). Based on their research report it further states;

- Many customers are of the perception that software prices are overpriced. Customers are increasingly reluctant to pay large upfront fees.
- Vendors across industry are presently re-evaluating their software pricing models and delivery methods accommodating customer behaviour changes.
- The new pricing models adopted by software developers need to recognize revenue generation. Developers should shift from up-front payment to periodic payments.
- The pricing models should be value based, and should support client cash flow and financing. Large upfront payments need to be eliminated.
- Software vendor are moving from licensing fees to maintenance fee structures.
- Software vendors are moving toward multiple pricing models.

Therefore in developing a platform strategy, ERP software developers should consider thinking of offering flexible platform for customers letting them choose what is required among software components and pricing models (PWC, 2007).

2.4.4. Infrastructure availability for ERP Solution development

The implementation of Enterprise Resource Planning (ERP) systems is characterized as a multifaceted, costly, and challenging endeavor, particularly for Small and Medium-sized Enterprises (SMEs)(Rajiv Malhotraa, Cecilia Temponi b, 2009). These challenges and risks are not confined solely to the implementation phase but extend to encompass post-implementation risks as well (Peng, Guo Chao and Nunes, J.M.B., 2009). The

implementation process necessitates organizations to reconfigure certain existing business processes to optimize the utilization of ERP systems (Joseph F. Brazel & Li Dang, 2008).

Scholars contend that for organizations to fully leverage their capabilities and gain widespread recognition, investments in infrastructures are imperative (Brynjolfsson E., Sinan A., D. J. Wu, 2020). Past research in this domain has underscored infrastructure as an intervening variable crucial for the successful implementation of ERP solutions. The infrastructure necessary for effective ERP implementation can be classified into two primary categories: Technical infrastructures and Organizational infrastructures (A. Azadeh, A. Keramati and H. Panahi, 2009).

Central to infrastructure for ERP implementation are IT infrastructure, hardware, software compatibility, and their reliability. Additionally, factors like operating system compatibility and the ability to access via WAN, LAN, or the internet emerge as pivotal technical infrastructures for ERP solutions (Brynjolfsson E., Sinan A., D. J. Wu, 2020). Particularly noteworthy is the imperative for ERP to harmonize with the IT architecture.

A survey conducted by ASUG shows SAP ERP solution users feeling the changes of Digital Age and need to make changes in their business.

2.4.5. Importance of country attractiveness

In the contemporary landscape of competitive markets, enterprises are increasingly seeking cost advantages stemming from factors like proximity to end-user markets, reduced labor costs, and favorable tax environments. Consequently, a significant portion of IT projects is being executed within the Indian subcontinent (Mofrad, M., Azadeh, A. And Khalojini, M., 2012).

In the present market scenario, numerous products undergo a design phase in one country and are subsequently manufactured and assembled in another. Within this context, both the country of design and the country of manufacture can offer ERP solution providers a robust platform for cultivating competitive advantages.

This propensity towards certain countries as manufacturing hubs rationalizes the strategies adopted by companies to establish distinct associations with their brands through branding, packaging, and communication. These countries become intrinsically linked with specific products in a favorable manner (Steenkamp, 2005).

Sri Lanka as a country have competitive advantage over other countries in IT industry as it offers a unique mix of extremely low costs along with a highly educated, technically skilled, English speaking population, business environment and infrastructure that is far superior than most other low cost IT service providing countries (SLAASCOM, 2015).

The nation has cultivated a distinctive reputation for its capacity to provide agility, cost-effectiveness, a specialized talent pool, ethical business practices, cultural adaptability, and a high quality of life, positioning it as a prime business destination. Its competitive stance has endowed the country with a distinctive role in the realm of product engineering, signifying it as an enclave of significant advantage. This recognition has prompted numerous global and local enterprises to either establish their product engineering operations or outsource such work to Sri Lanka (SLAASCOM, 2015).

2.5. Identification of knowledge gap to be addressed

The comprehensive review of existing literature within this research has effectively highlighted a substantial and positive correlation between the organizational capabilities inherent to Enterprise Resource Planning (ERP) solution providers and their resultant successful market growth. However, it is discernible that a substantial void exists within the current body of knowledge, particularly in the unique context of Sri Lanka, regarding the specific and nuanced factors that intricately shape the market growth trajectory of ERP solution providers. This research is thus distinctly positioned to rectify this deficiency, by providing an all-encompassing comprehension of the imperative strategies that indigenous ERP solution providers need to embrace in order to ensure the sustained expansion of their offerings within the market.

Furthermore, this study's ambitions extend to making significant contributions to the existing repository of knowledge by probing into the factors that serve as incentives for

corporations to invest in novel ERP solutions. Simultaneously, it endeavors to unearth tactics that empower local software development firms to enhance their market share within the exceedingly lucrative domain of the software development industry represented by ERP solutions. The envisioned culmination of this research entails the construction of an exhaustive model, one that meticulously incorporates the perspectives of both customers and developers, along with the intricate interplay of relationships that define the dynamic marketplace. Through this holistic vantage point, the research strives to offer a comprehensive panorama of the determinants that exert influence over a company's potential for growth.

In a comprehensive assessment, this research sets its sights on addressing a pivotal void in the comprehension of the intricate dynamics governing the market growth of ERP solution providers in Sri Lanka. By meticulously examining the nuances of the market, it anticipates making a momentous contribution to the unveiling of strategies that can significantly elevate the position and prospects of local software development companies within this swiftly evolving market landscape.

CHAPTER 03

METHODOLOGY

3.1 Introduction

The methodology section within a research report plays a pivotal role in delineating the methodologies and techniques deployed for data collection, analysis, and interpretation. It essentially acts as a guidepost for readers, offering insights into how the research was executed and allowing them to assess the veracity and dependability of the results. This section will furnish a comprehensive overview of the methodology that has been employed in our study. This encompasses the research design, the sampling approach, the techniques for data collection and analysis, as well as ethical considerations. By meticulously adhering to this rigorous and transparent approach, my objective is to establish the authenticity and resilience of our research, and to endow readers with a lucid comprehension of our methodologies and their implications for the outcomes.

3.2. Research Approach

The research design is characterized by two fundamental approaches: deductive and inductive. Given the objective of hypothesis testing through questionnaire responses, the deductive strategy was chosen (Saunders, M. N. K., Lewis, P., & Thornhill, A., 2019). This study is not focused on constructing novel theories, but rather relies on validated concepts and models from the existing literature. The chosen research approach falls into two categories: quantitative and qualitative. This study adopts the quantitative approach to fulfill its primary research objectives. Quantitative research methods involve the systematic analysis of social phenomena through numerical data and statistical tools, aiming to identify trends and relationships for validation (Watson, 2015).

The research draws its data from a survey questionnaire distributed among middle-level managers, marketing personnel, and technical staff in Sri Lankan ERP solution development companies. Respondents' viewpoints are captured using Likert scale questions. Collected data will undergo analysis using IBM SPSS version 26 software

to yield precise outcomes. Subsequently, recommendations pertinent to the market growth of local ERP solution providers will be deduced from the results.

The research framework revolves around the identified factors: "Existing barriers to technical capabilities of staff," "Barriers to financing capabilities of local software developers," "Existing barriers to domestic firms' price competitiveness," "Infrastructure availability," and "Existing barriers to country attractiveness and marketing skills."

A meticulously designed questionnaire serves as the tool for assessing the importance and impact of each factor on the market growth potential of local firms. The questionnaire underwent validation through pre-testing with industry experts to ensure its robustness.

The researcher posits that by effectively managing the aforementioned variables, local ERP solution developers can strategically enhance their market share both domestically and internationally. For this study, a sample of 300 participants was drawn from 10 ERP solution development organizations.

The research approach is presented diagrammatically, outlining the step-by-step progression of the study's methodology.

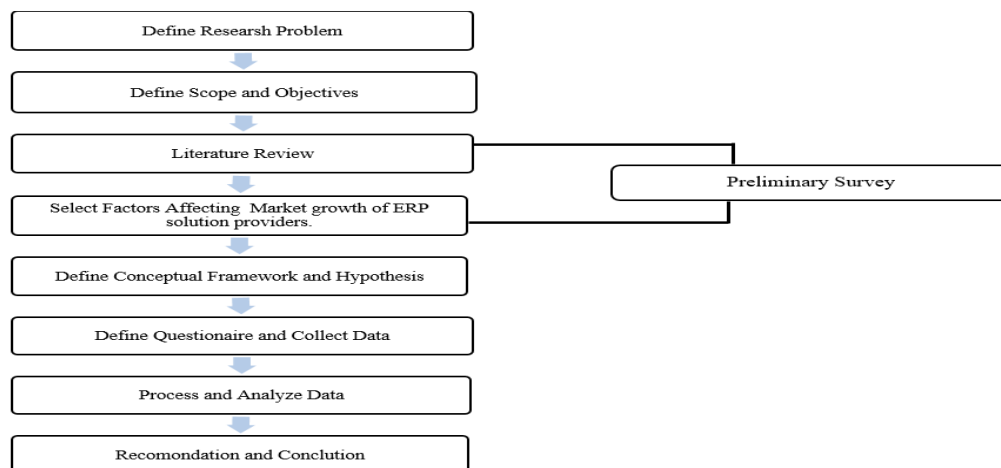


Figure 3.1 Research Design

The research process commences by identifying the problem and defining the research's scope and objectives. Subsequently, a comprehensive literature review was undertaken in alignment with the established aims and objectives, encompassing a substantial

corpus of more than 290 research papers. This extensive review led to the identification of five distinct criteria as independent variables for the study, each having received varying degrees of attention in prior investigations.

Following the literature review, a preliminary survey was conducted to assess the applicability and relevance of these identified characteristics within the actual research context, specifically within Sri Lanka. These characteristics, now established as independent variables, were subsequently integrated into the conceptual framework, where their relationships with a single dependent variable were outlined.

The subsequent phase encompassed the creation of a structured questionnaire that encapsulated the interrelations among the identified variables. This comprehensive survey instrument is slated for dissemination to approximately 300 local ERP solution providers. Through this quantitative approach, the study aims to gain valuable insights into the factors influencing the market growth of local ERP solution providers in Sri Lanka.

3.3. Data collection

In quantitative research, the process of data collection holds paramount importance as the outcomes heavily hinge upon the responses provided by participants. It is imperative to meticulously determine the nature of data to be gathered and ascertain the sources from which data will be acquired. Data collection involves the retrieval of information from pertinent sources to address the research problem, validate hypotheses, and assess outcomes. This process can be broadly classified into two methods: secondary data collection and primary data collection.

Secondary data encompasses information already published in books, newspapers, magazines, scholarly journals, and online platforms. To ensure the robustness of the study, a set of criteria for selecting secondary data should be employed, including factors such as publication date, author credentials, source credibility, quality of discussions, depth of analysis, and more (Williams, 2007). For this research, both primary and secondary data collection methods will be employed. Secondary data will be sourced from eBooks, journals, papers, Google Scholar, and Emerald Insight.

