E-ISSN 2792-1255

Journal of Management Matters

Volume 9 Number 2 December 2022

Faculty of Management Studies

Rajarata University of Sri Lanka

Journal of Management Matters

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Journal of Management Matters is a refereed bi-annual journal published by the Faculty of Management Studies, Rajarata University of Sri Lanka with the aim of disseminating knowledge of research in the discipline of Management. The majority of research papers are the prime outputs of research conducted by academics and practitioners in the due discipline. The journal is freely accessible on the Sri Lanka Journals Online, the website of the Faculty of Management Studies and the institutional repository of Rajarata University of Sri Lanka, enabling the widest possibility of readership for intellectuals.

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Editorial Note

Dear Readers,

We, as the Editorial Board of Journal of Management Matters, are glad to present the Volume 9, Issue 2 of the journal. The Journal of Management Matters is a refereed bi-annual journal published by the Faculty of Management Studies of Rajarata University of Sri Lanka. In this issue, we received research articles from both academics and practitioners, which, in fact, reflect the significance of the journal to their career. The research articles received to the journal were reviewed by at least by two renowned reviewers. Based on reviewer's comments, authors were asked to revise and resubmit their papers. The research papers accepted for this issue covers a variety of latest research perspectives, providing new theoretical, methodological, and practical insight in the field of management.

We selected four research papers for the publication of the Volume 9, Issue 2 of the journal, which cover finance, strategic management, human resource management, and information and communication technology (ICT). The study conducted by Tharshayini, Arulrajah and Sellar examined the characteristics of strategic assets namely valuable, rare and inimitable, and project performance in relation to government and non-government organizations in the Batticaloa district. The results of the study show that the two characteristics – "valuable" and "inimitable" are positively related to the project performance, whereas the characteristic of "rare" is negatively related to the project performance. Peiris and Jayathilake studied the factors that influence the effective implementation of the remote working teams in the insurance industry of Sri Lanka. The findings of this study reveal that reward and recognition systems, flexible and clarity work schedules, and technological supports are the key factors affecting the effectiveness of the remote working teams. Accordingly, it implies that the top management should pay their attention on these factors in designing and implementing remote working teams to get achieve the desired results. Gooneratne and Silva investigated the effect of the foreign exchange rates on the performance of the Sri Lankan stock market over the period from from January 2000 to November 2019. The results show that there is no effect of exchange rates on the stock market performance. Ranatunga, Jayasekara and Priyanath examined how ICT usage and dynamic capabilities impact the business

resilience of small and medium scale enterprises to survive and continue during the COVID-19 pandemic. The findings reveal a significant positive impact of ICT usage on business resilience during the pandemic through a mediating effect of dynamic capabilities Consequently, the study concluded that the adoption of ICT and the ability to integrate, build and reconfigure the available resources with ICT enablers enhanced resilience and ensured survival of small and medium scale enterprises during the pandemic.

We take this opportunity to acknowledge all the authors for the contribution to the journal by submitting their research articles. We are also very grateful to all reviewers for providing quality inputs to the submitted articles. Further, we would like to thank editorial assistants of the journal for their support rendered to the editorial board to bring out the Issue 2 of Volume 9 in the scheduled time.

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Faculty of Management Studies ,Rajarata University of Sri Lanka

The Relationship between Strategic Assets and Project Performance: Special Reference to Government and Non-Government Organizations in Sri Lanka

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Article History
Received Date: 07.07.2022
Revised Date : 03.11.2022
Published date: 31.12.2022

Abstract

Project performance is related to project success; therefore, it is essential to concern about the strategic assets of an organization. Hence, the prime objective of the study is to examine the relationship between the characteristics of strategic assets and the project performance of Government and Non-Government Organizations. This study was conducted by collecting primary data from 115 project managers and project team members of selected government and non-government organizations in the Batticaloa district. Univariate and correlation analyses were used to analyze the data. The findings revealed that valuable, inimitable characteristics and project level performance are at a higher level, but the rare characteristic is at a low level among the sample. The findings also disclosed that there is a significant positive relationship between valuable, inimitable characteristics and project performance, while rare characteristic have a significant negative relationship with project performance.

***Keywords**: Strategic Assets, Valuable, Inimitable, Rare, Project Performance*

1. Introduction

Recently, some organizations have thought of their internal capabilities while others focus on external capabilities to achieve more excellent performance (Aldholay et al., 2018). In times of social, economic, environmental, and technological changes, project management (PM) also should adapt to changing conditions to remain relevant and meet the demands of the future world of work (McGrath & Kostalova, 2020). Therefore, project managers face crucial challenges to ensure the project's success. PM includes activities such as planning, organizing, executing, monitoring, controlling and closing all aspects of the project and motivation to achieve the project objectives within the agreed time, cost and performance benchmarks. According to Heldman (2009), PM is a process that includes initiating a new project, planning, executing the project plan, and measuring progress and performance.

An organization has many financial, human, organizational, physical, social, and technological resources. These resources can be tangible (concrete; physical; codified or based on explicit knowledge) and intangible (tacit; unspoken but understood) (Jugdev et al., 2007). Thus, Strategic assets are becoming an integral part of today's organizations that are struggling to survive in a competitive environment (Falasi et al., 2019). In this view, assets lead to competitive advantage, if the project management assets can have economic value, rare, in-imitable and organizational support characteristics (Perkins et al., 2018). Thus, the performance has been influenced by competitive characteristics. Resource-Based View (RBV) is a strategic management theory that is widely used in the PM, and it examines how resources can drive competitive advantage (Killen et al., 2012). The RBV of the firm looks at a competitive advantage in relation to an organization's resources or assets. Another way to identify the re-sources are considered strategically if they have the following competitive characteristics; they provide economic value (valuable), they are unique (rare), they are difficult to copy (inimitable), and they have organizational support (Mathur et al., 2013).

Project performance outcome is related to project success, and project performance out-come is linked to project level performance. PM performance might concern with delivering a project within budget, yet if the overriding success criterion, or Key Performance Indicator (KPI), for the project is delivering future benefit to the organization, successful PM perfor-mance will not necessarily lead to the project being viewed as a success in the long term (Bryde, 2003). KPI strategy of a firm can help the project

managers to lead their team member to attain high standards, greater goals and to complete their projects successfully. Project performance is the result or measure of the success of a project. That is including project-level performance and firm-level performance. Project-level performance connects to the project's success, such as time, cost, quality, scope and customer expectations. Firm-level performance connects to competitive advantages, such as sales targets, customer loyalty and satisfaction, profitability, market share and innovation (Mathur et al., 2013).

Therefore, this study was conducted to examine the characteristics of strategic assets and project performance. Meantime, as a step towards exploring the link between strategic assets (being valuable, rare, and inimitable) and performance. The results of the study should be empirical and significant. Hence, the results of the current study help not only to identify, evaluate, monitor and controlling of the characteristics of Strategic assets but also to make correct decisions making about their assets. Project level performance success depends on stronger stakeholder coordination because one of the goals of the organization is stakeholder expectation. If the project managers apply those results, that can enhance the organization's reputation and goodwill. Additionally, this study contributes to the researchers who are interested in PM and to get a deeper knowledge about strategic assets in project level performance.

1.1. Significance of the Study

The current study focuses to identify the relationship between the independent and dependent variables. This study focuses on the valuable, rare, and inimitable in the Valuable, Rare, Inimitable (VRI) framework and the relationship with the performance of the projects in the organization. The results of this study are useful for the project managers and team members in the organization's because these results help to improve the organization's strength, social position, and the organization goodwill. Also, the study uses the theory of RBV which is well supported by this research because this theory establishes the relationship between the variable.

Moreover, empirical findings should provide the knowledge to implement strategic goals and project success, which is measured more on long-term benefits and impacts. If the project managers should apply those results that can be increasing the organization's reputation and goodwill. These results help not only to identify, evaluate, monitor and controlling of the characteristics of strategic assets but also to make correct decisions making about their assets. Project level performance success depends on

stronger stakeholder coordination because one of the goals of the organization is stakeholder expectation. This study supports the readers to get a clear knowledge of strategic assets in project level performance.

1.2. Research Gap

Past studies of project management practices have focused on PM tools and techniques and recognized the importance of strategic assets. Globalization, digital transformations, and hyper-competitions have changed the view of the project environments (McGrath & Kostalova, 2020), and hence project management is a significant area to be researched to overcome the challenges of changing business world. The business practices of the current business world are changing fast overnight and the Government and NGOs face difficulties in adapting to the changes to win competitive advantages when compared to the private firms. Therefore, the number of NGOs left the country and the quality of Government entities lack productivity which erodes Sri Lanka's competitiveness in the international market (Coomaraswamy, 2015). Interviews with a few beneficiaries also emphasized that they are not satisfied with the service provided by these organizations. The characteristics of the resources available in the selected organizations are understudied and it is essential to study the link between VRI resources with project performance. Few past works empirically addressed the link between characteristics of strategic assets and project performance (Mathur et al., 2014), while few other authors explored the exploratory factor extraction of PM characteristics and performance outcomes (Mathur et al., 2013; Perkins et al., 2018). Also, there are not many studies evolved to explore the relationship between these study variables in the Sri Lankan context. Thus, the researchers identified an empirical and methodological gap in the literature. Even limited studies on this concept have been focused narrowly on the success and failure of a project from a general perspective. Hence, empirical findings should provide the knowledge to implement strategic goals and project success, which is measured more on long-term benefits and impacts.

