

Economic Crisis and Its Effects on ERP Adoption in Sri Lanka

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Abstract - ERP (Enterprise Resource Planning) systems are comprehensive software platforms that are specifically designed to manage a wide range of a business's essential processes, including finance, accounting, human resources, procurement, inventory management and project management. In the event of a country facing forthcoming economic collapse, organizations often find it challenging to determine the technological innovation activities they should engage in. The proliferation of the IT industry and its associated value proposition has led to the adoption of ERP systems becoming a popular strategic decision for businesses in the contemporary world. However, organizations' perception affects their inclination to adopt new technologies during economic crises. Hence, identifying factors influencing ERP adoption and assessing crises' impact on such systems is crucial. This research endeavour aims to examine the factors that are likely to exert a significant influence on the adoption of ERP systems within the context of Sri Lanka. The study adopts the Technological - Organizational - Environmental (TOE) framework to provide a comprehensive understanding of the factors that affect the adoption of ERP systems in organizations in Sri Lanka. This study seeks to investigate how the factors identified impact the adoption of ERP systems and how the turbulent economic condition in Sri Lanka has affected it. Existing scholarly literature on ERP adoption during an economic crisis is relatively scarce, and thus, this study will fill a critical gap in the body of knowledge. Furthermore, this study will offer invaluable insights into the importance of the identified factors, ICT Infrastructure, Human Capital, Competitive Pressure, Demand for Products or Services and Trading Partners' Readiness for business communities in Sri Lanka. Also, this will provide insights into how a country's finance affects ERP adoption, helping organizations make informed technology adoption decisions.

Keywords: Economic crisis, Enterprise Resource Planning systems, ERP adoption, Innovation and Technology, Technology adoption and PLS-SEM.

I. INTRODUCTION

Enterprise systems adoption has become increasingly prevalent as businesses strive to streamline their operations and gain a competitive edge. These systems integrate various business processes to achieve greater efficiency, effectiveness, and data-driven decision-making. It is crucial for enterprises to invest in the development and implementation of these systems to remain competitive and achieve long-term sustainable growth. Enterprise Resource Planning (ERP) systems are a type of enterprise software that support day-to-day business activities and resources (Basoglu et al., 2007), leading to enhanced productivity, streamlined processes, reduced costs, and time (Kyriakou et al., 2021). Despite the substantial allocation of resources required, successful adoption can yield significant benefits such as improved efficiency, productivity, and decision-making capabilities.

In a period in which a country is heading towards an economic breakdown, most of the enterprises are facing challenges when making decisions regarding innovation activities. After the recession of the 1970s, the "long waves" literature puts forth two divergent hypotheses, as the first, innovation follows a cyclical pattern, and during

economic downturns, businesses tend to reduce their innovation efforts. On the contrary, the second suggests that innovation is counter-cyclical, and that economic recessions create favourable conditions for firms to innovate (Filippetti & Archibugi, 2011).

Sri Lanka has experienced its worst economic crisis since independence due to a twin deficit economy, where domestic expenditure exceeds national income, resulting in reliance on foreign capital flows and external debt. The government's borrowing from foreign countries and international organizations, coupled with the impact of the COVID-19 pandemic and the Easter Sunday attack on tourism, has further compounded the crisis. Sri Lanka's external debt has surged significantly, with data showing an external debt-to-GDP ratio of 49.6% in 2020, highlighting the country's increasing dependence on foreign capital. A decision to ban chemical fertilizers in 2021 has negatively affected key export products, while tax cuts implemented since 2019 have decreased government revenue, leading to a shortage of funds for necessary imports and causing currency depreciation, inflation, and price increases for basic goods. During this time the World Bank estimated that over 500,000 people in Sri Lanka had fallen below the poverty line. These issues have garnered attention from international media.

The purpose of this study is to investigate the relationship between six key factors related to technology, organization, and environment and the adoption of Enterprise Resource Planning (ERP) systems in Sri Lankan organizations. Specifically, this study seeks to explore how the economic crisis in Sri Lanka affects the relationship between each of these factors and the adoption of ERP systems. By conducting this research, the aim is to contribute to the existing literature on the adoption of ERP systems in organizations and to provide insights into the unique challenges and opportunities that arise in the context of Sri Lanka's economic crisis.

The results of this study are expected to provide valuable insights for the business community, both locally and globally, regarding the impact of the identified technological-organizational-environmental factors on ERP adoption and the influence of economic crisis on these relationships. The study aims to offer an in-depth understanding of these complex relationships, which can inform the development of effective technology adoption strategies for organizations. The findings are expected to be particularly useful for managers, policymakers, and other stakeholders who are involved in technology adoption decision-making processes.

II. LITERATURE REVIEW

A. Innovation and Technology Adoption

The success of contemporary businesses is closely linked to their ability to embrace innovation, especially in the realm of information technology. Adopting cutting-edge technological advancements can significantly enhance and revitalize business operations. With the rise of e-business models, enterprises are encouraged to transform their existing business models. Consequently, this has resulted in the accumulation of vast amounts of business data, posing new challenges to various business processes and transactions (Stjepić et al., 2021).

Over the years, numerous theoretical frameworks have been created to examine tech adoption in businesses, such as Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Theory of Planned Behavior (TPB), Diffusion of Innovation (DOI), and Technological – Organizational Environmental (TOE) framework. These models have been utilized by various authors to study technological innovation adoption in enterprises

(Stjepić et al., 2021). In the first section of this chapter, we will review several notable models that have been discussed frequently in the existing literature.