Since this research is quantitative in nature, the primary data collected through the questionnaire holds paramount significance. Constructing pertinent and comprehensive

questions that align with the highlighted factors is crucial. The survey questionnaire, designed for the quantitative aspect of the study, employs a combination of nominal scale and five-point Likert scale questions in a closed-ended format. The Likert scale ranges from "strongly agree" to "strongly disagree." The questionnaire is organized into a single section, designed to measure the factors influencing the market growth of ERP solution providers. It covers specific questions corresponding to the identified variables and evaluates responses using a Likert scale ranging from 1 to 5 to gauge the impact on market growth potential.

To ensure a representative sample, the questionnaire will be distributed to a randomly selected group of participants. Data collection will be facilitated through both physical and online means. The collected data will subsequently be subjected to analysis using the SPSS software, allowing for a comprehensive examination of the study's objectives and hypotheses.

3.4. Sample Procedure

The research design utilized a blend of two distinct sampling methods: simple random sampling and stratified random sampling. The initial stage involved the delineation of the target population, which encompassed local ERP solution providers operating in Sri Lanka. To ascertain an optimal sample size that would guarantee a 5% margin of error and a 95% confidence level, Morgan's table was employed. The calculated minimum sample size was established as 278. To enhance the comprehensiveness of the study and ensure the accuracy of the collected data, the sample size was eventually set at 300, thereby catering to the need for robust representation and precise findings.

3.5. Population and Sample

When performing quantitative research, the researcher should concentrate on the population and sample.

3.5.1. Population

In the context of research, a sample refers to a subset of the broader population, where a population encompasses the entirety of individuals with specific attributes (Lagares Barreiro, P., & Puerto Albandoz, J., 2001). The population for this study is the local

ERP solution providers in Sri Lanka. The population consists of middle levels managers, marketing staff and technical staff working with ERP solutions developing companies in Sri Lanka. According to EDB Sri Lanka (2023), there are about 47 service providers in the country, with around 1000 employees in total (EDB SRI LANKA, 2023).

The sample size will be determined based on the total number of ERP solution providers in the country. A list of ERP solution providers will be obtained from the EDB Sri Lanka (2023), and the sample will be selected randomly from this list.

3.5.2. Sampling Technique

This study employed a combination of two distinct sampling techniques: Simple random sampling and stratified random sampling. Simple random sampling holds significant prominence in quantitative research endeavors employing survey instruments. It is particularly suitable for populations that are homogeneous and consistently selected. In this method, each individual within the population possesses an equal chance of being selected, with the selection process hinging entirely on chance (Shagofah Noor, Omid Tajik, Jawad Golzar, 2022). In this research, the Simple random sampling technique was initially employed to select ten primary ERP provider companies from the overall population. Following this, the Stratified random sampling approach was utilized to determine the participants. The stratification was based on the job titles of the individuals, encompassing middle-level managers, marketing personnel, and technical staff associated with companies engaged in the development of ERP solutions within Sri Lanka. This dual sampling strategy was implemented to ensure both randomness and representation within the participant selection process.

3.5.3. Sample Size

In quantitative research, it is often necessary to choose a subset of eligible respondents from the larger population (Asiamah, N., Mensah, H. K., & Oteng-Abayie, E. F. , 2017). This selected subset is termed the "sample" of the study (Lagares Barreiro, P., & Puerto Albandoz, J., 2001). The determination of the sample size for this study will be accomplished using the Cochran formula. This formula will be adapted to account for smaller populations, ensuring accurate and appropriate sample size calculation. By

employing this approach, the study aims to capture a representative portion of the target population while maintaining statistical validity.

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

$$n = \frac{385}{1 + \frac{(385 - 1)}{1000}}$$

$$n = \frac{385}{1 + \frac{(384)}{1000}}$$

$$n = \frac{385}{1.384}$$

$$n = 278.1$$

Based on the calculation, the minimum sample size required for the study is 278. Therefore, the sample size for this study will be set at 300 to account for any potential non-response or dropouts during the study.

Researcher identifies 10 companies working in the ERP solution development in IT sector and selects 30 employees from each of the companies to get their views using the developed questionnaire.

The chosen method, distributing questionnaires through email using Google Forms, was selected due to its cost-effectiveness and efficiency compared to other data collection methods. This approach offers the advantage of being less time-consuming and resource-intensive, making it a practical choice for the study's objectives. The questionnaires were conveniently delivered to the sample through email, streamlining the data collection process and facilitating respondents' participation.

3.6. Methods of Data Analysis

3.6.1. Cronbach's Alpha Technique

Cronbach's alpha, a statistical method, serves to evaluate the appropriateness of tests and instruments used in a study to align with its objectives. It gauges the level of internal consistency among the instruments employed to measure a particular objective. In this

research, Cronbach's Alpha will be employed to assess the internal consistency of the collected data. The reliability of the questionnaire pertains to the consistency of responses from the same respondent across different circumstances. Consistency in responses implies questionnaire reliability (Chan, L. L., & Idris, N., 2017). Cronbach's approach relies on standard values for assessing reliability, as illustrated in the accompanying table.

Table 3.1: Cronbach's Alpha Values

Cronbach's alpha	Strength of Association
< 0.6	Poor
0.6 – 0.7	Moderate
0.7 – 0.8	Good
0.8 – 0.9	Very Good
> 0.9	Excellent

Source: (Taber, 2017)

3.6.2. Descriptive Analysis

Descriptive analysis, a statistical technique, is employed to provide an overview of the data collected during the study. It involves summarizing quantitative data using graphical representations. Descriptive statistics serve to reveal trends and patterns inherent in the data, making vast amounts of information more comprehensible. Among the commonly used measurements are the mean, median, mode, and standard deviation (Susanna, L., Pamela, M., Susan, D., Sean, R., Daniel, M., & Sarah, R., 2017) Visual aids such as graphs, charts, and tables are instrumental in interpreting the outcomes derived from descriptive analysis.

3.6.3. Pearson Correlation Coefficient

The Pearson Correlation Coefficient analysis is employed to assess the statistical correlation existing between two specified variables. This analysis reveals the extent and direction of the relationship between these variables (Adler, J., & Parmryd, I.). When the correlation coefficient approaches one, it signifies a strong association between the variables. If the coefficient value falls between 0.5 and 1, the variables are considered to have a high correlation. Likewise, if the value lies between 0.3 and 0.5, a moderate-level correlation is observed, and a value less than 0.3 indicates a weak

correlation. A correlation significance value of 0 suggests the absence of a relationship between the variables. The degree of association is presented in the table below.

Table 3.2: Pearson Correlation table

Correlation value (values are valid for both positive and negative)	Interpretation
0.9 - 1.0	Very high correlation
0.7- 0.9	High correlation
0.5- 0.7	Moderate correlation
0.3-0.5	Low correlation
0 -0.3	Negligible correlation

Source: (Marcos von Sperling, Matthew E. Verbyla, Sílvia M. A. C. Oliveira, 2020)

3.6.4. Inferential Analysis

Inferential Analysis is a technique for predicting the population by examining data from a sample that is representative of the entire population. We can use inferential analysis to look at data acquired from a sample and make choices about the entire population based on the results.

3.6.5. Linear Regression

Linear regression is one of the most frequently employed predictive analysis tools (Maxwell Scott, 2000). This method plays a pivotal role in projecting the potential outcome of the dependent variable by considering alterations in the values of independent variables. The multiple regression approach is also deemed suitable for such analyses.

3.6.6. Hypothesis Analysis

A hypothesis is an assumption made by a researcher that needs to be proven and tested based on data analysis (Davis, R. B., & Mukamal, K. J., 2006). Hypotheses are claims regarding the population's qualities that are desired. The researcher develops hypotheses to investigate the link between independent and dependent variables.

Directional, non-directional, or null hypotheses can be used to describe the relationship between variables.

- Null Hypothesis

The null hypothesis states that there is no correlation between the two variables in the study. H_0 is commonly used to represent the null hypothesis.

- Alternative Hypothesis

The alternative hypothesis serves as the antithesis to the null hypothesis, signifying the existence of a connection between the two variables under investigation. Often denoted as H_1 , the alternative hypothesis stands in contrast to the null hypothesis.

3.6.7. Hypothesis Testing Methods

T-test

The t-test is used to assess the disparity between sample means and population means or to compare two sample sets (Ugony, A., & Walker, B., 1995) This test is particularly effective when dealing with small sample sizes or when population parameters are unknown.

ANOVA test

On the other hand, the ANOVA test, or Analysis of Variance, is employed to gauge the significance of experimental outcomes within a survey (Sawyer, 2009). ANOVA hypothesis testing aids in determining whether the survey results support the null hypothesis or the alternative hypothesis.

3.6.8. Conceptual Design

The conceptual framework for this study was formulated based on the synthesis of literature review findings and the research objectives. Through an analysis of the literature, key factors that are deemed to have a substantial impact on the market growth potential of local ERP solution providers were identified. These factors were carefully selected based on their perceived relevance for achieving success in both local and international markets. The final selection of these factors was informed by insights

gathered from discussions with industry experts and an understanding of past experiences in the field. This conceptual framework serves as a guide to explore and analyze the interplay of these critical factors in the context of the study.

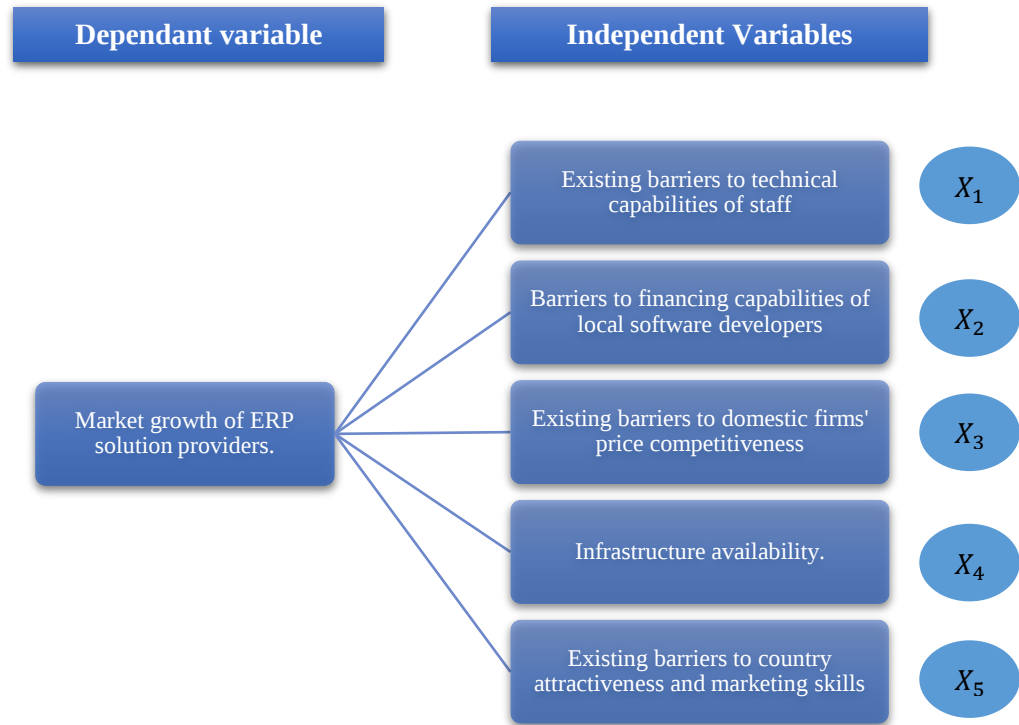


Figure 3.2: Conceptual framework.