This study extends this past work using a new survey instrument that also draws on the VRI (Valuable, Rare and Inimitable) framework to examine the factors that involve project management assets as well as the factors that involve the project performance outcome. Thus the research questions of the study are as follow;

1. Do project management assets of Government and non-government organizations in the Batticaloa district have valuable, rare, and inimitable characteristics?

2. What is the level of project management performance outcome of Government and non-Government organizations in the Batticaloa district?
3. What are the relationships among valuable, rare, inimitable and project management performance outcomes of Government and non-government organizations in the Batticaloa district?

2. Literature Review

The present work examines the literature to define strategic assets and project performance and the relationship between strategic assets and project performance.

2.1.Strategic Assets

Assets that are valuable, scarce and difficult to imitate are classified as strategic assets which are viewed as sources of sustainable competitive advantage (Barney et al., 2011; Barney & Wright, 1998). Assets can be tangible or intangible assets, anyhow a subset of a company's assets contributes to achieving completive advantages (Amit & Schoemaker, 1993). So, these are strategic assets of an organization depict unique internal skills, knowledge and resources (Foss, 1997). These strategic assets that donate to competitive advantage include explicit and tacit knowledge. Strategic assets have the following competitive characteristics, they provide economic value (valuable), they are unique (rare), they are difficult to copy (inimitable), and they have organizational support. Resources need to be valuable, rare, and inimitable and have organizational support to provide a sustained competitive advantage (Mathur et al., 2013). According to the RBV is built on the concept that resources and capabilities are not heterogeneous in organizations, and through the utilization of this concept, the success rate can vary between organizations can be explained (Almarri & Gardiner, 2014). Capability is based on the achievement of the characteristics of value, rare, inimitable, and having organizational support in the PM process (VRIO characteristics).

According to Jugdev et al. (2007), they argued these PM resources and capabilities that have been modified to specific environments and developed over time are not easily inimitable. Also, Falasi et al. (2019), have revealed that the characteristics of Strategic assets contribute to the achievement of competitive advantages and thus, enhance employee performances. Therefore, these capabilities are always associated with improved performance, important to viewing PM as strategic organizational

capabilities that can deliver stable benefits. Hence, those capabilities and resources include two ways; one is the tangible PM resources another one is the intangible PM resources. Accordingly, the present study focuses on the characteristics of the project management assets; Valuable, Rare, and Inimitable (VRI).

Valuable: Value is making money for the organizations, and also that is economically important. Strategic assets create value when it allows the organization to plan and implement strategies that help to improve its efficiency and effectiveness. That resource may have the potential to create value services; the value of these services will remain unused until the firm has the capabilities needed to deploy them (Newbert, 2008). Cardeal and Antonio (2012) said that some worlds could relate the valuable, such as enable, contribute or some capability point to the need for something else to transform the (valuable) resources into the output that provides value. In an attempt to operationalize the concept of valuable resources define resources in the broad sense, to include activities and capabilities (Bowman & Ambrosini, 2007). Resources are measured as valuable. That helps organizations increase perceived customer value. The valuable resources lead to a temporary competitive advantage in organizations. It is significant to review the value of the resources because this analysis helps to improve the organizational image. In the RBV context, valuable resources are defined in economic terms; that is, these generate above-normal returns.

Rare: It is the uniqueness of a few organizations that have these resources. Resources present in other organizations are common; those resources not widely held by other organizations are rare (Cardeal & Antonio, 2012). Rare resources contribute to a temporary competitive advantage. Further, another situation when more than a few organizations have the same resource or use the same level of capability in a similar way leads to competitive parity because organizations can use the same resources to implement the same strategies, and no organization can achieve greater performance.

Inimitable: Inimitable means hard to copy, and it can be costly to duplicate them and difficult to figure out what other companies are doing to have such strategic assets (Jugdev et al., 2007). Resources may be difficult to imitate if: (a) the resources are socially complex (Barney, 1991); (b) there is an ambiguous relationship between the resources that enhances competitive advantage (Barney, 1995); (c) there are legal property rights, such as in the case of patents (Wills-Johnson, 2008); (d) the process of their imitation by

other companies is lengthy, for example, due to the time needed to train employees or to absorb the knowledge necessary to master the resource (Wills-Johnson, 2008); (f) they are path-dependent (Vergne, & Durand, 2011); (g) difficult for other organizations to copy (Mathur et al., 2013). Therefore, the characteristics of the strategic assets include valuable, rare and inimitable.

2.2.Project Performance

The success of the project can show by project performance. The present study incorporates the achievement of project scope requirements, project schedules, customer expectations, quality of deliverables, and project costs means as the project performance of the organizations. Project-level performance is related to project success. Project Management Institute (2013), stated project success is the completion of a project within a given scope, time, cost, quality, constraints, resources, and risks. The performance of a project will be influenced by various factors, including project complexity, arrangement of requirements, relationships between members in the project, ability of the project manager, and the abilities of the key members in projects (Leong et al., 2014). According to the studies of Jugdev et al. (2007), project performance outcomes refer to the achievement of competitive parity, temporary competitive advantage and sustained competitive advantage, hence the current study focus on the quality, Stakeholders' expectation, scope requirement, schedules, and costs of a project-level performance.

Project performance is usually judged and calculated by performance measurement. First, researchers identified some critical success factors, there project mission (clarity of goals and general direction), top management support, project schedule/plans, client consultation, personnel (recruitment, selection, and training), technical tasks (Availability of the required technology and expertise), client acceptance, monitoring and feedback, communication, and troubleshooting (ability to handle unexpected crises and deviations from the plan) (Pinto & Slevin, 1987). Second, Bryde (2005) said that the project success criteria have developed from simple measurable time, scope, and cost measures, which primarily are related to project efficiency. Finally, Ika (2009) summarized the definition of project success that it is about time, cost, and quality, the realization of strategic objectives, the satisfaction of end users, and the satisfaction of other stakeholders. So that many factors consider in early research, but this study mainly considers five factors, such as quality, costs, schedule, stakeholder expectation, and scope requirement.

The project success can be noticed closely as the achievement of planned outcomes in terms of specification, time, and budget (Andersen et al., 2006). Some researchers identified project success factors such as; critical success factor, project success measurement and five project success factors. Ika (2009) summarized the definition of project success that it is about time, cost, and quality, the realization of strategic objectives, the satisfaction of end-users, and the satisfaction of other stakeholders. According to Belassi & Tukel (1996), they identified four areas of project success factors and those are the factors related to the project (i.e., size, uniqueness, urgency), the project manager and the team members (i.e., skills, background), the organization (i.e., management support, structure), and the external environment (i.e., political, technological).

2.3.Hypotheses Development

Valuable and Project Performance: According to Mathur et al. (2013) they mainly used factor analysis which helped them to understand the factor model in which common variance is analyzed with the unique and error variances removed. They identified the two factors in Valuable resources, such as PM knowledge and its tools. The significance of the valuable PM knowledge contributed to project-level performance, through information technology tools did not and also positive contribution to the project level performance advantage (Mathur et al., 2014). Valuable resources encourage the firm to implement things that result in economic value (Fiol, 1991); valuable resources can generate profits and prevent losses (Miller and Shamsie, 1996). According to the findings of the study, value and scarce resources are sources of competitive advantage, which can lead to improved organizational performance (Newbert, 2008). The study's findings demonstrated that the value and scarcity of resources are positively related to performance (Talaja, 2012; Poernomo et al., 2013). According to Victer (2014), the attributes of value are more relevant to performance than those of rarity and inimitability. According to the literature, this review establishes that valuable resources have a positive relationship with project performance. Thus, reviews of the literature supported to construct of the first hypothesis of the study;

H1: Valuable is positively related to project management performance outcomes

Rare and Project Performance: Rare resources were divided into two factors, such as knowledge sharing processes and knowledge sharing tools and techniques (Mathur et al., 2013). The significance of the rare knowledge

sharing processes and knowledge sharing tools and techniques are assets that were found to negatively contribute the project level performance (Mathur et al., 2014). According to the findings of Baia et al. (2020) valuable and scarce resources and capabilities contribute to a firm's competitive advantage and, as a result, superior performance in a Portuguese context. Furthermore, studies in the literature revealed that value and rarity were positively related to performance (Talaja, 2012; Poernomo et al., 2013). Ac-cording to the literature, this review establishes that rare resources have a negative relationship with PM performance. Thus, reviews of the literature supported to construct of the second hypothesis of the study;

H2: Rare is negatively related to project management performance outcomes

Inimitable and Project Performance: Inimitable resources were divided into two parts, such as proprietary tangible assets and embedded intangible assets (Mathur et al., 2013). Ac-cording to Mathur et al. (2014) said that intangible resources positively contributed the project-level performance. When firms have inimitable resources, they can achieve long-term competitive advantage by implementing novel value-creation strategies that competing firms will find difficult to replicate (Acedo et al., 2006; Barney, 1986). According to Markman et al. (2004) competitive advantage and performance are related to inimitability but not patent substitutability. Furthermore, the addition of inimitable value and rare resources has an impact on the firm's short and long-term performance (Amit & Shoemaker 1993). This argument is significant from a resource-based perspective, where inimitable resources have the potential to improve organizational performance when operationalized (Barney, 1995). Hence, this literature review establishes that inimitable resources have a positive relationship with PM performance. Thus, reviews of the literature supported to construct of the third hypothesis of the study;

H3: Inimitable is positively related to project management performance outcomes

2.4. Theory to Underpin: Resource-Based View (RBV)

The RBV is an explanation of performance differences between firms that assumes that firms that are highly performing are made up of bundles of resources that give them an advantage in the marketplace (Barney & Arikan, 2001). Therefore, RBV contributes to competitive advantage. This competitive advantage deals with the Valuable, Rare, Inimitable, Organizational (VRIO) framework. Hence, this study may relate to the

theory of RBV based on the VRIO framework. Hence, the present research mainly considers three dimensions based on VRI capabilities in the VRIO framework such as; valuable, rare, and inimitable.