1) Theory of Reasoned Action Model (TRA): The Theory of Reasoned Action (TRA) proposes that an individual's behavioral intention is determined by their attitude and subjective norms. Attitude is shaped by beliefs and perceived outcomes, while subjective norms are influenced by social pressure to conform. In the context of technology adoption, perceived usefulness (PU) and perceived ease of use (PEOU) are crucial components (Costa et al., 2016). However, recent research suggests that TRA may not be the most appropriate model for studying information systems adoption. Instead, a new model focused on Enterprise Resource Planning (ERP) adoption and satisfaction has emerged.

2) Technology Acceptance Model (TAM): The Technology Acceptance Model (TAM) is a widely recognized and highly cited approach in the field of Information Systems (IS) and Information Technology (IT) research. TAM proposes that perceived ease of use and perceived usefulness are two fundamental factors that influence a person's intention to use new technology. TAM has been extensively used to explain IS adoptions in various contexts (Basoglu et al., 2007; Costa et al., 2016), including the adoption of ERP solutions, and numerous expansions relating external factors have been developed to the original model (Costa et al., 2016). However, it is important to note that the constructs associated with TAM should be elaborated in relation to the specific technology under study to enhance the model's practicality and effectiveness (Costa et al., 2016).

3) Technological-Organizational-Environmental Model (TOE): The T-O-E framework, or Technology – Organization - Environment framework, is a widely recognized model that aims to explain and predict the likelihood of innovation and technology adoption within an organization or industry (Baker, 2012). The TOE model offers a distinctive advantage over other models in exploring the adoption, utilization, and value creation of technological innovation by examining it from organizational, technological, and environmental perspectives (Dube et al., 2020). According to Awa et al. (2016) the TOE framework is specifically designed for studying technology adoption at the organizational level, while individual adoption is typically investigated through frameworks such as TAM (Technology Acceptance Model), TRA (Theory of Reasoned Action), and TPB (Theory of Planned Behaviour).

B. ERP Adoption and Adoption Determinants

Scholarly research has emphasized the significance of both tangible and intangible ICT resources in an organization's technological capacity, including ICT infrastructure (Awa & Ojiabo, 2016; Garefalakis et al., 2016; Pan and Jang, 2016), ICT maturity (Garefalakis et al., 2016), technical know-how (Awa & Ojiabo, 2016; Awa et al., 2017), degree of ICT use, and knowledgeable human capital (Kyriakou et al., 2021). Other technology-related factors that literature suggests are the perceived value and compatibility of ERP systems, which affect an organization's adoption of such systems (Awa et al., 2016).

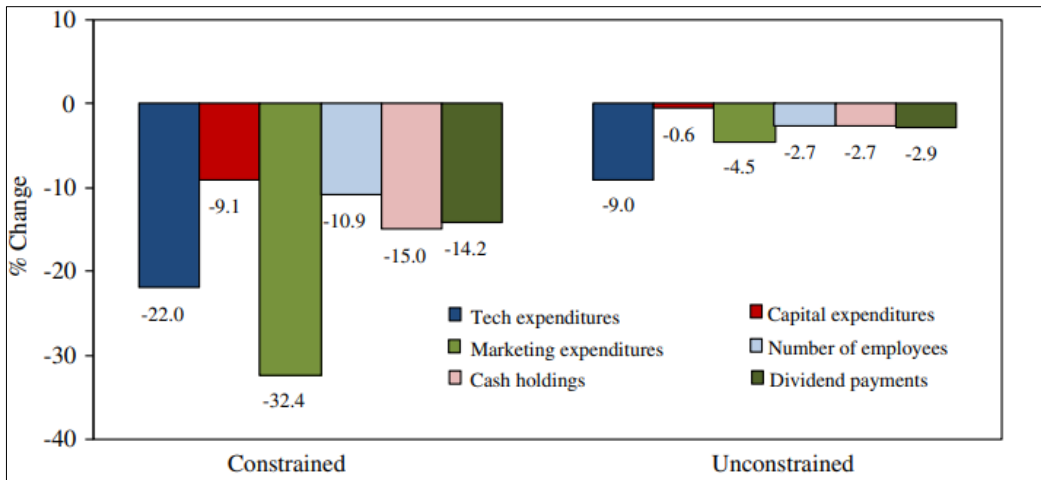
The perception of an organization towards ERP adoption has been discussed in the literature, with (Shahawai & Idrus, 2011) highlighting its importance. In their study on Malaysian SMEs, Shahawai and Idrus (2011) found that well-implemented ERP systems had significant potential for a company's future. Meanwhile, Pan & Jang's research (Pan and Jang, 2016) on Taiwan's communications industry identified the

technological readiness of a firm, incorporating both tangible and intangible ICT resources, as a determinant of ERP adoption. This determinant was also examined by the authors of Shahawai and Idrus (2011) in their investigation on the perspectives of Malaysian SMEs towards ERP adoption determinants. Organizational factors that affect ERP adoption include firm size (Buonanno et al., 2005; Awa & Ojiabo, 2016; Garefalakis et al., 2016; Pan & Jang, 2016; Kyriakou, et al., 2021), which determines the complexity of business processes, number of employees, and resources available for innovative solutions such as ERP software. Larger firms are typically more innovative due to their business process complexity and available resources (Kyriakou et al., 2021). The use of organic forms in the organization is another important factor for effective ERP adoption (Kyriakou et al., 2021). This requires broad horizontal knowledge exchange and co-operation between various business units, which can be facilitated by a flexible workplace with horizontal communication modes. Additionally, subjective norms, or the influence of parties surrounding the adaptation of ERP software, are influenced by the scope of business operations (Awa, Uko and Ukoha, 2017). Organizational political culture (Shahawai & Idrus, 2011) also affects ERP adoption, as individual agendas and self-interest can impede cooperation and knowledge exchange.