For ease of the study, herein after the factors will be defined as X_1 , X_2 , X_3 , X_4 and X_5 as follows.

Existing barriers to technical capabilities of staff (X_1)

Barriers to financing capabilities of local software developers (X_2)

Existing barriers to domestic firms' price competitiveness (X_3)

Infrastructure availability (X_4)

Existing barriers to country attractiveness and marketing skills (X_5)

3.6.9. Research Hypothesis

Research hypothesis statement is the core of its structure in every experimental research. It is set with the objective of achieving the ultimate aim of any experiment. Following research hypothesis was developed for this research;

$H_1 =$ *organisation factors* Existing barriers to technical capabilities of staff,
 Barriers to financing capabilities of local software developers,
 Existing barriers to domestic firms' price competitiveness, Infrastructure Availability
and Existing barriers to country attractiveness & marketing skills
are considered to have direct impact on market growth of
local ERP solution providers in local and international markets

$H_0 =$ *organisation factors* Existing barriers to technical capabilities of staff,
 Barriers to financing capabilities of local software developers,
 Existing barriers to domestic firms' price competitiveness, Infrastructure Availability
and Existing barriers to country attractiveness & marketing skills
are considered to have no direct impact on market growth of
local ERP solution providers in local and international markets

3.7. Research Approach and Design

The research is framed within a conceptual structure that highlights the growing significance of organizational competencies, product and market attractiveness, and employee capabilities in the success of the ERP solution developing industry. The questionnaire, meticulously designed for this study, aims to gauge the importance of each identified factor and their potential influence on the market growth potential of local companies. Prior to distribution, the questionnaire underwent a pre-test phase involving industry experts to ensure its validity.

The researcher's belief is that through effective management of these variables, local ERP solution developers can position themselves advantageously to secure an augmented market share in both local and international arenas for their products and services. To achieve the objectives of this study, a sample of 300 respondents was meticulously selected from 10 organizations engaged in the development of ERP solutions.

3.8. Validity of research

This research study was done to identify and measure determinants that result in increased market, for ERP solutions developed by Sri Lankan ERP solution providers. Identifying factors that determine market growth, will help management of the company taking corrective steps, in order to increase their market share in ERP solution

market. This will result in increased demand for individual companies as well as growth in industry.

Internal validity has been assured, experimental design structure encompasses, all steps of scientific research method.

However it must be noted there is the possibility of some unknown external factor contributing to the results of the finding.

3.9. Ethical Considerations

This Research project was conducted in consideration for research ethics. Researcher identifies gatekeepers to research sample and necessary approval and permission was obtained with adequate time. Consideration for ethics was built from research design to throughout the research project.

The research not only collects market sensitive information but also customer information and what responders feel restricting industry growth.

No respondent to questionnaire was forced to give or share information which they don't want to share with researcher. All participants to research participated voluntarily. All participants' identity will not be disclosed for any purpose.

CHAPTER 04

DATA PRESENTATION AND ANALYSIS

4.1. Introduction

In this section, I will delve into the findings of this study and provide a thorough analysis of the data collected. Through a combination of visual aids and statistical analysis, I aim to paint a comprehensive picture of the research results and draw meaningful conclusions. I will present the data in a clear and organized manner, highlighting the key trends, patterns, and relationships that emerged from our analysis. Our hope is that this section will provide valuable insights into the research questions and contribute to a deeper understanding of the factors directly affect local ERP solution provider's market growth in local and international markets.

4.2. Background

Research study identifies wide range of direct variable which influence market growth of ERP solution providers. Research findings are based on 10 companies working on ERP solution development in IT sector, using data collected from 30 employees from each of the companies to get their views. Questionnaire findings were categorized under five key headings: Existing barriers to technical capabilities of staff (X_1), Barriers to financing capabilities of local software developers (X_2), Existing barriers to domestic firms' price competitiveness (X_3), Infrastructure availability (X_4) and Existing barriers to country attractiveness and marketing skills (X_5)

questionnaire was meticulously crafted. Subsequently, this questionnaire was dispersed among 300 individuals employed within organizations operating within the ERP software development sector. To ensure thoroughness, any incomplete questionnaires were returned to the respondents for completion, resulting in the utilization of 278 completed questionnaires for the subsequent data analysis.

The information garnered from these responses was systematically recorded and meticulously analyzed employing Microsoft Excel software. To appropriately

categorize the responses, a Likert scale was employed, allowing respondents to be assigned corresponding codes based on their input.

Each of the independent and dependent variables was meticulously evaluated, utilizing the responses from the questionnaire, which was informed by earlier related literature. The responses were measured on a five-point Likert scale, encompassing a range from "strongly disagree" (1) to "strongly agree" (5).

To effectively address the research questions, the amassed data underwent rigorous statistical analysis via the Statistical Package for the Social Sciences (SPSS) software, specifically version 26. This approach facilitated the exploration and interpretation of the data, providing the necessary insights to respond to the research objectives.

4.3. Data Analyzing

In evaluating the reliability and validity of the survey instrument, a total of 25 statements encompassing 6 variables were assessed. These 25 items were segmented into 5 distinct principal factors, namely "Existing barriers to technical capabilities of staff," "Barriers to financing capabilities of local software developers," "Existing barriers to domestic firms' price competitiveness," "Infrastructure Availability," and "Existing barriers to country attractiveness & marketing skills." Furthermore, the overarching variable of "Market growth of ERP solution Providers" was examined.

To ascertain the robustness of the instrument in measuring the market growth of ERP solution Providers, Cronbach's alpha values were employed. Within the realm of social science research, the notion of reliability is pivotal in assessing the adequacy of measurement items. This approach effectively ensures the quality and consistency of the measurement tool.

4.3.1. Reliability Analysis

Within this context, the study undertook a comprehensive reliability analysis. This analysis seeks to minimize measurement error, ensuring the instrument's accurate and consistent interpretation across diverse contexts. Notably, the two key properties being examined are validity and reliability. While validity concerns whether the instrument

measures its intended purpose, reliability pertains to the instrument's consistency across different scenarios.

Cronbach's alpha, a commonly utilized measure in social science research to gauge reliability, was employed for this purpose. Scholars like Sekaran and Bougie (2016) recommend a Cronbach's alpha value exceeding 0.9 for optimal reliability. In this study, the calculated Cronbach's alpha stood at 0.96 with a significant p-value of $P < 0.005$ (see Appendix II). This outcome indicates an excellent level of internal consistency, underscoring the research tool's reliability and its ability to yield credible and consistent results. Therefore, the Cronbach's alpha not only signifies the internal consistency but also signifies the credibility of the instrument, as depicted in the reliability statistics table (Table 4.1).

Table 4.1: Cronbarch's alpha coefficient for the variables

Variable	No Items	Cronbach's Alpha
Existing barriers to technical capabilities of staff (X_1)	4	.957
Barriers to financing capabilities of local software developers (X_2)	4	.966
Existing barriers to domestic firms' price competitiveness (X_3)	4	.964
Infrastructure availability (X_4)	4	.948
Existing barriers to country attractiveness and marketing skills (X_5)	4	.976
Market growth of ERP solution providers (Y)	5	.960

Source: Survey data, 2023.(Appendix II)

As indicated in Table 4.1, the internal consistency of the Likert scale items was rigorously assessed by the researcher. Notably, all the calculated Cronbach's alpha values exceed the threshold of 0.9, signifying a high level of internal consistency among the items within each variable. This robust internal consistency ensures the reliability of the Likert scale measurements.

It is noteworthy that the Likert scale questions exhibited a consistent unit-direction trend, further supporting the construct's reliability. Importantly, this characteristic enabled the researcher to effectively operationalize the variables without the need for

item deletion. Consequently, the construction of the respective variables was carried out seamlessly while preserving the integrity of the data and maintaining the comprehensive scope of the study.

4.3.2. Validity Analysis

The evaluation of questionnaire validity is a crucial step in ensuring the accuracy and reliability of research outcomes, as highlighted by Fornell and Larcker (1981)(Claes F. & David F. Larcker, 1981). The technique employed for this purpose aims to determine the suitability and effectiveness of the questionnaire in yielding precise and meaningful results.

Validity testing in this study employs the congruent validity technique, a well-established approach in questionnaire validation. Within this technique, two distinct categories, namely convergent and discriminant validity, are employed to assess the validity of the questionnaire. These categories play a pivotal role in confirming the instrument's capability to measure the intended constructs accurately and to distinguish between different constructs in the study, thereby ensuring the robustness and credibility of the research findings.

Table 4.2: Kaiser-Meyer-Olkin (KMO)

Test Name	KMO Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.899

Source: Survey data, 2023.(Appendix II)

The Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of Sphericity are vital tools in evaluating the suitability and appropriateness of data for further analysis. The KMO measure, which ranges between 0 and 1, with values closer to 1 being more desirable, is indicative of the adequacy of the dataset for analysis, with a recommended minimum value of 0.6. As depicted in Table 4.2, the KMO value for the filtered dataset is calculated to be 0.899, reinforcing the assertion that the sample size is suitable for analysis and that the variables exhibit a significant level of correlation. This high KMO value suggests that the variables under consideration are well-suited for subsequent regression analysis, which will assist in identifying the independent variables with notable impacts on the market growth of ERP solution providers.

Concurrently, Bartlett's test of Sphericity is instrumental in ascertaining whether the correlation matrix among the variables exhibits a departure from the identity matrix, thus signifying the presence of correlations between variables. The null hypothesis of this test assumes that variables are uncorrelated, while the alternative hypothesis suggests their correlation. In the context of this research, which focuses on factors influencing the market growth of ERP solution providers, Bartlett's test of Sphericity was employed to gauge the adequacy of the correlation matrix for factor analysis. The results of this test can be observed in Table 4.3, providing valuable insights into the interrelation of the variables and their suitability for further analytical exploration.

Table 4.3: Bartlett's test of Sphericity

Test Name	Bartlett's test of Sphericity Value		
	Approximate chi-square	Degrees of Freedom	Significance
Bartlett's Test of Sphericity	3051.285	300	.000

Source: Survey data, 2023.(Appendix II)

With a chi-square value of 3051.285 and 300 degrees of freedom, coupled with a significance level of 0.000, the outcomes of the statistical test underscore a significant relationship between the variables in the correlation matrix. This result contradicts the assumption of an identity matrix, indicating that the variables are indeed interconnected. Consequently, based on this statistical evidence, it is reasonable to assert that our correlation matrix is appropriate for subsequent analysis. The observed significance of the chi-square test bolsters the validity of our data and supports our ability to proceed with further examinations of the factors influencing the market growth of ERP solution providers.