This research is intendeds to analyze the relationship between project management assets and project management performance outcomes. Thus, Figure 1 shows a conceptual framework relating the strategic assets (in three dimensions; valuable, rare, and inimitable) and project level performance in government and NGOs in Batticaloa district. The conceptual framework of the study is constructed based on the study of Mathur et al., (2013), and this framework supports finding out the relationships between the independent and dependent variables.

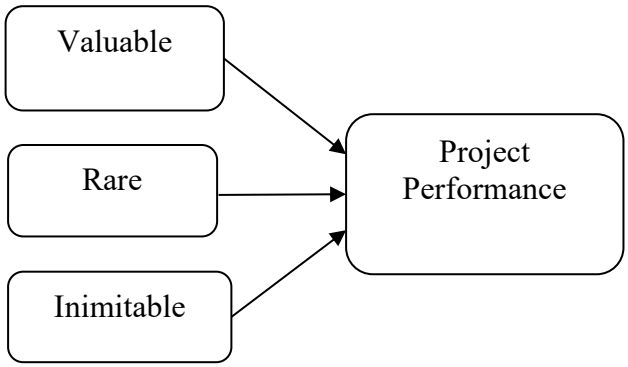

Figure 1: Conceptual Framework

3. Methodology

The research methodology is the general research strategy that explains the research and how research is to be carried out. It is also stated as the study of the methods by using knowledge gained, and also its purpose is to give the work plan of the research.

3.1.Sample and Procedure

The total population of the study was 275 project managers and team members in the government and NGOs in the Batticaloa district. The research questionnaire was distributed among 160 professionals (the sample size was decided based on Morgan's table), thus only 130 responded. Out of this, a sample of 115 respondents was selected (after rejecting the incomplete questionnaires and data cleaning) from 18 governments and NGOs, because

a 72% response rate is acceptable and continues with data analysis. The researcher used the stratified sample method, as this sampling technique assures representation belonging to a different organization to measure the relationship between strategic assets and PM performance outcome in governments and NGOs in the selected area. Batticaloa was selected as the research site, because many NGOs were implemented in the district due to the effect of Tsunami, civil war and other economic issues, which enhance the researcher's interest to carry out a study on NGOs. Government entities also play a significant role in the area to enhance their performance which have been not addressed or researched in literature in relation to Strategic assets and performance motivate the researchers to do research especially in Batticaloa district.

As the deductive approach includes the testing of theory, the deductive approach was chosen for the study. Also, the necessary primary data is collected through a well-structured questionnaire. Meantime, the study is based cross-sectional because that most research projects undertaken for academic courses are necessarily time-constrained.

3.2.Research Instrument

All questions were designed as closed-ended questions and five points Likert scale was used for the purpose of quantification of a qualitative variable. This scale consists of ranging from strongly disagree to strongly agree (1 to 5). The questionnaire was built into two parts that are respondents' personal information and research information. The first part of the questionnaire gathered data related to respondents' personal information such as gender, civil status, age, educational level, age of the organization, job position, number of employees in the organization and categories of NGOs. The second part of the questionnaire consists of 41 questions to measure the PM characteristics of valuable, rare, inimitable and project level performance in the organization, where the instrument was adapted from Mathur et al. (2013). Characteristics of PM; valuable, rare and inimitable instruments have a Cronbach's alpha value of 0.701, 0.957 and 0.937, respectively. Also, the dependent variable had an acceptable level of internal consistency with a Cronbach's alpha value of 0.701.

3.3.Data Analysis

Univariate analysis was carried out with the explanation of the individual variable and the simplest form of quantitative analysis. Thus, the mean score is used for the average value and the standard deviation is used to measure the dispersion of the data. Correlation analysis is a statistical evaluation used to study the strength of a relationship between the variables. Table 1 shows the decision rule for Correlation analysis. This provides a measure of an index for the strength and direction of any linear relationship between two variables. Also, if the p-value is less than 0.05, this depicts the significance of the relationship.

Table 1. Decision Rule for Correlation Analysis

Range	Decision Attributes
r = 0.5 to 1.0	Strong positive relationship
r = 0.3 to 0.49	Medium positive relationship
r = 0.1 to 0.29	Weak positive relationship
r = - 0.1 to - 0.29	Weak negative relationship
r = - 0.3 to - 0.49	Medium negative relationship
r = - 0.5 to -1.0	Strong negative relationship

(Source: Sekaran, 2000)

4. Results

4.1. Respondent's Profile

The personal profile includes the gender, civil status, age, education level, age of the organization, categories of the organization, and categories of the NGOs of the selected 115 respondents. Out of the 115 project managers and project team members, 53.9% of them were male and 46.1% of them were female. Also, the study observes that there are more married respondents (70.4%). When considering the age distribution of the sample, 51.3% of them are between 31 – 40 years, 26.1% of them are between 25 – 30 years, 20% of them are 41-50 years and 2.6 of them are above 50 years. In addition, most of the respondents (65.3%) have degree qualifications compared to other education qualifications in this government and NGOs. Further, the researcher has collected relevant data from the respondents; 12.2% of them are government and 87.8% of them are NGOs.

4.2. Descriptive Analysis

The independent variable of Strategic assets consists of three dimensions, and the mean and standard deviation of each dimension is shown in Table 2. First, the valuable characteristic of PM consists of twelve indicators that help to analyze that Strategic assets are the sources of strength in the social responsibility of the organizations. Out of 115 respondents, the majority of them indicate that the level of value of the Strategic assets is high level (Mean = 4.34) and that value of the Strategic assets is helping to improve the social position and high strength of the organization. Second, the average value of the rare characteristic (Mean = 2.69) indicates that there is a low level of rare in Strategic assets among the selected sample. And finally, the average value of the inimitable characteristic (Mean = 3.93) indicates that there is a high level of inimitable in Strategic assets, and this depicts that Strategic assets are very difficult for other organizations to copy into the selected organizations. Further, the overall mean and standard deviation value of PM performance outcome is 4.51 and 0.396, respectively. In addition, the results stated that the level of project-level performance of PM performance outcome is at a high level.

Table 2. Descriptive Values of Independent and Dependent Variables

Type of Variable	Dimensions	Mean	Standard Deviation
Independent Variable: Strategic assets	Valuable	4.34	0.274
	Rare	2.69	0.848
	Inimitable	3.93	0.614
Dependent Variable: Performance Outcome	Project Level Performance	4.51	0.396

4.3. Correlation Analysis

The first hypothesis of the study is to examine whether there is a significant relationship between Valuable and project performance. The results of the correlation analysis explained that there is sufficient evidence to reject the null hypothesis, and it can be concluded that there is a medium positive and significant relationship between valuable and project-level performance ($r = 0.392$, $p = 0.000$). The second hypothesis of the study is to

examine whether there is a significant relationship between rare and project performance among the sample of the study. The findings proved that there is enough evidence to state that there is a significant, negative relationship between rare and project performance, and the strength of the relationship is at a medium level ($r = -0.309$, $p = 0.001$). The third hypothesis of the study is to examine whether there is a significant relationship between inimitability and PM performance outcome of the Government and NGOs in Batticaloa district. The results show that the null hypothesis can be rejected since the p-value is lesser than 0.05, and the findings concluded that there is a weak positive relationship between inimitable and project-level performance ($r = 0.213$, $p = 0.022$) at the 95% confidence level. The results are clearly shown in Table 3. On the whole, the findings of the current study revealed that there is a significant relationship between the characteristics of Strategic assets and Project performance of the selected organizations in the Batticaloa district; hence the p-value is lesser than 0.05 (Reject H0 since $p<0.05$ and accept H1, H2 and H3).