Research studies have identified competitive pressure as a key driver for ERP adoption by organizations, especially during times of crisis (Awa & Ojiabo, 2016; Pan & Jang, 2016; Kyriakou et al., 2021). Additionally, external factors such as fluctuations in demand and uncertainty in revenues can impact top management's decision to adopt new technologies, as highlighted in Kyriakou et al. (2021). Awa and Ojiabo (2016) have discussed the importance of trading partners' willingness to adopt new technologies as an environmental factor. Government policies and regulations have also been identified as significant factors in determining the adoption of new systems (Awa & Ojiabo, 2016; Garefalakis et al., 2016; Pan & Jang, 2016), with the extent of government funding for investment projects playing a role in ERP adoption.

C. Economic Crisis and Its Impact on Organizations

Research studies have examined the impact of financial constraints on companies during times of economic crisis, such as the 2008 financial crisis, and found that financially constrained firms tend to downsize their expenditures on investment and innovation more than unconstrained firms. For example, financially constrained US firms planned to reduce technology spending by 22% in 2009, while unconstrained firms planned for smaller cuts. Additionally, during financial crises, constrained firms tend to bypass attractive investments due to difficulties in raising external finance. These findings are mirrored in Europe and Asia. The impact of financial constraints on technological investments during the crisis is evident from the graph in “Fig. 1”, which displays US firms’ planned changes in technology expenditure and other expenditures during the crisis peak period in 2008 to 2009. The results suggest that financial constraints can hamper investments in valuable projects (Campello et al., 2010; Archibugi et al., 2013; Brem et al., 2020).

Figure 1. US firms' planned changes (% per year) in six expenditures

Source: Campello et al. (2010).

A crisis can lead to businesses exploring new opportunities. A study analyzed the relationship between investment in innovation before, during, and after a crisis and the characteristics of innovating firms, knowledge sources, innovations, and the market. The study found that the crisis substantially reduced the number of firms willing to increase their innovation investment from 38% to 9%. Before the downturn, expanding firms were well established, involved in formal research, exploited strong appropriability conditions, and collaborated with suppliers and customers. During the recession, the few firms that increased innovation investment were less likely to collaborate, explored new market opportunities, used methods of technological appropriation, and less likely to compete on costs. Younger firms were more likely to increase innovation investment after the crisis (Archibugi et al., 2013).

Existing studies examining the effects of economic crises on organizations have primarily focused on European countries, with only one investigation considering the United States and Asian countries. Furthermore, as most European countries have a high level of development, there is a gap in understanding the impact of economic crises on organizations in developing nations (Öniş & Kutlay, 2020). Hence, there exists a knowledge gap concerning the impact of an economic crisis on organizations in developing nations (Romer et al., 2015).

Moreover, the impact of the economic condition of a country or region on ERP adoption in organizations has been investigated in a limited number of studies, particularly regarding the major economic shock, the 2008 financial crisis (Antoniadis et al., 2015; Estebanez et al., 2016; Kyriakou et al., 2021). Kyriakou et al. (2021) investigated how three crisis related factors - decrease of demand for firms' products and services, decrease of liquidity provision by banks and nonpayment or late payment by customers have affected the enterprise systems adoption in the period of 2008 financial crisis.

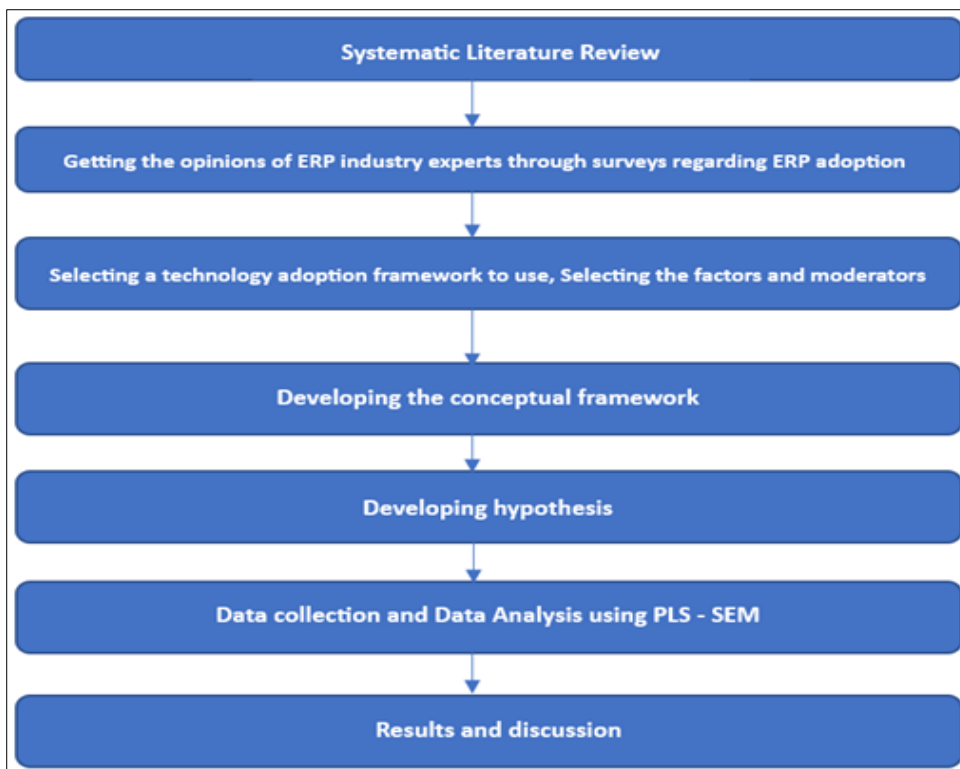
Estebanez et al. (2016) found that the usage of ERP systems increased in tandem with other information technologies between 2007 and 2014. Notably, small, and medium-sized enterprises in Spain adopted ERP at a faster rate than larger enterprises during this period, while the construction industry in Portugal exhibited the opposite trend.