4.3.3. Descriptive statistics

Upon ensuring the fulfillment of data reliability criteria, the next step involved the formation of variables encapsulating the six factors: Technical Capability, Financial Capabilities of Local Software Companies, Price Competitiveness, Infrastructure Availability, Marketing Skills & Country Attractiveness, and Market Growth of ERP Solution Providers. The amalgamation of Likert-scaled items was performed by calculating the mean of these items. This process facilitated the transformation of the

data into the designated variables. Subsequently, the distribution patterns of these variables were scrutinized and assessed, as depicted in detail within table 4.4.

Table 4.4: Descriptive statistics of variables

Variable	No Items	Mean	Std. Deviation	Skewness	Kurtosis
Existing barriers to technical capabilities of staff (X_1)	278	3.20	.649	.299	.502
Barriers to financing capabilities of local software developers (X_2)	278	2.31	.569	.600	.745
Existing barriers to domestic firms' price competitiveness (X_3)	278	2.93	.871	.958	-.056
Infrastructure availability (X_4)	278	2.99	.605	.613	.707
Existing barriers to country attractiveness and marketing skills (X_5)	278	2.45	.689	.234	-.521
Market growth of ERP solution providers (Y)	278	4.21	.323	-.264	-.160

Source: Survey data, 2023. (Appendix II)

As illustrated in table 4.4, the results obtained from the respondents concerning the factor "Existing barriers to technical capabilities of staff" are displayed in the first row. This factor was assessed using four items, each rated on a five-point Likert scale. The analysis of this factor yields a skewness value of 0.299, suggesting an approximately normal distribution characterized by a mean of 3.20 and a distribution standard deviation of 0.649, along with a kurtosis value of 0.502.

The "Barriers to financing capabilities of local software developers" factor demonstrates a skewness value of 0.600, indicating a near-normal distribution pattern

with a mean of 2.31. The distribution standard deviation is 0.569, and the kurtosis value stands at 0.745.

Moving to the "Existing barriers to domestic firms' price competitiveness" factor, the analysis reveals a skewness value of 0.958, signifying an approximately normal distribution centered around a mean of 2.93. The distribution standard deviation is 0.871, and the kurtosis value is -0.056.

The "Infrastructure Availability" factor exhibits a skewness value of 0.234, representing an approximately normal distribution with a mean of 2.99. The distribution standard deviation is 0.605, and the kurtosis value is 0.707.

The "Existing barriers to country attractiveness & marketing skills" factor demonstrates a skewness value of 2.34, indicating an approximately normal distribution characterized by a mean of 2.45. The distribution standard deviation is 0.689, and the kurtosis value is -0.521.

Lastly, the "Market Growth" variable showcases a skewness value of -0.264, pointing to an approximately normal distribution pattern with a mean of 4.21. The distribution standard deviation is 0.323, and the kurtosis value is -0.160.

The computed mean values across the variables span from 2.31 to 4.21, while standard deviations range from 0.323 to 0.871, suggesting a moderate degree of variability in the dataset. Skewness values vary from -0.264 to 2.34, indicating relatively symmetrical distributions. Kurtosis values within the range of -0.521 to 0.745 signify platykurtic distributions, which are flatter than the normal distribution.

The descriptive statistics provided by table 4.4 indicate that the mean values are closely aligned with the midpoint of the Likert scale (4), signifying agreement among respondents. Skewness coefficients fall within the range of -1 to +1, indicating the data's approximate normality. Additionally, the absolute values of kurtosis are less than three times the standard error of kurtosis, further supporting the assumption of normality. Hence, parametric analytical techniques are deemed appropriate for this analysis.

4.3.4. Correlation Analysis

Correlation analysis serves as a valuable tool for examining the connections between the Dependent Variables and the Independent variables. This analytical method quantifies the strength and direction of the relationship between two continuous variables. In the context of this study, the researcher employs correlation analysis to discern potential associations between user satisfaction and each of the six distinct factors: Technical capability, financial capabilities of local software companies, Price competitiveness, Infrastructure Availability, Marketing skills & Country Attractiveness, and Market growth of ERP solution providers. Through this analysis, the researcher aims to uncover any underlying relationships that may exist between these variables.

Table 4.5: Correlation analysis

		Market growth of ERP solution providers (Y)	Existing barriers to technical capabilities of staff (X_1)	Barriers to financing capabilities of local software developers (X_2)	Existing barriers to domestic firms' price competitiveness (X_3)	Infrastructure availability (X_4)	Existing barriers to country attractiveness and marketing skills (X_5)
Market growth of ERP solution providers (Y)	Pearson Correlation	1	.913**	.918**	.908**	.902**	.884**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	278	278	278	278	278	278
Existing barriers to technical capabilities of staff (X_1)	Pearson Correlation	.913**	1	.219**	.581**	.472**	.282**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	278	278	278	278	278	278
Barriers to financing capabilities of local software developers (X_2)	Pearson Correlation	.918**	.219**	1	.298**	.672**	.372**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	278	278	278	278	278	278
Existing barriers to domestic firms' price competitiveness (X_3)	Pearson Correlation	.908**	.581**	.298**	1	.446**	.507**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	278	278	278	278	278	278
Infrastructure availability (X_4)	Pearson Correlation	.902**	.472**	.672**	.446**	1	.781**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	278	278	278	278	278	278
Existing barriers to country attractiveness and marketing skills (X_5)	Pearson Correlation	.884**	.282**	.372**	.507**	.781**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	278	278	278	278	278	278

Source: Survey data, 2023. (Appendix II)

As depicted in table 4.5, the correlations among the variables are presented below. Notably, a robust and positive linear relationship is observed between the Market growth of ERP solution providers and the "Existing barriers to technical capabilities of

staff" variable, with a correlation coefficient of 0.913. Similarly, the "Barriers to financing capabilities of local software developers" variable exhibits a strong positive linear relationship with the Market growth of ERP solution providers, displaying a correlation coefficient of 0.918. Another noteworthy finding is the substantial positive linear correlation between the "Existing barriers to domestic firms' price competitiveness" variable and the Market growth of ERP solution providers, reflecting a correlation coefficient of 0.908. Additionally, the Infrastructure Availability variable displays a robust positive linear relationship with the Market growth of ERP solution providers, characterized by a correlation coefficient of 0.902. The "Existing barriers to country attractiveness & marketing skills" variable also contributes to a positive linear relationship with the Market growth of ERP solution providers, demonstrating a correlation coefficient of 0.884. Importantly, all the correlations are statistically significant, as evidenced by p-values below 0.005. This establishes the foundation for conducting regression analysis on the dataset, encompassing all six variables.

4.3.5. Regression Analysis

Regression analysis encompasses a range of statistical techniques aimed at establishing connections between a dependent variable and one or more independent variables. This analysis produces a regression equation that incorporates coefficients reflecting the relationship between the independent variables and the dependent variable. The inherent advantage of regression analysis lies in its capacity to aid in the identification of pertinent variables, the exclusion of irrelevant ones, and the elucidation of inter-variable relationships.

The present analysis focuses on discerning the impact of the independent variables: "Existing barriers to technical capabilities of staff," "Barriers to financing capabilities of local software developers," "Existing barriers to domestic firms' price competitiveness," "Infrastructure Availability," and "Existing barriers to country attractiveness & marketing skills." Employing these variables, a multiple regression model is constructed for the dataset. Notably, the factors under consideration assume continuous form due to their formulation based on constituent variables.

The analysis subsequently assesses the correlations existing among these factors. Given the statistical significance of these correlations at a significance level of 0.05, a suitable

model can be developed. The resultant model encapsulates the culmination of this analytical process, elucidating the interplay of the aforementioned factors in relation to the dependent variable.

Table 4.6: Model Significance ANOVA Table

Model ^a	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance
Regression	16.713	5	3.343	74.292	.000
Residual	12.238	272	.045		
Total	28.951	277			

Source: Survey data, 2023. (Appendix II)

In accordance with the findings presented in table 4.6, the F-ratio featured in the ANOVA table serves to evaluate the overall adequacy of the regression model for the dataset. The table's results indicate that the independent variables indeed hold statistical significance in predicting the dependent variable. Specifically, the calculated F-statistic, denoted as $F(5,272) = 74.292$, showcases a p-value of less than 0.0005. This outcome underscores the significance of the regression model as a whole, affirming its meaningfulness and its capacity to explain the variability observed in the dependent variable.

Table 4.7: Coefficient significance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Significance
	B	Std. Error	Beta		
(Constant)	5.478	.120		45.800	.000
Existing barriers to technical capabilities of staff (X_1)	-.221	.022	-.444	-10.126	.000
Barriers to financing capabilities of local software developers (X_2)	-.110	.026	-.193	-4.265	.000
Existing barriers to domestic firms' price	-.299	.024	-.806	-12.279	.000

competitiveness (X_3)					
Infrastructure availability (X_4)	.260	.033	.487	7.977	.000
Existing barriers to country attractiveness and marketing skills (X_5)	-.087	.023	-.186	-3.777	.000

Source: Survey data, 2023. (Appendix II)

The results of the regression model are depicted in table 4.7. The information presented in this table provides insight into the coefficients and their associated values within the regression equation. Based on the data provided, the derived regression equation for this analysis is as follows:

Regression Equation

$$\hat{Y} = 5.478 - 0.221 X_1 - 0.110 X_2 - 0.299 X_3 + 0.260 X_4 - 0.087 X_5$$

Where,

$\hat{Y}$ = Market growth of ERP solution provider

X_1 = Existing barriers to technical capabilities of staff

X_2 = Barriers to financing capabilities of local software developers

X_3 = Existing barriers to domestic firms' price competitiveness

X_4 = Infrastructure availability

X_5 = Existing barriers to country attractiveness & marketing skills

The equation highlights the considerable impact of the five independent variables (X_1 to X_5) on the dependent variable ($\hat{Y}$), which corresponds to the market growth of ERP solution providers.

The coefficient of X_1 (-0.221) suggests that a one-unit increase in the existing barriers to technical capabilities of staff is associated with a 0.221-unit decrease in the market growth of ERP solution providers, holding other variables constant. This implies that a lack of technical capabilities of staff may negatively affect the market growth of ERP solution providers.

The coefficient of X_2 (-0.110) indicates that a one-unit increase in the barriers to financing capabilities of local software developers is associated with a 0.110-unit decrease in the market growth of ERP solution providers, holding other variables constant. This suggests that limited financing capabilities of local software developers may hinder the growth of the ERP market.