Table 3. Relationship between Characteristics of Strategic Assets and Project Level Performance

		Project Level Performance
Valuable	Person Correlation	0.392
	Sig (2-tailed)	0.000
Rare	Person Correlation	-0.309
	Sig (2-tailed)	0.001
Inimitable	Person Correlation	0.213
	Sig (2-tailed)	0.022

5. Discussion

The present study was conducted with the purpose of investigating the relationship be-tween the strategic assets and project performance in the selected Government and NGOs in the Batticaloa district. The findings of the study indicate that there is a high level of valuable characteristics, which leads to the competitive advantage and project success of the sample. The valuable resource improves an organization's social position and thus led the organizations to improve their project level performance. Similarly, Jugdev

et al. (2007) suggested that valuable factors can provide economic value, such as improving organizational performance, increasing goodwill and responding to environmental threats and opportunities. If an organization has to achieve goals and objectives that time value is one of the important parts of the organization. Indeed, rare resources are unique and few organizations have them, therefore every organizations has to develop a unique position to be sustained in the market. In the results considering all indicators, rare resources of the strategic assets is at a low level of contribution among the selected organizations. Controversially, the studies of Falasi et al. (2019) revealed that the rarity characteristics scored a mean value of 4.60 out of 7.0 and revealed that the respondents agreed that it is difficult to copy their organization's practice of project management. Hence, organizations can develop and improve their uniqueness in such ways; as unique training systems, unique software, unique methodology system and risk management model. Inimitability of the Strategic assets is helping to improve the organization process with innovation compared to other organizations and also supports in achieving a competitive ad-vantage. One of the indicators is the organization's database and this database is dissimilar to every other organization's database, where which makes it difficult to copy by other organizations. Hence, the high level of inimitable strategic assets improves the project-level performance in the selected organizations.

Furthermore, the findings revealed that valuable characteristic of the strategic assets has a positive, significant relationship with project-level performance ($r = 0.392$, $p = 0.000$). The findings of the study are related to the previous study which suggested that valuable Strategic assets mainly focus on the PM knowledge and application is also valuable in strategic assets because that supports sharing knowledge with others and also positive relationships among the project level performance (Cardeal & Antonio, 2012; Jugdev et al., 2007; Mathur et al., 2013). The rare characteristic of the PM has a negative relationship with project-level performance ($r = -0.309$, $p = 0.001$), which is similar to the findings of Mathur et al. (2014). In addition, studies in the literature supported that value and rarity were positively related to performance (Talaja, 2012; Poernomo et al., 2013). Finally, the study has explored that the inimitable character of the PM has a positive relationship with project-level performance ($r = 0.213$, $p = 0.022$). Findings of the

literature highlight that inimitable Strategic assets mainly focus on the proprietary tangible assets and intangible assets which are embedded and hard for other organizations to copy and also report a positive relationship with the project-level performance (Cardeal & Antonio, 2012; Jugdev et al., 2007; Mathur et al., 2013). According to Markman et al. (2004) competitive advantage and performance are related to inimitability. Thus, inimitable strategic assets positively contribute to project-level performance and enhance the goodwill and success of the project. As a result, value (valuable), uniqueness (rare) and difficulty to copy (inimitable) are seen as vital variables to ensure the relationship between project management assets and project management performance outcome. These results help to improve the project level performance because this study identifies which is the most important of the Strategic assets in the organizations.

5. Conclusion and Recommendations

The present study was conducted with the purpose of investigating the relationship be-tween the strategic assets and project performance in the selected Government and NGOs in the Batticaloa district. The levels of valuable, inimitable characteristics and project performance were at a high level, while the rare characteristic of strategic assets was at a low level among the respondents. In spite, the current study proved that there are significant relationships among the characteristics of strategic assets; valuable, rare and inimitable and Project performance. Further, the study concludes that there is a significant positive relationship between valuable, inimitable and project performance, while rare has a significant negative relationship with the project performance among the selected sample in the Batticaloa district.

The study mainly focuses only on exploring the relationships among characteristics of Strategic assets; valuable, inimitable and rare with the PM performance at the outcome as a project level. Therefore, researchers can focus on the expansion of the VIR framework into the VRIO framework link of the relationship between strategic assets with project performance with different organizational structures. Further, studies can be carried out to examine the association of demographic factors of the respondents with

project performance. The present study only applied a quantitative research design, whereas studies are encouraged to use both quantitative and qualitative methods to create deeper knowledge regarding the selected research areas. Also, further studies can replicate the proposed model in the various types of organizations in Sri Lanka (for example, private organizations).

The study has some recommendations for future researchers by understanding the variables of this study that influence strategic assets and project performance. First dimension of strategic assets; Valuable is improving an organization's social position and also the sources of strength. Hence, some suggestions to increase the value of the PM; practices need to be improved to share and learn based on common interests (Example: IT security and knowledge sharing) to build a network with internal and external stakeholders of the organization. Develop the personal and experimental knowledge sharing by showing others and effective way to control the emotion. Rare resources could be developing individual software using for every organization because that is the best security of an organization, using the new employee training system (Example: Fidelis LRM: that is the platform designed to handle personal learning, track goals and build a mentor network), to build the PM office in different layout comparing the other organization (Example: 20+ Futuristic modern computer desk and bookcase design ideas). Another one is the inimitable characteristic, which is the difficulty other organizations copy. Further, the organizations, strictly follow the making high security using their document because that is helping to prevent the organizations from the other organization. So this recommendation also helps to improve the organization's social responsibility, goodwill and achieving the organization's goals.

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Journal of Management Matters

Journal homepage: http://mgt.rjt.ac.lk/pages/journal.php

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Factors Influencing the Effective Implementation of the Remote Working Teams in Insurance Companies in Sri Lanka

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Article History
Received Date: 30.07.2022
Revised Date : 22.11.2022
Published date: 31.12.2022

Abstract

Global concern about remote working has increased gradually than previously due to the spread of COVID-19 pandemic all over the world and it has taken the increasing attention of researchers as well. Although there are various studies conducted in remote working contexts, the factor influencing on effective implementation of remote working teams are yet to be inconclusive. Therefore, this study aimed at investigating the factors which promote the effective implementation of remote working teams in insurance companies in Sri Lanka. The study examined the effect of reward and recognition systems, flexible and clarity work schedules of the team, continual training processes, trust among the team, and technical support with the support of literature. The data was collected from a sample of 136 officers who work at insurance companies in Sri Lanka. The results revealed that technological support, reward and recognition system and flexible and clarity work schedules of the team are important factors in effective implementation of remote working teams. The findings of the study have important implications for top management of the insurance companies in Sri Lanka to ensure the effective implementation of remote working teams in the sector.

***Keywords**: Remote working team, reward and recognition, clarity of work, technical support*

1. Introduction

Employees are a key resource of any organization. Organizations invest a lot of capital in employee development. An employee can be defined as an individual who has agreed to be employed to work for some form of payment under a contract of service (Vance, 2006). Many firms have recognized the necessity to engage their staff in remote work practices in order to succeed in today's highly competitive world. The survivals of the corporate industries depend on maximizing profits from existing capabilities (Vance, 2006). As businesses recognize the significance of this requirement, remote working has become a popular topic for researchers currently now (Bellmann & Hubler, 2020). According to Osborne and Hammoud (2017), to make or maintain the company's profitability, leaders of the companies should work hard to engage employees, and also Employee effort and engagement determine organizational productivity.

An effective management of the employees has a considerable impact on the employees' satisfaction (Bellmann & Hubler, 2020). There is an impact on the employees' performance as well, which could ultimately improve the overall productivity of the organization. Employee job satisfaction is vital to facing the dynamic and ever-increasing challenges of maintaining the productivity of the organization. The COVID-19 pandemic situation has affected all of us. To control the global COVID-19 pandemic many countries around the world as well as Sri Lanka had to impose curfews and lockdown the country completely. Therefore, many businesses have adopted government regulations that allow employees to work from home. So, up to today most of the organizations have been practicing remote working environments by considering the safety of the parties engaged in their business activities.

Many studies have paid attention to remote working and factors influencing the effective implementation of remote working teams. Some of the major factors identified, among others, are reward and recognition systems, trust among the team members, clarity of work, top management and technical support, and work flexibility (Wang et al., 2020; Schall, 2019; Yahya et al., 2016; Zoonen et al., 2021). However, there is no agreement among the research on these factors and the nature of their effect on remote team success. Moreover, similar studies in developing country contexts are

also scant to date. Therefore, this study aims to address this void focusing the insurance industry in Sri Lanka. A total of 27 insurance companies are operating in Sri Lankan insurance sector by the end of 2020 with 13 long-term insurance companies, 12 general insurance companies, and two composite insurers that provide both long-term and general insurance services.

The insurance sector in Sri Lanka plays a critical role in the country's financial sector, contributing significantly to the country's development as well as the securing human life from the uncertain circumstances by accepting the risk. The economic and social impacts of the COVID-19 pandemic created numerous challenges and opportunities to the Sri Lankan insurance market (KPMG Sri Lanka, 2021). The public's awareness of the importance of life protection is thought to have increased as a result of the pandemic's circumstances. Furthermore, the pandemic has increased public awareness of the risks that may be mitigated by life insurance, which has boosted the performance of life insurers. In reality, the insurance industry as a whole is behind other industries, such as banking, in adopting digital and more flexible working practices. They are being forced to accelerate and step up as a result of the situation (KPMG Sri Lanka, 2021). While the pandemic is on-going, it is critical to increase remote working efficiency in order to improve the overall efficiency of the insurance industry.