Between 2009 and 2011, Iberian enterprises leveraged ERP solutions to enhance their strategic positioning and economic growth. For larger enterprises, which overwhelmingly embraced these information systems (approximately three quarters of Spanish companies and more than 90% of Portuguese companies in 2014), the adoption of ERP systems was deemed almost imperative.

III. METHODOLOGY

The procedure illustrated in Fig. 2 provides an overview of the methodology used for this study. To begin, a thorough and methodical examination of prior research was conducted covering both developed and developing countries across multiple industries. The systematic review of literature was based on economic crisis, Enterprise Resource Planning systems, ERP adoption, innovation and technology, and technology adoption. Through the literature review frequently used technology adoption frameworks and most discussed ERP adoption factors were identified.

Figure 2. Flow diagram of the research methodology



Source: Authors' compilation.

As the next step, the survey used both open-ended and close-ended questions to gather industry experts' opinions on factors affecting ERP adoption in Sri Lanka. The most important factors were selected to build the conceptual framework. The literature review helped to determine the best technology adoption framework for achieving the research objectives. The selected factors are the degree of ICT use by a firm (DICT), ICT infrastructure (INFRA), human capital (HC), competitive pressure (CP), demand for products and services (DEM) and trading partners' readiness (TPR). Government policies

and regulations (GOV) and economic crisis (EC) have been considered as the moderators of the conceptual framework, to investigate the influence of each moderator on the association between each factor and ERP adoption.

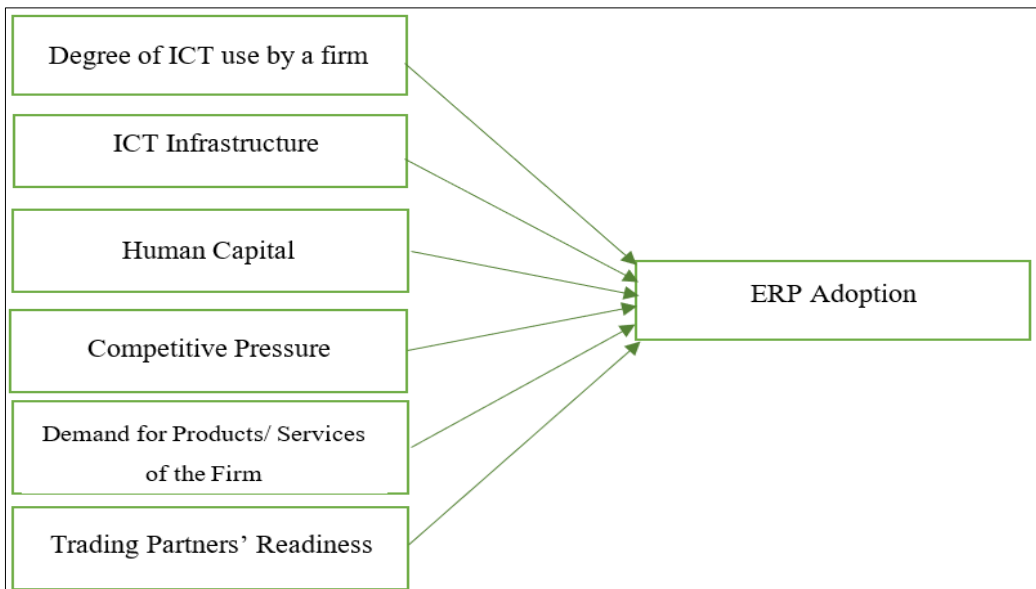
The best suited and most frequently used technology adoption framework for these types of research is the Technological-Organizational-Environmental (TOE) framework. TOE framework frames the factors in three major dimensions which affect an organization both internally and externally. The technological dimension includes the degree of ICT use by a firm (DICT), while the organizational dimension consists of ICT infrastructure (INFRA), and human capital (HC). The rest of the factors fall under the environmental dimension which displays the influence of external forces.

To develop a questionnaire, prior research was used to gather the operationalization of independent, dependent, and moderating variables and their respective indicators. All indicators were measured on an ordinal scale ranging from 1 to 5, using the Likert scaling method. The conceptual framework included six independent variables, one dependent variable, and two moderating variables. This framework assessed the direct relationships between the TOE factors and ERP adoption, without the effect of moderators, while also providing a means to assess the influence of moderators on these direct relationships. To evaluate both direct relationships and the influence of moderators, three models were developed: Model A for direct relationships, Model B for assessing the impact of moderator I, economic crisis (EC), and Model C for assessing the impact of moderator II, government policies and regulations (GOV).