The coefficient of X_3 (-0.299) implies that a one-unit increase in the existing barriers to domestic firms' price competitiveness is associated with a 0.299-unit decrease in the market growth of ERP solution providers, holding other variables constant. This suggests that domestic firms facing barriers to price competitiveness may have a negative impact on the growth of the ERP market.

The coefficient of X_4 (0.260) suggests that a one-unit increase in the availability of infrastructure is associated with a 0.260-unit increase in the market growth of ERP solution providers, holding other variables constant. This implies that having reliable infrastructure may help to increase the market growth of ERP solution providers.

Lastly, the coefficient X_5 (-0.087) suggests that a one-unit increase in the existing barriers to country attractiveness and marketing skills is associated with a 0.087-unit decrease in the market growth of ERP solution providers, holding other variables constant. This implies that improving the country's attractiveness and marketing skills may lead to an increase in the growth of the ERP market.

Interpreting the summarized regression model, it can be observed that in the absence of any significant influencing factors, the Market growth of ERP solution providers stands at 5.80 units. As we delve into the specific variables, when the "Existing barriers to technical capabilities of staff" variable experiences an increase of one unit, the market growth is subsequently decreased by -0.221 units. Similarly, an increase of one unit in the "Barriers to financing capabilities of local software developers" variable results in a decrease of market growth by -0.110 units. Likewise, a one-unit increase in the "Existing barriers to domestic firms' price competitiveness" variable corresponds to a decrease in market growth by -0.299 units. On the other hand, a one-unit increment in the "Infrastructure Availability" variable leads to a positive impact of 0.260 units on market growth. Lastly, a rise of one unit in the "Existing barriers to country attractiveness & marketing skills" variable is associated with a decrease in market growth by -0.087 units.

In conclusion, the statistical analysis of the model suggests that the "Existing barriers to technical capabilities of staff", "Barriers to financing capabilities of local software developers", "Existing barriers to domestic firms' price competitiveness", "Infrastructure Availability" and "Existing barriers to country attractiveness & marketing skills" are significant factors affecting the growth of the ERP market.

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	Durbin-Watson
					Sig. F Change	
1	.760	.577	.570	.212	.000	2.050

Source: Survey data, 2023. (Appendix II)

Referring to table 4.8, the Adjusted R-square for the presented model stands at 0.570. This value signifies that approximately 57% of the total variation in the Market growth of ERP solution providers can be explained by the factors integrated into the model. In simpler terms, the model encapsulates around 57% of the variability exhibited by the dependent variable. With an Adjusted R-square value exceeding 55%, the regression model can be considered well-fitted. However, it's important to acknowledge that there are still other variables beyond those included in the model that contribute to the fluctuations in market growth of ERP solution providers.

Furthermore, the model summary reveals a Durbin-Watson test statistic of 2.050, which falls within an acceptable range. This suggests that the residuals are independent, indicating that the assumption of error independence is upheld. The Durbin-Watson statistic's value of 2.050 signifies the absence of autocorrelation in the residuals, reinforcing the reliability of the assumption regarding the independence of errors.

4.3.6. Diagnostic tests for regression results

4.3.6.1. Autocorrelation and Multicollinearity

Table 4.9: Coefficients

	Collinearity Statistics	
	Tolerance	VIF
Existing barriers to technical capabilities of staff (X_1)	.808	1.238

Barriers to financing capabilities of local software developers (X_2)	.758	1.319
Existing barriers to domestic firms' price competitiveness (X_3)	.361	2.772
Infrastructure availability (X_4)	.418	2.393
Existing barriers to country attractiveness and marketing skills (X_5)	.638	1.568

Source: Survey data, 2023. (Appendix II)

A comprehensive assessment of multicollinearity was conducted to ascertain the presence of significant correlations among the independent variables. The Pearson correlation coefficients derived from the inter-correlation matrix revealed values consistently below 0.90. Additionally, the examination of Tolerance values and Variance Inflation Factors (VIF) was performed. Remarkably, the Tolerance values were observed to surpass the threshold of 0.5, and all VIF values were found to be below 5. These outcomes collectively affirm that the Tolerance values and VIF values adhere to the anticipated range, effectively mitigating the issue of multicollinearity. Consequently, the necessary conditions for conducting Multi-regression analysis are satisfied, allowing for the execution of the analysis with confidence.

4.3.6.2. Heteroscedasticity

In the diagnostic scatter plot presented, it becomes evident that the distribution of residuals lacks any discernible systematic pattern in its standardized form. The residuals are effectively plotted against the standardized predicted values. This insightful observation signifies the constancy of residual variance and serves as evidence that the issue of heteroscedasticity is absent within the analysis.

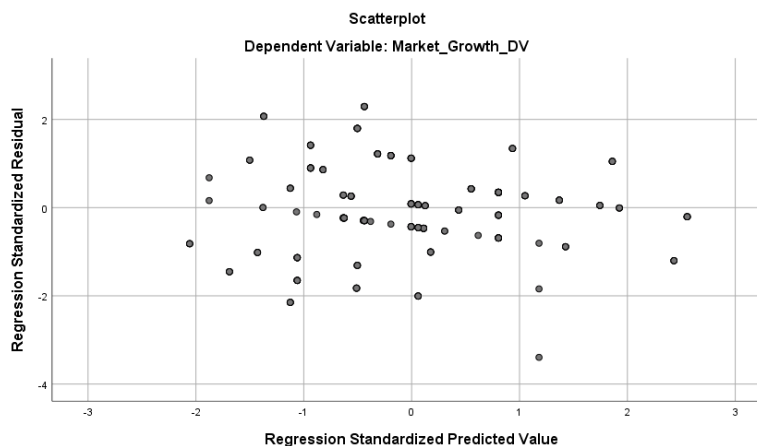


Figure 4.1: Scatter plot Dependent variable

Source: Survey data, 2023. (Appendix II)

In Figure 4.1, the scatter plot depicts the standardized residuals plotted against the standardized predicted values. This visual representation illustrates that the residuals exhibit a lack of systematic pattern, evident from the absence of a funnel shape. This observation underscores the constancy of residual variance, signifying the absence of heteroscedasticity.

Within the context of our study, the dependent variable pertains to the market growth of ERP solution providers, while the independent variable encompasses the factors influencing this growth. Upon constructing the scatter plot, our analysis identified the presence of two outliers that significantly deviate from the main cluster of data points.

Table 4.10: Casewise Diagnostics

Case Number	Std. Residual	DV	Predicted Value	Residual
101	2.276	4	3.72	.483
267	-3.742	4	4.39	-.794

Source: Survey data, 2023. (Appendix II)

As indicated in table 4.10, our analysis utilizing Casewise Diagnostics has identified two outliers, specifically labeled as Case Number 101 and 267. Outliers refer to data points that markedly deviate from the general dataset and possess the potential to exert substantial influence on regression outcomes. Consequently, a thorough examination of the impact of these outliers on the results becomes imperative. It is essential to assess whether these outliers should be excluded from the analysis in order to maintain the integrity of the findings.

The presence of heteroscedasticity in the regression model suggests that the variability of the errors is not constant across all levels of the independent variable(s). This could indicate that there are some unobserved factors that are affecting the market growth of ERP solutions providers. In addition, the identification of two outliers in the data suggests that there may be influential points that are contributing to the heteroscedasticity. Further analysis is needed to determine the impact of these outliers on the model results and to investigate potential solutions to address the issue of heteroscedasticity.

4.3.6.3. Normality Test

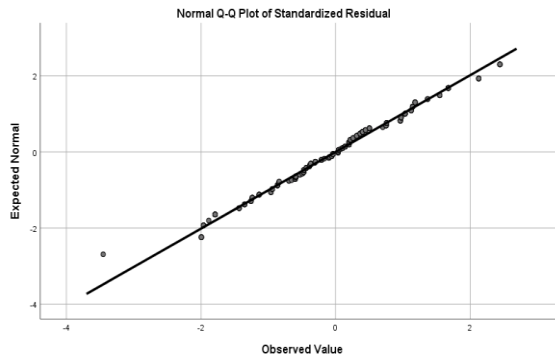


Figure 4.2: Q-Q plot for linearity

Source: Survey data, 2023. (Appendix II)

The normal Q-Q plot reveals that a substantial number of residuals are closely aligned with the linear line, indicating a strong adherence to normal distribution. This consistency between the graphical representation and the findings in table 4.2 provides additional evidence of the normal distribution of residuals. The fulfillment of various diagnostic tests, such as those outlined earlier, further reinforces the validation of the regression results.

Given the satisfaction of all underlying assumptions, a robust conclusion can be drawn, affirming the validation of the regression model. The combination of diagnostic assessments underscores the reliability and credibility of the obtained results.

Hypothesis:

H_0 = Residual are normally distributed

H_a = Residual are not normally distributed

Table 4.11 Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Market growth of ERP solution providers (Y)	.154	278	.621	.943	278	.758
a. Lilliefors Significance Correction						

Source: Survey data, 2023. (Appendix II)

As indicated in table 4.11, the probabilities resulting from the Kolmogorov-Smirnov and Shapiro-Wilk tests are 0.154 and 0.943, respectively. The Kolmogorov-Smirnov test furnishes test statistics that are employed, alongside the degrees of freedom parameter, to assess the normality assumption. The calculated Kolmogorov-Smirnov statistic stands at 0.154, corresponding to the degrees of freedom equal to the total number of data points, which in this case is 50. Notably, the p-value provided by the SPSS software (noted under "Sig. for Kolmogorov-Smirnov") reads as 0.621, denoted as $p < 0.001$.

In light of these results, there is compelling evidence to reject the null hypothesis positing that the variable adheres to a normal distribution.

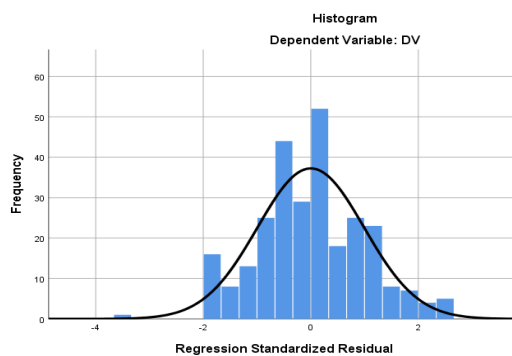


Figure 4.3: Histogram

Source: Survey data, 2023. (Appendix II)

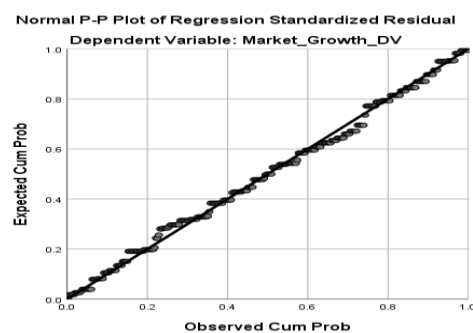


Figure 4.4: P-P plot for linearity

Source: Survey data, 2023. (Appendix II)

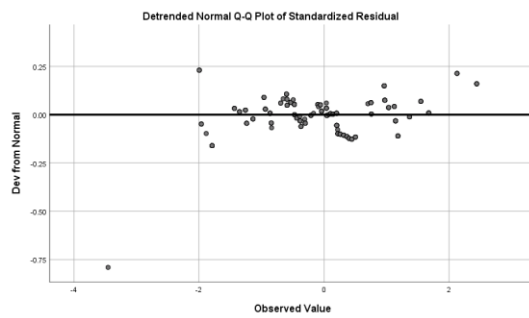


Figure 4.5: Q-Q plot for linearity

Source: *Survey data, 2023. (Appendix II)*

4.4. Discussion

The primary objective of this study was to comprehensively examine the diverse range of factors contributing to the market growth of ERP solution providers. The investigation encompassed a meticulous assessment of specific factors, including "Existing barriers to technical capabilities of staff," "Barriers to financing capabilities of local software developers," "Existing barriers to domestic firms' price competitiveness," "Infrastructure Availability," and "Existing barriers to country attractiveness & marketing skills." This inquiry was executed by collecting data from individuals employed within the ERP solution development sector, derived from 10 companies representing various geographical regions across the island.