2. Literature Review

Remote working means working from home, also called remote work (RW), telecommuting, teleworking, homework, home office, mobile work, outwork, and the flexible workplace, is a work arrangement, in which employees do not travel to their workplace in the company. (Bellmann & Hubler, 2020). According to Nakrosiene, Buciuniene, and Gostautaite (2018) remote working has been considered another way of forming work. Remote work has garnered the responsiveness of both researchers and practitioners because it allows them to work from anywhere and at any time. Notwithstanding developments in technology during the last decade, working from home has grown only discreetly.

"Virtual teams" are groups of geographically and organizationally dispersed co-workers who may never meet but rely on synchronous and

asynchronous communicational tools such as telephones, e-mail, and audio/video conferencing to communicate and work on the assigned project with the advancement of technology (Ng & Tung, 2018). Effective remote working can be defined as the working properly by achieving all predefined targets of the company while at the online mode of work (Bellmann & Hubler, 2020).

Employees are advocating for working remotely, and many organizations are working towards the policy of remote work. The flexibility awarded by remote work is desirable, especially to millennial employees. They still want to spend time on their hobbies and talents and dedicate time to their families. Employers enjoy the same perks, with the added advantage of lesser costs on in-house office facilities and rent on large office spaces. In a 2018 experiment on enhanced productivity, it was discovered that remote workers were 13% more productive than office workers and worked 9.5% longer (Ilag, 2021). Remote work also allows companies to recruit top talent employees without limiting themselves to just those who can physically make it to the office every day. To get the most out of remote work, companies must establish and implement proper and effective policies (Ilag, 2021).

Reward and recognition are recognized in one of study as communication and motivation de-vices. Having an appropriate reward and recognition system is one of the key characteristics of an effective team (Ng & Tung, 2018). Rewards can be defined as "something that increases the frequency of an employee action". Recognition means constructive, genuine feedback based on acknowledging people as sincere, worthy of respect, having needs, and equipped with their own personal expertise (Baskar & Rajkumar, 2015). When it comes to rewards and recognition in this kind of changing times when more employees are working remotely or virtually. As seen in the previous studies, reward & recognition have been well-established as a predecessor to employee engagement. Engagement helps the workforce to be motivated and makes them more productive as well (Agarwal, 2020).

Flexible work schedules, such as flex time, telework, or shortened workweeks, are instances of how the timing and duration of work hours, as

well as the place of work, are becoming more variable (Kossek & Michel, 2011). Although traditional work schedules have been the norm in organizations for decades, an increasing number of employees are experimenting with a variety of flexible work schedules while also modernizing employment systems and work processes across time zones and cultures (Kossek & Michel, 2011).

Training is the systematic process by which businesses provide development and improve the quality of new and existing personnel. Individual, group, and organization training is defined as a systematic approach to learning and development that improves individual, group, and organizational performance. (Nda & Fard, 2013). A study carried out by Nda and Fard (2013) stated that employee training and development must be designed and delivered to satisfy the needs of all employees so that they are not just productive but also satisfied. Employees benefit from training and development because it helps them perform their jobs more efficiently by improving their interpersonal and technical talents, teamwork, job confidence, and drive (Nda & Fard, 2013).

Trust is a vital factor in forming and maintaining social relationships and trust among the team is a key to cooperative relationships and effective teamwork and also trust is considered for leadership, cohesion, and team empowerment (Abarca, Sanchez, & Camacho, 2021). Establishing trust among virtual team members is more difficult. Information exchange, prompt responses to electronic messages, and maintaining commitments made to virtual teammates all contribute to virtual team trust. These activities demonstrate a team member's ability, commitment, and desire to assist the group (Rosen, Furst, & Blackburn, 2006).

According to Rosen, Furst and Blackburn (2006), in a virtual situation, opportunities to participate in organizational operations are constrained, therefore trust may be difficult to establish early in the team relationship. Because virtual teams are more likely to be effective when they can create trust in the early phases of their work, this delay may have an impact on team performance (Rosen, Furst, & Blackburn, 2006).

Workers can use information and communication technology to actively collaborate, reorganize organizational hierarchies, and increase citizen involvement. Internet, mobile phones, satellite communications, and digital television through cable are only a few examples of ICT technology (Saini, Prakash, & Gaur, 2015). Ilag (2021) stated that the overall benefit of using the right unified communication and collaboration platform for remote work, as we move closer to a working environment, it is critical that we do not have to compromise on work quality.

Microsoft Teams can reduce time and span distances without sacrificing quality or quantity of work output, as well as customer satisfaction, while also lowering costs. They also have the added advantage of data storage in the cloud, automated workflow and updates, event planning and scheduling, and end-to-end encryption for security (Ilag, 2021).

3. Methodology

The purpose of this study is to determine the factors which influence the effective implementation of remote working teams, with special reference to the insurance industry in Sri Lanka. With the literature directives, the study investigated the influence of reward and recognition systems, flexible and clarity work schedules, continuous training processes, trust among the team, and technical support for the effective implementation of remote working teams (see Figure 1).

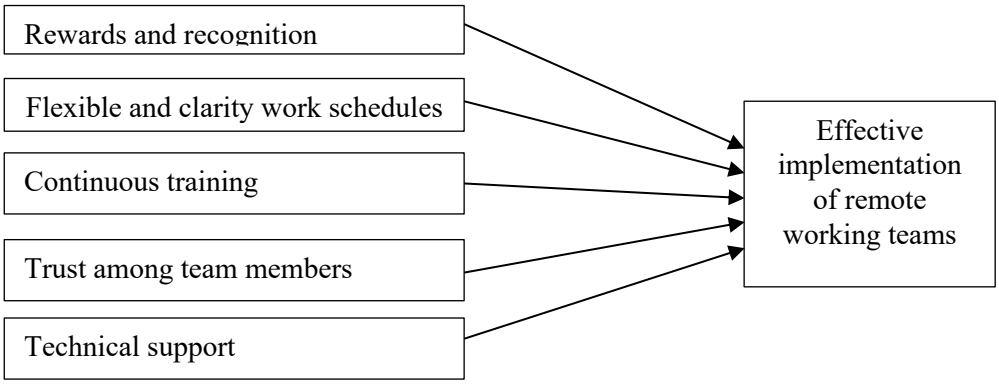

Figure 1: Conceptual Framework

The following hypotheses are also proposed for the present study based on the literature

H1: Rewards and recognition have a positive impact on the effective implementation of remote working teams.

H2: Flexible and clarity work schedules have a positive impact on the effective implementation of remote working teams.

H3: Continuous training has a positive impact on the effective implementation of remote working teams.

H4: Trust among the team members promotes effective implementation of remote working teams.

H5: Technical support has a positive impact on the effective implementation of remote working teams.

This study was carried out in a natural setting where no manipulation is possible. As a result, this research was conducted in a non-contrived context. The population of this study consisted of all the employees who work at the insurance companies in Sri Lanka and those who have experience in remote working. The sample was selected from Western Province where a large number of employees working in insurance companies when compared to the other provinces of the country. Moreover, as there is a significant difference among the different job categories in remote working, underwrite officers were considered for the sample selection. The sample selection was done in two stages. In the first stage, five insurance companies were selected using the simple random sampling and then participant were selected using snowball sampling. the final sample consists of 136 underwrite officers. A survey method was employed to collect the data and the questionnaire was developed in structured forms to measure the main variables of the study. The independent variables were measured on Likert type five scales ranking from 1 (Completely disagree) to 5 (completely agree). The dependent variable was also measured using the same scale focusing the main aspects of the remote working team success. The internal consistency of these

constructs was measured with Cronbach's reliability test and it reveals that all the constructs are reliable having Cronbach's alpha values over 0.7.

In this research, the researcher has followed the quantitative research methodology to perform the research and justify the conclusion of the study. Further this study employed quantitative data collection, descriptive and inferential statistics. Descriptive statistics usually involved measures of central tendency (mean, median, mode) and measures of dispersion (variance, standard deviation, etc.), and inferential statistics involved measuring Multiple Linear Regression, Correlation coefficient, ANOVA, and Independent sample T-test.

4. Results

4.1. Sample Profile

The sample of the study consists with the 136 of underwrite officers who work at insurance companies in Western Province in Sri Lanka. Table 1 presents some demographical information of the respondents.

Table 1. Sample Profile

Description	Range	Frequency	(%)
Gender	Male	73	53.7
	Female	63	46.3
Civil status	Married	53	39
	Single	83	61
Age	Below 25	44	32.4
	25-35 years	67	49.3
	35-50 years	22	16.2
	Above 50	3	2.2
Duration of working as a virtual team member	< one year	50	36.8
	> one year	86	63.2
Number of members in the team	Below 10 members	50	36.8
	10-20 members	68	50
	Above 20 members	18	13.2

4.2. Descriptive Analysis

Descriptive statistics were calculated to identify the basic nature of this research. Table 2 provides a summary of the descriptive statistics.