A. Conceptual Model A (Only with direct relationships)

The first conceptual model was developed to identify the direct relationships between the identified technological, organizational, and environmental factors and ERP adoption. In this model the relationships were examined without the moderation effect. “Fig. 3” illustrates the structural model.

Figure 3. Conceptual model only with direct relationships

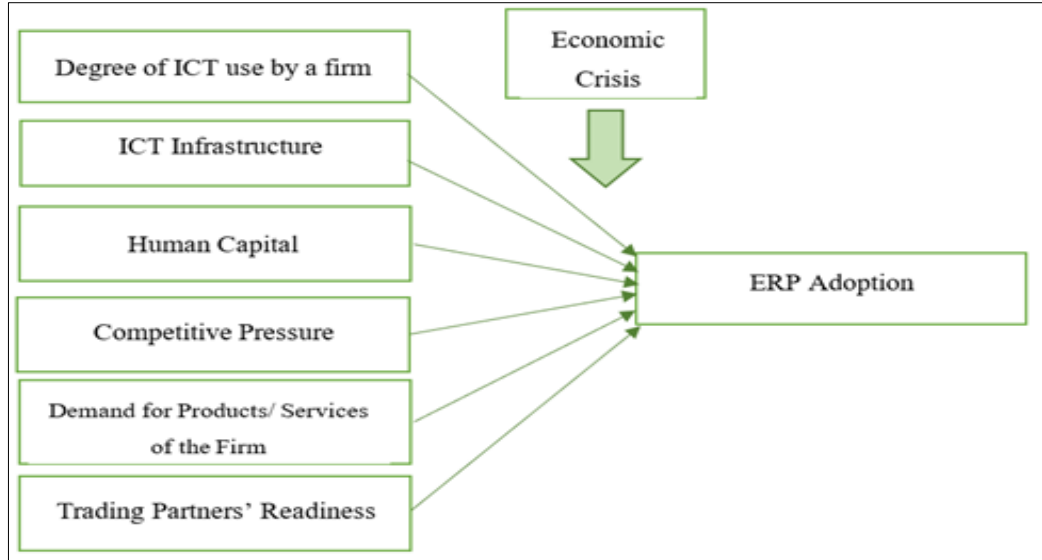


Source: Authors' compilation.

B. Conceptual Model B (With the moderator I)

The second conceptual model was developed to identify the impact of the moderator economic crisis on the relationships between each factor and ERP adoption. Fig. 4 illustrates the structural model.

Figure 4. Conceptual model with moderator I

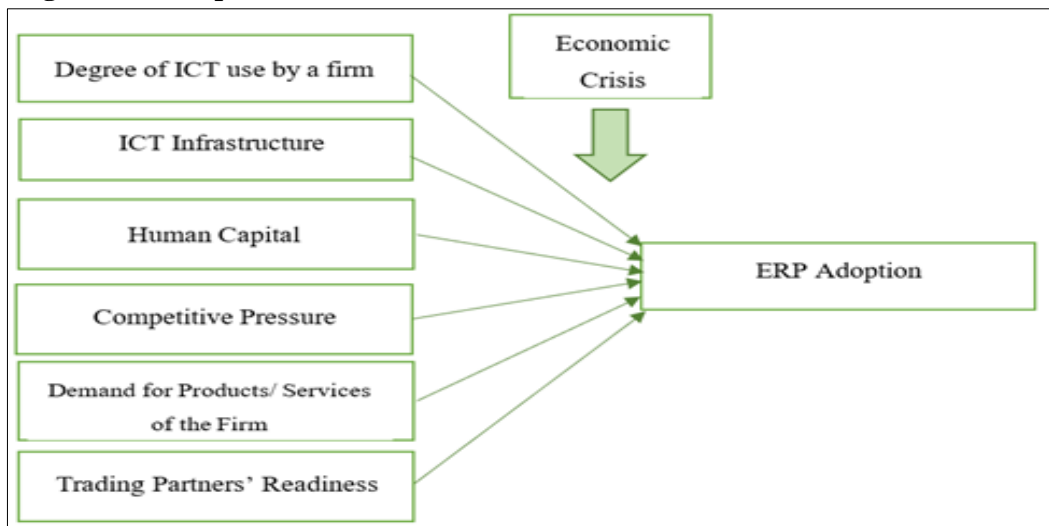


Source: Authors' compilation.

C. Conceptual Model C (With the moderator II)

The third conceptual model was developed to identify the impact of the moderator government policies and regulations on the relationships between each factor and ERP adoption. Fig. 5 illustrates the final structural model.

Figure 5. Conceptual model with moderator II



Source: Authors' compilation.

Hypotheses were formulated and a questionnaire was designed to assess these hypotheses for models A, B, and C. Tables 1, 2 and 3 present the specific hypotheses that were developed to examine the direct relationships and moderators of these models.

Table 1. Hypotheses of Direct Relationships

| Direct Relationships | |
|-----------------------------|--|
| Hypothesis No. | Hypothesis |
| H1 | Higher degree of ICT use by a firm positively relates to the ERP adoption. |
| H2 | Better ICT infrastructure positively relates to the ERP adoption |
| H3 | Greater knowledgeable human capital positively relates to the ERP adoption |
| H4 | Greater competitive pressure positively relates to the ERP adoption |
| H5 | Greater demand for products and services of the firm positively relates to ERP adoption |
| H6 | Greater readiness of the trading partners in accommodating new systems positively relates to the ERP adoption. |

Source: Authors' compilation.