To ensure the collection of relevant and accurate data, a quantitative research approach was adopted. This approach involved the utilization of structured questionnaires administered in a survey format. The construction of the questionnaire was guided by existing research, aiming to establish the credibility and validity of the constructs under investigation. The five independent variables, reflective of the identified factors, were meticulously examined using the survey instrument, with a particular emphasis on their interconnectedness with the market growth of ERP solution providers.

The research commenced with an initial sample size of 300 participants, which underwent a thorough data cleaning process to yield a refined participant count of 278. The application of a robust stratified simple random sampling method ensured the selection of suitable sampling units, safeguarding the credibility of the sampling approach. Data analysis was carried out using the widely recognized statistical software

SPSS Version 26. The structured questionnaire was systematically distributed among the selected sample, yielding a commendable response rate of 92.6% from the targeted respondents.

After a rigorous analysis of the collected data, the findings of the study highlighted the substantial significance of the identified factors in shaping the market growth of ERP solution providers. Specifically, the variables "Existing barriers to technical capabilities of staff," "Barriers to financing capabilities of local software developers," "Existing barriers to domestic firms' price competitiveness," "Infrastructure Availability," and "Existing barriers to country attractiveness & marketing skills" exhibited statistical significance within the established model.

Moreover, the outcomes gleaned from the regression analysis further emphasized the notable relevance of market growth dimensions concerning ERP solution providers. Notably, the analysis indicated a significant impact of these dimensions at a significance level of 0.05. The model's capacity to explain variance was reflected in an Adjusted R-square value of 0.57, suggesting that approximately 57% of the variability in the market growth of ERP solution providers could be attributed to the factors considered within the model. However, this finding also implies the presence of additional latent factors that contribute to the market growth of ERP solution providers, warranting further exploration beyond the current model's scope.

CHAPTER 05

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

In essence, this study was designed to deeply investigate the intricate interplay of factors that exert influence on the market growth of Enterprise Resource Planning (ERP) solution providers. The core objective of the research was to analyze the impact of a variety of independent variables, specifically "Existing barriers to technical capabilities of staff," "Barriers to financing capabilities of local software developers," "Existing barriers to domestic firms' price competitiveness," "Infrastructure Availability," and "Existing barriers to country attractiveness & marketing skills," in relation to the dependent variable representing the market growth of ERP solution providers.

By utilizing a multiple regression model, the study effectively unveiled significant associations between the identified independent variables and the market growth of ERP solution providers. Each of the five independent variables demonstrated considerable impacts on the dependent variable. A closer examination of the coefficients assigned to these variables illuminated their individual strengths and directions of effect on the market growth of ERP solution providers.

The prevailing pattern within the model revealed predominantly negative coefficients for the independent variables, except for "Infrastructure Availability," which exhibited a positive coefficient. This pattern signifies that increases in the values of most independent variables correspond to decreases in the market growth of ERP solution providers. However, the availability of infrastructure demonstrated a contrary outcome, whereby its increase was linked to higher market growth.

The interpretation of these findings revealed that factors such as "Existing barriers to technical capabilities of staff," "Barriers to financing capabilities of local software developers," and "Existing barriers to domestic firms' price competitiveness" exerted adverse influences on the market growth of ERP solution providers. In contrast, the positive impact of "Infrastructure Availability" and the negative influence of "Existing barriers to country attractiveness and marketing skills" were also substantiated.

Collectively, these insights illuminated the multifaceted and nuanced nature of the factors influencing the landscape of market growth for ERP solution providers.

At its core, the multiple regression model offers indispensable insights into the determinants that shape the market growth of ERP solution providers. The study's implications underscore the importance of addressing the existing barriers to technical capabilities, financing capabilities of local software developers, and domestic firms' price competitiveness to foster the market growth of ERP solution providers. Furthermore, efforts aimed at bolstering infrastructure availability and ameliorating barriers tied to country attractiveness and marketing skills are essential for further stimulating the market growth of ERP solution providers. The model's Adjusted R-square value of 0.570 reinforces its explanatory capacity, indicating that it accounts for 57% of the variability in the market growth of ERP solution providers.

The findings also offer pertinent insights for policymakers, highlighting the significance of fostering an environment conducive to the growth of technology firms, including ERP solution providers. This entails investments in infrastructure, favorable tax policies, and mechanisms to facilitate access to financial resources, all of which can fuel economic growth and generate employment opportunities.

However, it is important to acknowledge the study's limitations. The geographical scope of the research might curtail the broader applicability of the findings to regions with distinct characteristics. The adoption of a cross-sectional research design limits the ability to establish causal relationships among variables, and reliance on self-reported data introduces potential biases and measurement errors that can impact the precision of results.

To chart the course for future research endeavors, replication across diverse regions is essential to confirm the universality of these findings. Longitudinal research designs hold promise in elucidating causal links over time, while the inclusion of larger and more representative samples drawn from the entire population of ERP solution providers can augment the generalizability of results. Additionally, investigating other contributing factors such as organizational and cultural influences can provide a more comprehensive understanding of this intricate phenomenon.

In conclusion, this study contributes substantially to our comprehension of the multifaceted factors that steer the market growth of ERP solution providers. The

insights gained emphasize the critical role of addressing barriers in technical capabilities, financing, price competitiveness, infrastructure, and country attractiveness to foster the success of ERP solutions. The research lays the foundation for future explorations aimed at deepening our understanding of these dynamics and their broader implications in propelling the growth of ERP solution providers within the market.

5.2. Recommendations

This research endeavor was undertaken with the objective of discerning the factors that wield influence over the market growth of Enterprise Resource Planning (ERP) solutions providers. Through a meticulous analysis, five key factors have emerged, encompassing existing barriers to technical capabilities of staff, hindrances in financing capabilities of local software developers, prevailing obstacles to domestic firms' price competitiveness, the level of infrastructure availability, and the challenges posed by country attractiveness and marketing skills. In light of these research findings, a set of recommendations is proposed for the consideration of ERP solutions providers:

Enhance technical capabilities of staff: The study findings showed that existing barriers to technical capabilities of staff are a significant factor affecting the growth of ERP solutions providers. Therefore, it is recommended that ERP solutions providers should focus on enhancing the technical capabilities of their staff. This can be achieved through regular training and development programs, encouraging staff to pursue advanced education and certification, and providing the necessary tools and resources for them to improve their technical skills.

Encourage financing capabilities of local software developers: The study identified barriers to financing capabilities of local software developers as a factor that impacts the growth of ERP solutions providers. It is recommended that ERP solutions providers should encourage and support local software developers to enhance their financing capabilities. This can be achieved through partnerships and collaborations with local financing institutions, providing financial assistance to local software developers, and organizing events that promote financing capabilities of local software developers.

Improve domestic firms' price competitiveness: The study found that existing barriers to domestic firms' price competitiveness are a significant factor affecting the growth of ERP solutions providers. Therefore, it is recommended that ERP solutions providers

should focus on improving domestic firms' price competitiveness. This can be achieved through various measures, such as developing competitive pricing strategies, providing discounts to domestic firms, and offering customized ERP solutions that cater to the specific needs of domestic firms.

Enhance availability of infrastructure: The study identified availability of infrastructure as a factor that impacts the growth of ERP solutions providers. Therefore, it is recommended that ERP solutions providers should collaborate with government agencies and other stakeholders to enhance the availability of infrastructure. This can be achieved through initiatives such as lobbying for better infrastructure, investing in infrastructure development, and collaborating with other stakeholders to improve the availability of infrastructure.

Improve country attractiveness and marketing skills: The study found that existing barriers to country attractiveness and marketing skills are a significant factor affecting the growth of ERP solutions providers. Therefore, it is recommended that ERP solutions providers should focus on improving country attractiveness and marketing skills. This can be achieved through various initiatives, such as enhancing the country's image through marketing campaigns, partnering with government agencies to promote the country's business environment, and investing in marketing skills development programs for their staff.

In conclusion, the results of the regression analysis and the identified factors affecting the market growth of ERP solution providers provide valuable insights for companies, government agencies, and private sector entities to make informed decisions and take appropriate actions. By implementing the above recommendations, it is possible to address the existing barriers and promote the growth of ERP solution providers in the market. However, it is important to note that other factors may also influence the market growth, and further research is needed to identify these factors and their impact.

Recommendations for ERP Solution Providers ERP solution providers can take several steps to enhance their competitiveness in the market and increase their market share. Firstly, ERP solution providers should focus on investing in technical capabilities to develop advanced ERP solutions that meet the evolving needs of their clients. Secondly, ERP solution providers should seek partnerships with financially stable local software companies to leverage their financial resources and expertise in local markets. Thirdly,

ERP solution providers should invest in marketing skills to create awareness and generate demand for their ERP solutions. Finally, ERP solution providers should consider operating in countries with favorable business environments that provide access to financial resources, skilled labor, and infrastructure.

Recommendations for Policymakers Policymakers can also take several steps to support the growth of technology firms, including ERP solution providers. Firstly, policymakers should create a favorable business environment by investing in infrastructure, providing access to financial resources, and offering tax incentives. Secondly, policymakers should develop policies that encourage local software companies to partner with ERP solution providers to leverage their expertise in developing advanced ERP solutions. Thirdly, policymakers should encourage foreign investment by creating a transparent and predictable regulatory environment that reduces the risk of investing in the country. Finally, policymakers should invest in education and training to develop a skilled workforce that can support the growth of technology firms.

Future researchers are encouraged to build upon the foundation laid by this study and delve deeper into the multifaceted realm of factors affecting the market growth of ERP solution providers. Conducting longitudinal studies to establish causal relationships between variables, utilizing larger and more representative samples that encompass the entire spectrum of ERP solution providers, and extending investigations to encompass dimensions like technological innovation, customer satisfaction, and product differentiation could provide a more comprehensive understanding.