Table 2. Descriptive statistics

Variable	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistic	Std. Error	Statistic	Std. Error
Reward and recognition system	3.911	0.590	-.865	0.208	2.001	.413
Flexible & clarity work schedules of the team	3.994	0.569	-1.503	0.208	5.291	.413
Continual training processes	4.022	0.569	-1.182	0.208	3.611	.413
Trust among the team	4.044	0.593	-1.619	0.208	5.255	.413
Technological support	4.092	0.516	-1.246	0.208	3.922	.413
Effectiveness of remote working team	4.038	0.568	-1.433	0.208	4.875	.413

According to the descriptive statistics, reward and recognition system for effective implementation of the remote working team has the mean value (M=3.911, SD=0.590) above the average representing favorable conditions for the employees. The mean value for technological support (M=4.092, SD=0.516) also reveals that the respondents receive good technical support from their companies to perform their duties. The mean values of flexible and clarity work schedules of the teams, continual training processes and trust among the team are respectively 3.994 (SD=0.569), 4.022 (SD=0.569) and 4.044 (SD=0.593) which show the evidence for those factors are also favorable for the respondents.

4.3. Correlation Analysis

The Pearson Correlation measures the direction, intensity, and significance of bivariate relationships among all variables. In this study, correlation analysis was performed to identify the relationship between main variables of the study.

Table 3. Results of the correlation analysis

	R	F	C	T	TS	EIRW
R	1					
F	.598**	1				
C	.645**	.729**	1			
T	.552**	.646**	.622**	1		
TS	.623**	.671**	.669**	.572**	1	
EIRW	.645**	.687**	.664**	.604**	.685**	1

**. Correlation is significant at the 0.01 level

R = Reward and recognition system, F = Flexible & clarity work schedules of the team, C = Continual training processes, T = Trust among the team, TS = Technological support, EIRW = Effective implementation of remote working team

As shown in Table 3, the correlation coefficient for the relationship between effective implementation of the remote working team and reward and recognition system is 0.645 which is significant at 0.01. However, there is a positive correlation between effective implementation of remote working team and reward and recognition system. The correlation coefficient for the relationship between effective implementation of the remote working team and flexible and clarity work schedules of the team is 0.687 and it is significant at 0.01. However, there is a positive correlation between effective implementation of the remote working team and flexible and clarity work schedules of the teams.

The correlation coefficient for the relationship between effective implementation of the remote working teams and continual training processes is 0.664 and it is significant at 0.01. So that there is a positive correlation between effective implementation of remote working team and continual training processes. The correlation coefficient for the relationship between effective implementation of the remote working team and trust among the team is 0. 604 and it is also significant at 0.01. Therefore, there is a positive correlation between effective implementation of the remote working team and trust among the team. Lastly, the correlation coefficient

for the relationship between effective implementation of the remote working team and technological support is 0.685 and that is also significant at 0.0. There is a positive correlation between effective implementation of the remote working team and customer response.

4.4. Regression Analysis

In regression analysis effective implementation of the remote working team was entered as a dependent variable and reward and recognition system, flexible & clarity work schedules of the team, continual training processes, trust among the team, and technological support were entered as the independent variables. The results are produced in Table 4.

Table 4. Result of Regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Er.	Beta		
(Constant)	.246	.267		.923	.358
Reward and recognition system	.203	.073	.210	2.779	.006
Flexible & clarity work schedules	.217	.089	.217	2.426	.017
Continuous training processes	.135	.088	.135	1.527	.129
Trust among the team	.116	.073	.121	1.594	.113
Technological support	.274	.091	.249	3.031	.003
R square: 0.618	*F-Value: 42.084*				
Adjusted R square: 0.603	*Sig F: 0.000*				

The adjusted R square value (0.603) indicates that the predictors used in the analysis can explain high proportion of the total variation in the dependent variable. F-value also reveals that the regression model is statistically significant. The regression coefficient for reward and recognition system indicates that it has a positive influence on the effective implementation of the remote working team ($\beta = 0.203$, $p<0.01$). This result supports the first hypothesis (H1) of the study. The regression coefficient of flexible & clarity work schedules of the team indicates that it has a positive impact on the effective implementation of the remote working teams ($\beta=0.217$, $p<0.05$). This result also supports the second hypothesis (H2) of the study. Regression coefficient of continuous training processes ($\beta=0.135$,

p=0.129) which is not significant at 0.05 indicates that it has no any impact on the effective implementation of the remote working team. This result does not support the third hypothesis (H3) of the study. The regression co-efficient of trust among the team also indicates that it has no any impact on the effective implementation of the remote working team (β =0.116, p=0.113). This result does not support the fourth hypothesis (H4) of the study. However regression coefficient of technological support indicates that it has a positive impact on the effective implementation of the remote working team (β= 0.274, $p<0.01$). This result supports the fifth hypothesis (H5) of the study.

5. Discussion

The main purpose of the research was to identify the factors which influence the effective implementation of the remote working team with the special referencing insurance companies in Kalutara district. The result indicated that reward and recognition system significantly and positively affects the effective implementation of the remote working team. This finding supports the results of the previous researches. There is a common understanding that reward and recognition system and virtual team effectiveness is positively related. Giving out rewards and recognitions at different stages of the virtual project team life cycle could serve different purposes such as encouragement, reinforcement, conformation, and satisfaction (Ng & Tung, 2018).Flexible & clarity work schedules of the teams was found to be a significant factor in effective implementation of the remote working team. This result is also par with the current literature (Zoonen, et al., 2021). However, surprisingly this study found continuous training process and trust among the team members as insignificant factors in effective implementation of remote working teams (Rosen, Furst, & Blackburn, 2006). So, this result would be only applicable to the insurance industry. Consistence to the previous studies, technical support was identified as a significant preditors in effective implementation of remote working teams (Abarca, Sanchez, & Camacho, 2021).

6. Conclusion

The major purpose of this study was to identify the factors that influence the effective implementation of the remote working teams in the insurance industry in Sri Lanka. The study found reward and recognition systems, flexible and clarity work schedules, and technological supports as the important factors in implementing the remote working teams in the insurance companies in Sri Lanka. Therefore, top management should pay their attention on these factors in designing and implementing remote working teams to get achieve the desired results from such work arrangements. More especially monetary and non-monetary rewards and appraisal would play a significant role in this endeavor. The remote working team success would also determine by the technical and other necessary support provided to the teams. As this study only focused the insurance industry and used a research quantitative approach, future research should validate the findings of this study focusing on other industries with the use of mix method research designs.

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Journal of Management Matters

Journal homepage: http://mgt.rjt.ac.lk/pages/journal.php

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The Effect of Foreign Exchange Rates on the Stock Market Performance in Sri Lanka

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Article History
Received Date: 03.07.2022
Revised Date : 04.10.2022
Published date: 31.12.2022

Abstract

All the nations around the world are interrelated and interdependent through economic, cultural, social, and, technological means. The foreign exchange market and the stock market are the driving forces of global interdependency. Thus, the study aims to analyze the nature of the relationship between foreign exchange rates and the stock market performance in the Sri Lankan context. The study adopted a quantitative research approach where publicly available secondary data from the Central Bank of Sri Lanka and the Colombo Stock Exchange were used for the analysis. All Share Price index was used as the dependent variable and the monthly average exchange rates; USD/LKR, GBP/LKR, EUR/LKR, JPY/LKR, and INR/LKR were used as the independent variables. The study gathered data for 19 years from Jan'2000 – Jan'2019, where the data set was tested for unit root, and given the non-stationary nature of data; the Johansen co-integration rank test was applied. The study findings depict a non-significant relationship between the exchange rates and the stock market performance in the Sri Lankan context emphasizing the absence of a long-term relationship. This is of paramount importance for both local and foreign investors given the decisions on foreign exchange risk hedging and the portfolio performance depend on this relationship. To the best of our knowledge, this is one of the early studies in Sri Lanka to identify the association between exchange rates and stock returns over a period of 19 years.

***Keywords**: Colombo Stock Exchange, Exchange Rates, Stock prices*

1. Introduction

Studies on the association between foreign exchange rates and stock market performance have gradually emerged and received increased attention from scholars over the last two decades (Adjasi et al., 2011; Olugbenga. 2012; Hung, 2020; Mroua & Trabelsi, 2020). Over the years, investors, academics, practitioners, and portfolio managers have been exerting themselves investigating the mutual dependencies between the exchange rates and the stock market returns as it directly affects the optimal investment strategy selection in a country. However, the topic is still under debate and has not been addressed accurately. Interdependency among nations is substantial in the modern globalized world which has led the financial markets all over the world to become vastly integrated (Babecky et al., 2013).

The foreign exchange market and stock market play a significant role as driving forces of the financial markets globally. The foreign exchange market is the globally decentralized market for currency trading. The value of the home country's currency in relation to a foreign country's currency or a different economic zone is known as an exchange rate (Khalighi & Fadaei, 2017). Sri Lanka is experiencing rapid growth in international trade since the early 1970s on the back of globalization, where the implementation of the free-floating exchange rate policy in 1973 escalated the exchange rate volatility and related risks. Consequently, firms started making losses owing to exchange risks which signal the potential impact of exchange rate fluctuations on the stock markets. Further, Translation risk, Transaction risk, and Economic risk are involved with foreign exchange risks and tend to affect the firm performance and thereby the stock market performance (Salifu et al., 2007; Kamau et al., 2015).