Table 2. Hypotheses of Moderator Relationships – Government Policies and Regulations

| Moderator Relationships: Government Policies and Regulations | |
|---|---|
| Hypothesis No. | Hypothesis |
| H7a | Favorable government policies and regulations strengthen the positive association between, higher degree of ICT use by a firm AND ERP adoption. |
| H7b | Favorable government policies and regulations strengthen the positive association between better ICT infrastructure AND ERP adoption. |
| H7c | Favorable government policies and regulations strengthen the positive association between, greater knowledgeable human capital AND ERP adoption. |
| H7d | Favorable government policies and regulations strengthen the positive association between greater competitive pressure AND ERP adoption |
| H7e | Favorable government policies and regulations strengthen the positive association between greater demand for products and services AND ERP adoption |
| H7f | Favorable government policies and regulations strengthen the positive association between greater readiness of the trading partners in accommodating new systems AND ERP adoption |

Source: Authors' compilation.

Table 3. Hypotheses of Moderator Relationships – Economic Crisis

| Moderator Relationships: Economic Crisis | |
|---|--|
| Hypothesis No. | Hypothesis |
| H8a | Economic crisis weakens the positive association between, higher degree of ICT use by a firm AND ERP adoption. |
| H8b | Economic crisis weakens the positive association between, better ICT infrastructure AND ERP adoption. |
| H8c | Economic crisis weakens the positive association between, greater knowledgeable human capital AND ERP adoption. |
| H8d | Economic crisis weakens the positive association between, greater competitive pressure AND ERP adoption. |
| H8e | Economic crisis weakens the positive association between, greater demand for products and services AND ERP adoption. |
| H8f | Economic crisis weakens the positive association between, greater readiness of the trading partners in accommodating new systems AND ERP adoption. |

Source: Authors' compilation.

D. Data Collection

The study focused on managerial-level employees in Sri Lanka who have experience with ERP implementation or usage. The snowball sampling technique was used to collect data from multiple organizations across various industries. The survey was distributed online to executives, managers, and senior managerial positions. Smart PLS 4 software was used for data analysis via the partial least squares-structural equation method.

PLS-SEM Modelling is a statistical technique suitable for testing complex conceptual frameworks, particularly with small sample sizes. It accommodates non-normal data and is exploratory in nature. PLS-SEM helps researchers assess the correlation among latent constructs and the strength of relationships. It can be used for both validating and building new theories by testing or developing theoretical frameworks based on empirical data. The tool is ideal for analyzing conceptual frameworks with latent constructs and moderators, and is popular in social sciences, business, and engineering due to its flexibility in handling non-normal data and small sample sizes (Hair et al., 2011; Hair et al., 2019).

IV. DATA ANALYSIS AND DISCUSSION

To ensure the validity and reliability of the study's findings, the initial data analysis involved using IBM SPSS version 27 software. The software was used to thoroughly check the data for any missing values or incomplete responses and resolve any issues found. In addition, any response patterns or outliers that were considered suspicious were identified and eliminated. By taking these measures, the data analysis was conducted with greater accuracy and minimized the likelihood of erroneous or misleading results.

Below Fig. 6 presents the response rate of the data collection which has been carried out. According to that, 159 responses out of 216 responses were fed into Smart PLS software for the analysis.

Figure 6. Response Rate

| | |
|--|-------|
| Number of respondents to whom the survey was distributed | 300 |
| Screened and collected responses | 216 |
| Response rate | 72.0% |
| Usable survey responses | 159 |
| The response rate for usable survey responses | 53.0% |

Source: Authors' compilation.

A. Assessment of Measurement Models

The measurement model assessment involves three steps: 1) assessing internal consistency and reliability using methods like Cronbach's alpha and composite reliability, 2) measuring convergent validity, and 3) measuring discriminant validity. Cronbach's alpha values between 0.5 and 0.9 are considered acceptable for internal consistency and reliability. In this study, all constructs and moderators had satisfactory levels of internal consistency and reliability, as their Cronbach's alpha values fell within this range.

Convergent validity measures how well an indicator correlates with other indicators of the same variable. To assess it, outer loadings of measurement items and average variance extracted (AVE) values can be used. Indicators with factor loadings of 0.7 or higher were previously considered to have convergent validity, while those with less than 0.4 or 0.5 were recommended for removal. In this study, indicators with factor loadings greater than 0.6 were retained, and those between 0.4 and 0.6 were also kept, contrary to the typical threshold for convergent validity, as per Hulland (1995). The indicators in this study exhibited high convergent validity overall. An alternative method of evaluating convergent validity is to use average variance extracted (AVE) values. AVE measures how well a variable explains the average variance of its indicators. AVE values of 0.5 or higher indicate strong convergent validity of the construct's indicators. This approach is widely used in research. In this study, the analysis showed that the AVE values of the constructs were greater than 0.5, indicating that the indicators of the constructs have strong convergent validity.

To establish discriminant validity in this study, three methods were employed: cross-loadings, Fornell-Larcker criterion, and Heterotrait Monotrait Ratio of Correlations (HTMT). The results indicated that the variables in the model were distinct and not reflections of the same underlying construct. The study satisfied all three criteria for discriminant validity, indicating that the conclusion can be relied upon.