To conclude, this study serves as a beacon illuminating the factors that intricately influence the market growth of ERP solution providers. With the insights garnered, ERP solution providers are poised to elevate their market competitiveness and expand their share by investing in robust technical capabilities, fostering alliances with financially stable local software companies, nurturing marketing skills, and exploring opportunities in countries marked by favorable business ecosystems. On a broader scale, policymakers possess the means to invigorate the growth of technology enterprises, including ERP solution providers, through the facilitation of propitious business environments, promotion of local partnerships, attraction of foreign investment, and substantial investments in education and training. As the journey of

understanding continues, future research endeavors have the potential to harness these revelations and unearth additional dimensions impacting the market growth of ERP solution providers.

REFERENCES

- A. Azadeh, A. Keramati and H. Panahi. (2009). *A hybrid GA-ant colony approach for exploring the relationship between IT and firm performance*. Retrieved from <https://www.inderscienceonline.com/doi/abs/10.1504/IJBIS.2009.025206>
- Abell, J. (2016). *Disruption paradigm needed for social innovation*, 24th September 2016. Retrieved from <https://www.linkedin.com/pulse/disruption-paradigm-needed-social-innovation-anne-marieelias>
- Adler, J., & Parmryd, I. (n.d.). *Quantifying colocalization by correlation: The pearson correlation coefficient is superior to the Mander's overlap coefficient*. International Society for Advancement of Cytometry, 77(8), 733–742. <https://doi.org/10.1002/cyto.a.20896>.
- Angappa Gunasekaran, Kee-hung Lai, T.C. Edwin Cheng. (2008). Responsive supply chain:A competitive strategy. *scienceDirect*, 549-564.
- Asiamah, N., Mensah, H. K., & Oteng-Abayie, E. F. . (2017). *General, target, and accessible population: Demystifying the concepts for effective sampling*. Qualitative Report, 22(6), 1607–1621.<https://doi.org/10.46743/2160-3715/2017.2674>.
- Bae, B. And Ashcroft, P. . (2004). *Implementation of ERP Systems: Accounting and Auditing Implications*, 21st September 2016. Retrieved from <http://www.csub.edu/~bbae/publication/ERP%20implementation%20%26%20implications.june%2004%20ISCJ.pdf>
- Brynjolfsson E., Sinan A., D. J. Wu. (2020). *Which Came First, it or Productivity? Virtuous Cycle of Investment and Use in Enterprise Systems*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=942291
- Chan, L. L., & Idris, N. (2017). *Validity and Reliability of The Instrument Using Exploratory Factor Analysis and Cronbach's alpha*. International Journal of Academic Research in Business and Social Sciences, 7(10), 400–410. <https://doi.org/10.6007/ijarbss/v7-i10/3387>.
- Chaudhri, S. And Ghone, A. (2015). *World ERP software market- Opportunities and forecasts, 2013 -2020, Allied Market Research*, 30th July 2016. Retrieved from <https://www.alliedmarketresearch.com/ERP-market>
- Claes F. & David F. Larcker. (1981). *Structural Equation Models With Unobservable Variables & Measurement Error: Algebra and Michigan*. Retrieved from <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/35622/b1378752.0001.001.pdf>
- Columbus, L. (2013). *ERP market share update: SAP solidifies market leadership*, 31st July 2016. Retrieved from <http://www.forbes.com/sites/louisacolumbus/2013/05/12/2013-erp-market-share-update-sap-solidifies-market-leadership/#535683c65755>

- Continelli, A. (2016). *Managing resources: ERP industry trends that impact bottom line*, 25th. Retrieved from <http://www.business.com/software/managing-resources-erp-industry-trendsthat-impact-bottom-line/>
- Davenport, T. H. (1998). *Putting the Enterprise into the Enterprise System*. *Harvard Business Review*, 76, 121-131. Retrieved from [https://www.scirp.org/\(S\(czeh2tfqw2orz553k1w0r45\)\)/reference/referencespapers.aspx?referenceid=2865420](https://www.scirp.org/(S(czeh2tfqw2orz553k1w0r45))/reference/referencespapers.aspx?referenceid=2865420)
- Davis, R. B., & Mukamal, K. J. (2006). *Hypothesis testing: Means*. *Circulation*, 114(10), 1078–1082. <https://doi.org/10.1161/CIRCULATIONAHA.105.586461>.
- Dodaro, G. And Crowley, B. (1997). *Business Process Reengineering Assessment Guide*. *United States General Accounting Office*, V.3.
- EDB SRI LANKA. (2023). Retrieved from EDB SRI LANKA: <https://www.srilankabusiness.com/>
- Hedman, J. (2010). *ERP Systems: Critical Factors in Theory and Practice*. *CAICT Communications 2010/2*, 19th September 2016. Retrieved from http://openarchive.cbs.dk/bitstream/handle/10398/8009/CAICT_Com_22010.pdf?sequence=1
- ICAEW. (2011). *The Finance Function: A Framework for Analysis*, 16th September 2016. Retrieved from <http://charteredaccountantsworldwide.com/wp-content/uploads/2016/09/Developing-effective-finance-functions-for-the-unique-contexts-within-which-they-operate.pdf>
- Jayawickrama, U. And Yapa, S. (2013). *Factors Affecting ERP Implementations: Client and Consultant Perspectives*. *Journal of Enterprise Resource Planning Studies*, Vol. 2013, pp. 13.
- Jorgenson, P. (2014). *What Is Cloud ERP, and How Is It Different from Traditional Solutions*, *Inside-ERP*, 24th September 2016. Retrieved from <http://it.toolbox.com/blogs/inside-erp/what-is-cloud-erp-andhow-is-it-different-from-traditional-solutions-61086>
- Joseph F. Brazel & Li Dang. (2008). *The Effect of ERP System Implementations on the Management of Earnings and Earnings Release Dates*. Retrieved from https://www.researchgate.net/profile/Joseph-Brazel/publication/228296289_The_Effect_of_ERP_System_Implementations_on_the_Management_of_Earnings_and_Earnings_Release_Dates/links/0c96052aa025b8df58000000/The-Effect-of-ERP-System-Implementations-on-the-Manag
- Kanellou, A. and Spathis, C. (2013). *Accounting benefits and satisfaction in an ERP environment*, 29th July 2016. Retrieved from https://www.researchgate.net/publication/257590294_Accounting_benefits_and_satisfaction_in_an_ERP_environment
- Lagares Barreiro, P., & Puerto Albandoz, J. (2001). *Population and sample. Sampling techniques*. *Management Mathematics for European Schools*. <http://www.mathematik.uni-kl.de/~mamaeusch>.

- Leaonard, R. (2016). *Global ERP Market 2016 - Industry Size, Shares Growth, Analysis and Forecast to 2020, 24th September 2016*. Retrieved from <https://www.linkedin.com/pulse/twitter-takeover-talk-heats-up-e-books-losing-steam-more-john-c-abell>
- Majed Al-Mashari, Abdullah Al-Mudimigh, Mohamed Zairi . (2003). Enterprise resource planning: A taxonomy of critical factor. *European Journal of Operational Research*.
- Marcos von Sperling, Matthew E. Verbyla, Sílvia M. A. C. Oliveira. (2020). Retrieved from https://watermark.silverchair.com/9781780409320_0397.pdf?token=AQECAHi208BE49Ooan9kKhW_Ercy7Dm3ZL_9Cf3qfKAc485ysgAAAogwggKEBqkqhkiG9w0BBwagggJ1MIICcQIBADCCAmoGCSqGSib3DQEHATAeBgIghkgBZQMEAS4wEQQMwVlwLpH41ND5dbwAAgEQgIICOyjlRnSHBfbJzQn5NP88_uBUTAdiJWqdtLM
- Marulkar, R., Dharmadhikari, V. And Cadambi, B. . (2012). *ERP Software Development For Pressure Die-casting Industry, 20th September 2016*. Retrieved from <http://www.sibm.edu/assets/pdf/erp.pdf>
- Maxwell Scott, E. (2000). *Sample Size and Multiple Regression Analysis*. Psychological Methods, 5(4),434–458.
- Mofrad, M., Azadeh, A. And Khalojini, M. (2012). *The role of organisational infrastructure in successful ERP implementation: An empirical study by hierarchical regression and PCA, 19th September 2016*. Retrieved from https://www.researchgate.net/publication/237079954_The_role_of_organisational_infrastructure_in_successful_ERP_implementation_An_empirical_study_by_hierarchical_regression_and_PCA
- Parijat Upadhyay, Saeed Jahanyan, Pranab K. Dan. (2011). *Factors influencing ERP implementation in Indian manufacturing organisations: A study of micro, small and medium-scale enterprises*. Retrieved from <https://www.emerald.com/insight/content/doi/10.1108/17410391111106275/full/html>
- Peng, Guo Chao and Nunes, J.M.B. (2009). *Identification and Assessment of Risks Associated with ERP Post-Implementation in China*. Retrieved from https://eprints.whiterose.ac.uk/11114/2/Alex_-_EMCIS_2008_journal_version_Revised2-1.pdf
- PWC. (2007). *Software Pricing Trends, 20th September 2016*. Retrieved from https://www.pwc.com/us/en/technology-innovation-center/assets/softwarepricing_x.pdf
- Rajiv Malhotraa, Cecilia Temponi b. (2009). *Critical decisions for ERP integration: Small business issues*. Retrieved from <https://d1wqtxts1xzle7.cloudfront.net/46723811/j.ijinfomgt.2009.03.00120160622-15754-1mlt3ba-libre.pdf?1>
- Rashid, M., Hossain, L. And Patrick, J. (2022). *The Evolution of ERP Systems: A Historical Perspective. The Evolution of ERP Systems: A Historical Perspective, 21st September 2016*. Retrieved from <https://faculty.biu.ac.il/~shnaidh/zooolo/nihul/evolution.pdf>