According to Boutchkova and Megginson (2000), stock markets in developed countries play a crucial role given their significance when proxied through the capitalization of listed domestic firms relative to the national product. The global stock market ranking has recognized the United States, Japan, and China as the countries with the highest stock market capitalization (Statista.com, 2021). Further, emerging countries accounted for 6.3% of world capitalization as of 1999; 10.6% in 2010 and 12.5% in 2019 reflecting

the significance of stock markets functioning in emerging markets (Violi & Camerini, 2016; sifma.org, 2021). Sri Lanka as an emerging economy, the stock market capitalization to GDP was reported at 19.8% as of 2020 (Trading Economics.com, 2020) making it pivotal to study the impact of foreign exchange fluctuations.

Our study is driven by several important theoretical foundations where the international trading effect (Aggarwal, 1981) plays a major role in comprehending the association between foreign exchange rates and stock market performances. The theory elucidates how fluctuations in exchange rates affect multinational firms as well as domestic firms engaged in imports and exports of a country (Tsai, 2012). Changes in exchange rates affect the value of an international firm's overseas activities immediately and have a long-term impact on profitability.

On the other hand, devaluation in exchange rates positively impacts the export-based domestic firms while increasing their stock values (Wu, 2000) whereas an appreciation causes a negative effect on the exporting firms and vice versa. Given that most Asian countries are export-oriented countries, currency depreciation positively influences the local stock market (Ma & Kao, 1990). Therefore, the international trading effect reflects that the exchange rates and stock market returns are positively connected in Asian market context (Aggarwal, 1981). The study aims to shed light on the relationship between the stock market performance and foreign exchange rates volatility given the study area is underexplored in the Sri Lankan context.

The choice of Sri Lanka as the study context was driven by several factors. The exchange rate volatility in Sri Lanka has risen drastically since the introduction of the floating rate regime in 2001. Consequently, frequent fluctuations of exchange rates were experienced within the Sri Lankan setting. Policymakers allot this as a major concern given the valuation changes backed by the foreign exchange and shareholder returns, generating substantial fluctuations in international investment positions. With the economic liberalization of Sri Lanka in 1977, the country was further exposed to foreign exchange transactions where the rise in import and export

markets has contributed to the growth of the country's foreign currency inflows and outflows.

The Sri Lankan stock market, in other terms, Colombo Stock Exchange (CSE) depicts higher growth rates and high performance over the last decade despite the lockdowns during the Covid-19 pandemic. ASPI has crossed 10,000 points and reached its all-time high value of 13,242 in early 2022 amidst drastic rupee depreciation. Further, the third phase of the digitization initiative of the stock market has been completed in mid-2022 with the aim of digitalizing the entire capital market industry. The substantial economic growth followed by the economic liberalization induced the participation of international investors in the stock market which influenced the domestic stocks as well as domestic currencies. This has eventually led to mutual intertwining between the stock market returns and the exchange rate dynamics (Kanas, 2003).

Our study has several contributions. Firstly, the paper aims to address the inconsistencies of the findings regarding the relationship between the exchange rates as positive (Caporale et al., 2004; Ülkü & Demirci, 2012), negative (Soenen & Hennigar, 1988), uni-directional (Ajyay et al., 1998), bi-directional (Chkili, 2012). Secondly, the existing studies elaborate that the study results vary according to the nature of the economy. Thus, the relationship between the exchange rates and the stock prices varies from a developed country to a developing country context given the dearth of studies in this research context in Sri Lanka. Further. the decisions regarding the foreign exchange risk hedging arrangements and the portfolio performance will depend on the bond between the stock returns and the exchange rates. Thus, it is vital to have a good know-how of the factors that have an impact on the returns and the performance of the stock market. Sri Lanka which is a highly Foreign Direct Investment driven developing country, makes it pivotal to study the relationship between the foreign exchange market and the stock market performance.

2. Literature Review

The interrelationship between the stock market returns and the foreign exchange market has been an attractive discussion lately, which has not yet

been addressed accurately. A group of researchers has identified a positive relationship (Sevuktekin & Nargelecekener, 2007; Noel & John, 2009; Caporale et al., 2015) whilst others found a negative (Gaurav et al., 2010; Wong, 2017; Kim, 2003) or no relationship (Solnik, 1984) amongst the stock market and the foreign exchange market. Further, certain articles have concluded a bi-directional relationship (Muhammed & Rasheed, 2002) whereas some scholars came up with a uni-directional relationship (Abdalla & Murinde, 1997; Pan et al., 2007). Some empirical results reveal that the relationship between the stock market returns and the foreign exchange rates depends on the macroeconomic and political atmosphere prevailing in the country (Smith, 1992).

2.1 The Economic Theory of Exchange Rates

Macroeconomic variables such as the money supply, inflation, and interest rates play a huge role in determining the exchange rates of an economy. Such fluctuations in an exchange rate would directly influence the competitiveness of the firm's stocks in a global atmosphere (Boston et al., 2018; He et al., 2021), which are also reflected in the firm revenue and equity. Messe & Rogoff (1983) also proved that a linkage exists between the exchange rate and the market returns of the stock market and asserted that such a relationship is facilitated via macroeconomic variables. Further, the economic theory postulates that firms which engage in beyond-border operations, usually encounter three exposures namely; operational exposure, transaction exposure, and translation exposure (Bernoth & Herwartz, 2019).

The operational exposure is a result of exchange rate fluctuations where transaction exposure occurs when engaged in foreign currency-denominated transactions and hence causes either profits or losses. The translation exposure arises when aggregate financial statements are converted into a foreign currency, usually if the parent is a foreign company (Deng, 2020). The Economic theory is therefore used to analyze the study results based on the mentioned three types of exposures and the impact of exchange rates on market/stock market returns. It was observed that the resulting consequences on the firm performance have an impact on their stock performance leading to variations in stock market performance. Therefore, it's vital to

comprehend the impact of foreign currency movements on the stock market performance.

The existing literature postulates two main theories in explaining the relationship between the exchange rates and the stock market performance, i.e., the Traditional model (flow-oriented model), the Portfolio balance approach (stock-oriented approach).

2.2 Flow-oriented Theory (Traditional Model)

The International Trading Effect Theory postulates that the depreciation of the local currency boosts export trade given the increase in competitiveness of export products (Nweke et al., 2020; Dogru et al., 2002). Thus, the revenues of the firms involved in international trade increase and in turn would result in enhanced stock prices and thereby would favorably impact the domestic stock market (Moradi et al., 2021; Ma & Kao, 1990). Traditional theories emphasize the competitiveness of the company's exports as the channel through which the exchange rates affect the firm's profitability and thereby the stock market prices. As put forward by Solnik (1983), the appreciation of the native currency in real terms is unfavorable to local businesses since it decreases their competitive edge in the export industry, lowering their profits. Thus, reflecting a positive relationship between exchange rates and stock market performance. Exchange rate fluctuations have a short-term impact on the value of a multinational firm's overseas operations and a long-term impact on profitability (Tsai, 2012). Consequently, the International Trading effect theory is applicable to Sri Lanka given the recent drastic fluctuation in the foreign exchange rates in the Sri Lankan context.

2.3 Portfolio Balance Approach

The portfolio balance approach (Frankel, 1983) which is an extended version of the monetary exchange rate model; addresses the deficiencies of the monetary approach (Adekoya, 2020; Bahmani-Oskooee & Sohrabian, 1992). This is a more realistic approach explaining that any alteration in the macroeconomic variables of an economy would exert an impact directly on the supply and demand conditions of domestic and foreign bonds (Aydemir

& Demirhan, 2009). The theory suggests that the determination of the exchange rate is directly aligned with trade. The portfolio balance approach explains that an increase in the home country's money supply results in a reduction of the interest rates, causing the asset portfolio to be shifted from domestic bonds to local currency and overseas bonds. The replacement of foreign bonds with domestic bonds causes the local currency to depreciate immediately, resulting in an increase in exports and a decrease in imports. This leads to a trade surplus and thereby an appreciation of home currency which set off a portion of the original depreciation of the currency (Granger et al., 2000; Stavarek, 2005). The portfolio balance approach also describes exchange over-shooting (Ejem & Ogbonna, 2020). In comparison to the traditional approach, the portfolio theory has the key advantage in terms of the tendency of the financial assets to adjust faster to the latest economic conditions than tradable goods and the theory proposes a negative relationship between foreign exchange rates and stock market performance and which could exist in the Asian markets (Tsai, 2012). Therefore, the theory explains the negative relationship between the variables observed in certain prior studies.

Despite the theoretical foundation behind two approaches with respect to a particular market, the relationship needs to be empirically explored as a simultaneous market response indicates the potential of both approaches to influence the market. Especially given the recent drastic changes in the foreign exchange rates, historical developments, and the existing structure of the foreign exchange and stock markets, it is observed that both theories could have some explanatory power on two key theories. Therefore, it is vital to test the relationship between the stock market performance and the foreign exchange rates.