B. Assessment of Structural Models

The study used a structural model to test hypotheses regarding the direct effects of six independent variables on the dependent variable. The results show that all the independent variables (Degree of ICT use by a firm, ICT Infrastructure, Human Capital, Competitive Pressure, Demand for Products or Services, Trading Partners' Readiness) have a significant positive effect on the dependent variable (ERP adoption) at the population level. The path coefficients, t-values, and p-values indicate the strength and significance of the relationships between the variables. The two tables Table 4 and 5 summarize the significance of each independent variable and the outcome of each hypothesis, providing a clear understanding of the study's findings.

Table 4. Statistics of Direct Relationships

| Direct effect of variables | Path coefficient | T statistics (O/STDEV) | P values |
|----------------------------|------------------|-----------------------------|----------|
| DICT → ERPA | 0.387 | 5.499 | 0.000 |
| INFRA → ERPA | 0.337 | 5.444 | 0.000 |
| HC → ERPA | 0.292 | 4.086 | 0.000 |
| CP → ERPA | 0.394 | 6.108 | 0.000 |
| DEM → ERPA | 0.24 | 3.269 | 0.001 |
| TPR → ERPA | 0.276 | 3.84 | 0.000 |

Source: Authors' compilation.

Table 5. Status of the Hypotheses (At Significant Level 0.05)

| Direct effect of variables | Relevant Hypothesis | Status |
|----------------------------|---------------------|----------|
| DICT → ERPA | H1 | Accepted |
| INFRA → ERPA | H2 | Accepted |
| HC → ERPA | H3 | Accepted |
| CP → ERPA | H4 | Accepted |
| DEM → ERPA | H5 | Accepted |
| TPR → ERPA | H6 | Accepted |

Source: Authors' compilation.

The study attempted to find the moderating effect of Economic Crisis on ERP adoption. The current volatile economic condition in Sri Lanka has been considered as the moderator. The study conducted an analysis using SmartPLS to investigate the impact of economic crisis as a moderator on the relationship between six independent variables and their direct effects. The results indicated that the economic crisis had a significant moderating effect on four out of the six independent variables. However, two variables, namely DICT and HC, did not meet the significance criteria at a significance level of 0.05. Subsequently, the analysis was carried out at a 0.1 significance level, which confirmed a significant moderating effect for the independent variable HC. The results are presented in detail in the Table 6 and 7 below, highlighting the moderation effect of economic crisis. Also, the outcomes of each hypothesis related to the moderator, have been provided to get a clear understanding of the study's findings.

Table 6. Statistics of Moderator Relationships – Economic Crisis

| Moderating Effect of Economic Crisis | Original sample (O) | T statistics (O/STDEV) | P values |
|--------------------------------------|---------------------|-----------------------------|----------|
| EC x DICT → ERPA | -0.095 | 1.56 | 0.119 |
| EC x INFRA → ERPA | -0.115 | 2.058 | 0.04 |
| EC x HC → ERPA | -0.112 | 1.792 | 0.073 |
| EC x CP → ERPA | -0.107 | 2.422 | 0.015 |
| EC x DEM → ERPA | -0.154 | 2.777 | 0.005 |
| EC x TPR → ERPA | -0.195 | 4.205 | 0 |

Source: Authors' compilation.

Table 7. Status of Hypotheses (At Significant Level 0.05)

| Moderating Effect of Economic Crisis | Relevant Hypothesis | Status |
|--------------------------------------|---------------------|----------|
| EC x DICT → ERPA | H8a | Rejected |
| EC x INFRA → ERPA | H8b | Accepted |
| EC x HC → ERPA | H8c | Rejected |
| EC x CP → ERPA | H8d | Accepted |
| EC x DEM → ERPA | H8e | Accepted |
| EC x TPR → ERPA | H8f | Accepted |

Source: Authors' compilation.

Moreover, a closer examination of the column "Original Sample," which displays the path coefficient values of the moderating effect on each relationship, reveals that all the values are negative. This observation suggests that the moderator, economic crisis, attenuates the positive relationships between each independent variable and the dependent variable. In other words, the results suggest that the presence of an economic crisis negatively influences the strength of the relationship between each independent variable and the dependent variable.

The study attempted to find the moderating effect government policies and regulations on ERP adoption. The findings of the analysis demonstrate that none of the six direct effects of the independent variables have been influenced by the moderator variable, namely government policies and regulations. The SmartPLS software was employed for the analysis, and a significance level of 0.05 was utilized, indicating a 95% level of confidence in the significance of the moderator. Nevertheless, the results indicate that the relationships between the independent variables and the dependent variable have not been either strengthened or weakened by the presence of government policies and regulations. The below tables Table 8 and 9 present the outcomes of the investigation conducted to assess the moderation effect of government policies and regulations. Also, the outcomes of each hypothesis related to the moderator, have been provided to get a clear understanding of the study's findings.

Table 8. Statistics of Direct Relationships – Government Policies and Regulations

| Moderating Effect of Gov. Policies and Reg. | Original sample (O) | T statistics (O/STDEV) | P values |
|---|---------------------|--------------------------|----------|
| GOV x DICT → ERPA | -0.08 | 0.719 | 0.472 |
| GOV x INFRA → ERPA | -0.169 | 1.692 | 0.091 |
| GOV x HC → ERPA | -0.08 | 0.873 | 0.383 |
| GOV x CP → ERPA | -0.133 | 1.793 | 0.073 |
| GOV x DEM → ERPA | -0.121 | 1.179 | 0.238 |
| GOV x TPR → ERPA | -0.128 | 1.598 | 0.11 |

Source: Authors' compilation.