- S.C.L. Koh , A. Gunasekaran , D. Rajkumar. (2008). ERP II: The involvement, benefits and impediments of collaborative information sharing. *Elsevier*, 245-268.
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). *Research Methods for Business Students*. Researchgate.Net (Issue January). www.pearson.com/uk.
- Sawyer, S. F. (2009). *Analysis of Variance: The Fundamental Concepts*. *Journal of Manual & Manipulative Therapy*, 17(2), 27E-38E. <https://doi.org/10.1179/jmt.2009.17.2.27e>.
- Shagofah Noor, Omid Tajik, Jawad Golzar. (2022). Simple Random Sampling . *IJELS*, 78.
- Shi-Ming Huang, I-Chu C., Shing-H., Ming-T. (2004). *Assessing risk in ERP projects: identify and prioritize the factors*. Retrieved from <https://tarjomefa.com/wp-content/uploads/2015/11/4186-English.pdf>
- Singhal, S., Tandon, P. And Sharma, S. . (2011). *Hardware and Software Requirements for Implementation of ERP in Technical Education Institutes in India*, 17th September 2016. Retrieved from http://www.ijser.org/researchpaper%5CHardware_and_Software_Requirements_for_Implementation_of_ERP_in_Technical_Education_Institutes_in_India.pdf
- SLAASCOM. (2015). *Sri Lankan IT/MPM Industry: 2014 Review*, 16th September 2016. Retrieved from <http://www.slasscom.lk/sites/default/files/Sri%20Lankan%20ITBPM%20Industry%20Review%202014.pdf>
- Soliman, F. (2015). *Cloud systems in Supply Chains*. *McMillan Publishers Limited*, 23rd September 2016. Retrieved from http://link.springer.com/chapter/10.1057%2F9781137324245_6#page-1
- Solutions, P. C. (2016). *Clash of the Titans 2016*, 1st August 2016. Retrieved from http://go.panorama-consulting.com/rs/603-UJX-107/images/Clash-of-the-Titans-2016.pdf?mkt_tok=3RkMMJWWfF9wsRoluKrLZKXonjHpfsX57eoqXKSxIMI%2FOER3fOvrPUfGjI4CS8Zil%2BSLDwEYGJlv6SgFTLDGMbVqwrgMWxY%3D
- Steenkamp, J. (2005). "Moving out of the US silo: a call to arms for conducting international marketing research", *Journal of Marketing*, Vol. 69 No. 3, pp. 6-8.
- Sumit Chakraborty and Sushil K. Sharma. (2007). *Enterprise resource planning: an integrated strategic framework*. Retrieved from <https://www.inderscienceonline.com/doi/abs/10.1504/IJMED.2007.013457>
- Susanna, L., Pamela, M., Susan, D., Sean, R., Daniel, M., & Sarah, R. (2017). *Descriptive analysis in education: A guide for researchers*. National Center for Education Evaluation and Regional Assistance, March, 1–40. <https://eric.ed.gov/?id=ED573325>.
- Taber, K. S. (2017). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Springer Link*, 48, pages1273–1296 (2018). Retrieved from <https://link.springer.com/article/10.1007/s11165-016-9602-2#:~:text=Cronbach%20alpha>
- Times, D. F. (2015). *Daily FT*, 1st August 2016. Retrieved from <http://www.ft.lk/article/549383/SAPbullish-on-Sri-Lankan-ERP-market>

- Ugony, A., & Walker, B. (1995). *The T-test*. THE t TEST: An Introduction, 4(2), 37–40.
[https://doi.org/10.1519/0744-0049\(1990\)012<0036:ttt>2.3.co;2](https://doi.org/10.1519/0744-0049(1990)012<0036:ttt>2.3.co;2).
- Uma S. & Roger B. (2016). *pdf Research Methods For Business: A Skill-Building Approach*.
 Retrieved from <https://www.uts.cw/sites/default/files/webform/pdf-research-methods-for-business-a-skill-building-approach-uma-sekaran-roger-bougie-pdf-download-free-book-c991c9a.pdf>
- Watson, R. (2015). *Quantitative Research*. *Nurs Stand*, 44–48.
<https://doi.org/10.4135/9781483371283.n319>.
- Yu, C. S. (2005). *Causes Influencing the Effectiveness of the Post-Implementation ERP System*, " *Industrial Management & Data Systems*, 105 (1), 115-132. Zigiariis, S. (2000), *Supply Chain Management*, 18th September 2016. Retrieved from http://www.adi.pt/docs/innoregio_supp_management.pdf
- Zigiariis, S. (2000). *Supply Chain Management*, 18th September 2016. Retrieved from http://www.adi.pt/docs/innoregio_supp_management.pdf

APPENDICES

Appendix I Sample Questionnaire

FACTORS AFFECTING THE MARKET GROWTH OF ENTERPRISE RESOURCE PLANNING (ERP) SOLUTIONS PROVIDERS

Technical Capabilities		Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
1	Increased technical capabilities of developers will result in market growth for ERP solutions					
2	Sri Lankan ERP Developers have adequate technical capabilities for large scale system development projects.					
3	Functional Consultants and System Architects are available to cover all processes of a business					
4	Implementation teams have the ability to map out businesses with system solutions					
5	Good technical teams are available for after sales application service support					

Price Capabilities		Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
6	Better price competitiveness of products lead to increased market growth for ERP solutions					
7	Local ERP developers can develop competitively					

	priced end products to customers.					
8	Cost of customization and system integration are price competitive.					
9	System implementations can be done comparatively lower price.					
10	Post implementation maintenance can be provided at competitive price					

Infrastructure Availability		Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
11	Improved infrastructure availability results in increased market growth for ERP solutions					
12	Compatible hardware and peripherals are available for implementers. .					
13	Network resources are available at present.					
14	Required software and likened operating systems are available.					
15	Capable of maintaining high availability					

Marketing Skills and country attractiveness		Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
16	Improved Marketing skills lead to increased market growth for ERP solutions					
17	Local manufactures have people with adequate marketing and IT skills.					
18	Local companies got proper distribution chain.					

19	Local companies are investing enough on international marketing.					
20	Country attractiveness is a fact for attracting potential customers.					

	Financial Capabilities	Strongly Disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
21	Improved financial strength of local service providers results in increased market growth for ERP solutions					
22	Adequate financial resources are available for hiring quality staff.					
23	Adequate financial resources are available for infrastructure development.					
24	Adequate financial resources are available for operational management					
25	Adequate financial resources are available for market development.					

Appendix II SPSS Data Output

Reliability Analysis

Reliability Statistics

Cronbach's	
Alpha	N of Items
.961	25

Technical Capabilities

Reliability Statistics

Cronbach's	
Alpha	N of Items
.957	4

Financial capabilities of local software developers

Reliability Statistics

Cronbach's	
Alpha	N of Items
.966	4

Price competitiveness of local companies.

Reliability Statistics

Cronbach's	
Alpha	N of Items
.964	4

Infrastructure availability

Reliability Statistics

Cronbach's	
Alpha	N of Items
.948	4

Country attractiveness and marketing skills

Reliability Statistics

Cronbach's	
Alpha	N of Items
.976	4

Market growth of ERP solution providers

Reliability Statistics

Cronbach's	
Alpha	N of Items
.960	5

Analysis (KMO and Bartlett's Test) Validity

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.899
Bartlett's Test of Sphericity	Approx. Chi-Square
	5926.346
	df
	300
	Sig.
	.000

Descriptive statistics.

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
X1	278	3.20	.649	.299	.146	.502	.291
X2	278	2.31	.569	.600	.146	.745	.291
X3	278	2.93	.871	.958	.146	-.056	.291
X4	278	2.99	.605	.613	.146	.707	.291
X5	278	2.45	.689	.234	.146	-.521	.291
DV	278	4.21	.323	-.264	.146	-.160	.291
Valid N (listwise)	278						

Correlation Analysis

		Correlations					
		Market_Growth_DV	Technical_Capabilities	Financial_Capabilities	Price_Capabilities	Infrastructure_Availability	Marketing_Skills
Market_Growth_DV	Pearson Correlation	1	.913**	.918**	.908**	.902**	.884**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	278	278	278	278	278	278
Technical_Capabilities	Pearson Correlation	.913**	1	.219**	.581**	.472**	.282**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	278	278	278	278	278	278
Financial_Capabilities	Pearson Correlation	.918**	.219**	1	.298**	.672**	.372**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	278	278	278	278	278	278
Price_Capabilities	Pearson Correlation	.908**	.581**	.298**	1	.446**	.507**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	278	278	278	278	278	278
Infrastructure_Availability	Pearson Correlation	.902**	.472**	.672**	.446**	1	.781**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	278	278	278	278	278	278
Marketing_Skills	Pearson Correlation	.884**	.282**	.372**	.507**	.781**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	278	278	278	278	278	278

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Regression Analysis

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.713	5	3.343	74.292	.000 ^b
	Residual	12.238	272	.045		
	Total	28.951	277			

a. Dependent Variable: DV

b. Predictors: (Constant), X5, X4, X2, X1, X3

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5.478	.120		45.800	.000		
	X1	-.221	.022	-.444	-10.126	.000	.808	1.238
	X2	-.110	.026	-.193	-4.265	.000	.758	1.319
	X3	-.299	.024	-.806	-12.279	.000	.361	2.772
	X4	.260	.033	.487	7.977	.000	.418	2.393
	X5	-.087	.023	-.186	-3.777	.000	.638	1.568

a. Dependent Variable: DV

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.760 ^a	.577	.570	.212	.577	74.292	5	272	.000	2.050

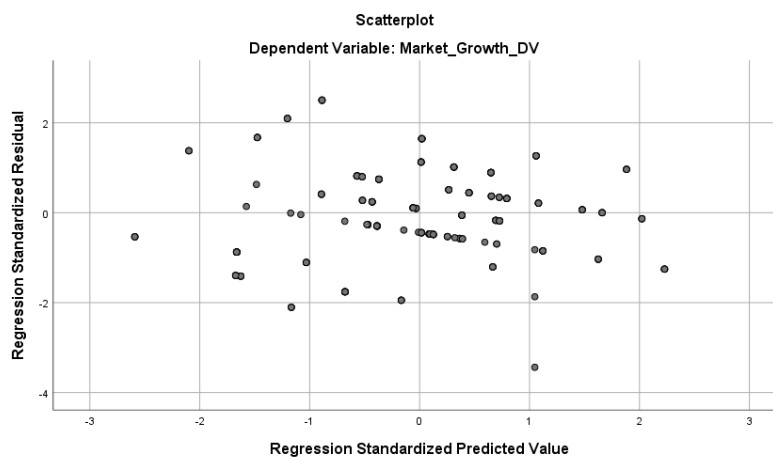
a. Predictors: (Constant), X5, X4, X2, X1, X3

b. Dependent Variable: DV

Coefficients ^a			
Model	Collinearity Statistics		
	Tolerance	VIF	
1	X1	.808	1.238
	X2	.758	1.319
	X3	.361	2.772
	X4	.418	2.393
	X5	.638	1.568

a. Dependent Variable: DV

Heteroscedasticity

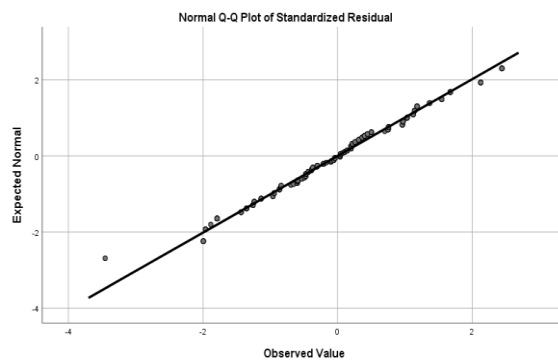


Casewise Diagnostics ^a				
Case Number	Std. Residual	DV	Predicted Value	Residual

101	2.276	4	3.72	.483
267	-3.742	4	4.39	-.794

a. Dependent Variable: DV

Normality Test



Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
DV	.154	185	.621	.943	185	.758

a. Lilliefors Significance Correction