Table 9. Status of Hypotheses (At Significant Level 0.5)

| Moderating Effect of Gov. Policies and Reg. | Relevant Hypothesis | Status |
|---|---------------------|----------|
| GOV x DICT → ERPA | H7a | Rejected |

| Moderating Effect of Gov. Policies and Reg. | Relevant Hypothesis | Status |
|--|----------------------------|---------------|
| GOV x INFRA → ERPA | H7b | Rejected |
| GOV x HC → ERPA | H7c | Rejected |
| GOV x CP → ERPA | H7d | Rejected |
| GOV x DEM → ERPA | H7e | Rejected |
| GOV x TPR → ERPA | H7f | Rejected |

Source: Authors' compilation.

V. CONCLUSION AND RECOMMENDATIONS

Based on the results of the study, it can be inferred that a range of technological, organizational, and environmental factors are significant determinants of ERP adoption in Sri Lankan organizations. The findings suggest that enhancing the degree of ICT use by a firm, ICT infrastructure, human capital, competitive pressure, demand for products or services, and trading partners' readiness can positively influence the adoption of ERP systems. The study provides insights into the relationship between the aforementioned factors and ERP adoption. Strengthening all these factors can contribute to successful ERP adoption in organizations in Sri Lanka. Therefore, organizations should take necessary steps to enhance and strengthen these technological-organizational-environmental factors to positively influence ERP adoption.

Also, the findings of this study provide new knowledge and extend existing understanding of the factors influencing ERP adoption in Sri Lanka – as developing nations. This research highlights the significance of various factors and their role in determining the successful adoption of ERP systems. These insights can aid policymakers, practitioners, and academics in Sri Lanka and other developing countries to develop strategies and interventions that can facilitate the adoption of ERP systems in organizations. Also, these indicate that the Economic Crisis in Sri Lanka has a weakening effect on the positive association between the analyzed factors, namely ICT Infrastructure, Human Capital, Competitive Pressure, Demand for Products or Services, Trading Partners' Readiness, AND ERP adoption. The results suggest that although technological factors such as ICT infrastructure are strengthened and have a positive influence on ERP adoption, the impact of the economic crisis has a negative effect on this relationship, resulting in its weakening.

Similarly, while organizational factors such as Human Capital are strengthened and positively influence ERP adoption, the economic crisis has a negative effect on this relationship, leading to its weakening. This behaviour is consistent with the effects of the economic crisis on the considered environmental factors, including Competitive Pressure, Demand for the products or services of the firm, and Trading Partners' Readiness. It is crucial to note that the study's outcomes contribute to the existing literature on the influence of economic crises on firms' technological adoption behaviour, particularly regarding ERP systems. Furthermore, the study highlights the importance of considering the broader economic and environmental contexts in which technological adoption decisions are made. These findings are essential for firms operating in Sri Lanka and other similar economies to develop effective strategies that account for the potential impact of economic crises on their technological adoption decisions.

Based on the findings of the study, it can be inferred that the Government Policies and Regulations in Sri Lanka do not exert any significant influence on the positive

correlation between the various independent variables under scrutiny, namely the Degree of ICT use by a firm, ICT Infrastructure, Human Capital, Competitive Pressure, Demand for Products or Services, Trading Partners' Readiness, and the dependent variable ERP adoption. The results obtained suggest that the impact of the independent variables on ERP adoption remains unchanged regardless of the prevailing government policies and regulations in Sri Lanka. These findings are consistent with prior research in the field, highlighting the notion that government policies and regulations may have limited effects on organizational outcomes, and that other factors may play a more substantial role in shaping the adoption of enterprise technology solutions such as ERP systems.

For organizations in Sri Lanka considering implementing ERP solutions, it is crucial to focus on improving Technological-Organizational-Environmental dimensions. These factors, identified in research, include a strong digital strategy, knowledgeable and technology-literate human resources, better ICT infrastructure, increased ICT use, and partnerships with financially and technically strong trading partners. Regardless of government policies and regulations, these factors are positively associated with ERP adoption. Thus, organizations should prioritize improving their internal strategies related to stakeholders and nonliving resources.

VI. LIMITATIONS AND FUTURE WORK

One noteworthy limitation of the present study is related to the use of Partial Least Squares Structural Equation Modelling (PLS-SEM) as the primary analytical tool for examining the relationships among the variables under investigation. While PLS-SEM has been widely recognized as a reliable method for assessing complex interdependencies among variables, it should be noted that this method does not allow for a direct examination of the statistical significance of each indicator variable in relation to each independent variable. Thus, the present study is limited in its ability to determine the specific contribution of each indicator variable to the overall model.

In addition, it should be acknowledged that the study was conducted solely in Sri Lanka, and therefore, the findings may not be easily generalizable to other developing countries. To address this limitation and obtain a more comprehensive understanding of the factors affecting Enterprise Resource Planning (ERP) adoption, future research should consider replicating the study in multiple developing countries. This approach would facilitate the examination of the similarities and differences in the factors that influence ERP adoption across various contexts, leading to a broader and more robust understanding of the phenomenon.

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