2.4 Empirical Findings

Numerous studies have been undertaken globally to determine the influence of exchange rates on stock market performance. Frank & Young (1972), one of the first studies in this study context, asserted that the effect of the exchange rates on the stock market return depends on the geographical distribution of the firm. i.e., multinational or domestically based company. Ma & Kao (2008) studied monthly data between Jan'1973 and Dec'1983 to

test the reaction of stock prices to the change in the exchange rates in six industrial economies; UK, France, Canada, Japan, West Germany, and Italy and where the findings were in line with the flow-oriented model. They concluded that the degree of the change in the stock prices in relation to exchange rates is determined by the extent to which the economy is exposed to international trade; exports and imports. The studies mainly applied simple regression analysis to test any existing relationship between the two variables; thus, were limited and insufficient to arrive at an accurate solution.

Bahmani & Sohrabian, (1992), one of the pioneers to test the causality in determining the relationship between the exchange rates and the stock market performance, analyzed the data for a period of 15 years in the US context. They concluded that the exchange rates and the stocks constitute a bi-casual bond within the said period; supporting both portfolio and flow models. Further, a co-integration test was performed to examine the relationship which provided only limited evidence to prove any such relationship in the long run. On contrary, Jorion (1990) argued that the impact the exchange rate exerts on US multinational companies depends on the industry. In the long and short run, Stavarek (2004) examined the monthly stock prices and exchange rates in four old and four new EU member countries. The results revealed that a more influential connection exists among the two variables during the period 1993-2003 rather than the period 1970-1992. In addition, the research results of Giovannini & Jorion (1989), also supported the results of Stavarek (2004) in the US context.

Further, Ong & Izan (1999) used a non-linear least square technique to determine the relationship between the stock prices and the exchange rates in the US where the result revealed a weak association between the two variables. Aggarwal (1981) studied US monthly stock market indices from 1974 to 1978 period and found a positive relationship between weighted average exchange rates and the stock market indices and concluded that the study results are consistent with the flow model. Using monthly data from 1980 to 1986, demonstrated a significant negative link between the value of the US Dollar and stock prices. In contrast, using monthly data from 1980 to 1986, Soenen & Hennigar (1988) demonstrated a significant negative link between the value of the US Dollar and stock prices. Frankel (1983) also

established a negative relationship among the exchange rates and the stock returns supporting the Portfolio Balance theory. Furthermore, Richards & Simpson (2009) discovered a positive co-integrating association among the stock prices and the foreign exchange rate fluctuations in the Australian context. However, Bhattacharya & Mukherjee (2003) found out that the association between the said two variables shows lesser integration by examining the Indian context.

In the early stages, scholars examined only the developed countries in this context where the focus started to divert towards the developing economies with the rise of the Asian financial crisis during the late 1990s. Granger, Huangb, & Yang (2000) conducted a study on the interaction between the stock market and the exchange rates in the context of Japan, Hong-Kong, Malaysia, Indonesia, South Korea, Philippines, Singapore, Taiwan, and Thailand; the countries which were affected by the Asian financial crisis. They found little evidence for interaction among the exchange rates and the stock market in all other nations except Singapore where they discovered that the exchange rates rule the stock market in Singapore, supporting the flow-oriented model.

Yu (1997) analyzed daily data from three Asian countries; Hong Kong, Singapore, and Tokyo for the period 1983 – 1994, and they ascertained that the relationship among stock market performance and the exchange rate is bi-directional in Tokyo while it is uni-directional in Singapore. Further, Chkili (2012) also observed a bi-directional linkage and a significant spillover effect amongst the exchange market and the stock market in 12 emerging economies except for Columbia. Ajayai et al., (1998) observed a uni-directional relationship amongst the foreign exchange and the stock market performance mostly in developed economies where they also found that the relationship between the two variables in developing economies is inconsistent. This weak relationship between the stock prices and the exchange rates was explained by the less attractive investments in emerging economies owing to the political instability and unsupportive legislation.

Kemal (2005), by employing the Granger causality, examined the relationship between stock prices and the exchange rates in Turkey. The

findings demonstrated a uni-directional relationship that runs from price levels to exchange level changes although a reverse relation was not present. According to Sikarwar & Mehta, (2011) exchange rate is a significant macroeconomic variable determining the stock returns of all the portfolios in Asia. Abdalla & Murinde (1997) used the co-integration approach in the long run to determine the interconnectedness between the two variables in four Asian nations from 1985 to 1994.

They concluded the absence of causality in Pakistan and Korea but suggested the availability of such causality in India and the Philippines. Furthermore, Abdalla (2012) and Rahman & Uddin (2009) demonstrated that there is no causal relationship between foreign exchange market performance and stock returns in emerging capital markets. Phylaktis & Ravazzolo (2003) studied long-term and short-term dynamics of the relationship among the stock market and the exchange rates in Pacific Basin countries during 1980-1988 period and concluded that the two variables are positively co-related. Caporale, Howells, & Soliman (2004), Ülkü & Demirci (2012) also demonstrated that the exchange rates have a positive impact on stock returns. Griffin & Stulz (2001) studied the impact of weekly exchange rates on the stock market of developed countries and concluded that the impact of such weekly exchange rates is comparatively lesser in developed countries. In the Sri Lankan context, Wickramasinghe (2011) determined a strong connection between exchange rates and stock market prices. However, there is a dearth of studies in this study area in the Sri Lankan setting which requires substantial attention from scholars.

3. Methodology

3.1. Data and Sampling

The study aims to investigate the association between the exchange rates and the stock market prices of the Sri Lankan listed companies. A quantitative research design was used where the study used a deductive approach in a positivist research paradigm. The population of the study includes all the exchange rates and ASPI values-related data whereas the study sample is limited to data from 239 months; from Jan’2000 to Nov’2019. The period of the study was selected to overcome any outliers

caused due to the COVID-19 pandemic and the recent economic crisis situation in Sri Lanka. However, given the rapid rebound of the stock market in Asian economies by the year 2009 subsequent to the 2007 global financial crisis, its impacts have been disregarded (Sriyalatha & Torii, 2013).

The study selected the five frequently dealt, major currency types in Sri Lanka i.e., United State Dollars (USD), Euro (EUR), Great Britain Pounds (GBP), Indian Rupees (INR), and Japanese Yen (JPY). The performance of the stock market was examined using the All-Share Price Index (ASPI) and the required data were acquired from the Colombo Stock Exchange. The study collected monthly average exchange rates for the period of 19 years from Jan'2000 to Nov'2019 from the Central Bank website. The data set did not have any missing data or any outliers. Eviews10' statistical package, which is the main macroeconomic forecasting toolset was used for the data analysis in the study.

3.2. Variable measurement

The study employed the exchange rate as the independent variable of the study whereas the stock market performance as the dependent variable. The number of units of one currency that can be exchanged for one unit of another is known as the exchange rate (Dada, 2020). Hence, it is the price at which a national currency is valued in relation to a foreign currency.

Table 1. Summary of measurement of variables

Variables	Measurement	Source
Dependent variable: Stock market performance	The All Share Price Index (ASPI)	Richards & Simpson (2009)
The independent variables: United StateDollar (USD) exchange rate	LKR per USD (LKR/USD)	Richards & Simpson (2009) Perera (2015)
Great BritainPounds (GBP) exchange rate	LKR per GBP (LKR/GBP)	
Euro (EUR) exchange rate	LKR per EUR (LKR/EURO)	
Japanese Yen (JPY) exchange rate	LKR per JPY (LKR/JPY)	
Indian Rupee (INR) exchange rate	LKR per INR (LKR/INR)	

Usually, the supply and demand conditions of a foreign currency in the market influence the exchange rate. Payments for imports of goods and services, as well as capital payments, influence the demand for a currency, whereas the supply of a currency is determined by exports of goods and services, as well as capital receipts. For this study, five main exchange rates i.e., USD/LKR, GBP/LKR, EURO/LKR, JPY/LKR, and INR/LKR have been used as the independent variables.

The All Share Price Index in Sri Lanka (ASPI), which is the wide market index of the Colombo Stock Exchange, is used to gauge stock market performance. The ASPI is a market capitalization-weighted index that includes all CSE listed ordinary (voting) and preference (non-voting) shares and is produced in real-time to track general market movements. During a trading day, it covers all traded firms where the index's base value is based on average market values from 1985, and the index's base value is 100. This is the broadest measure of the Sri Lankan stock market.

3.3. Hypotheses Development

The hypotheses were formulated based on sound literature available and previous studies conducted in a similar study area.

H1 – There is a significant association between USD/LKR exchange rates and stock market performance.

H2 – There is a significant association between GPB/LKR exchange rate and stock market performance.

H3 – There is a significant association between EUR/LKR exchange rate and stock market performance.

H4 – There is a significant association between JPY/LKR exchange rate and stock market performance.

H5 – There is a significant association between INR /LKR exchange rate and stock market performance.

3.4. Conceptual Framework

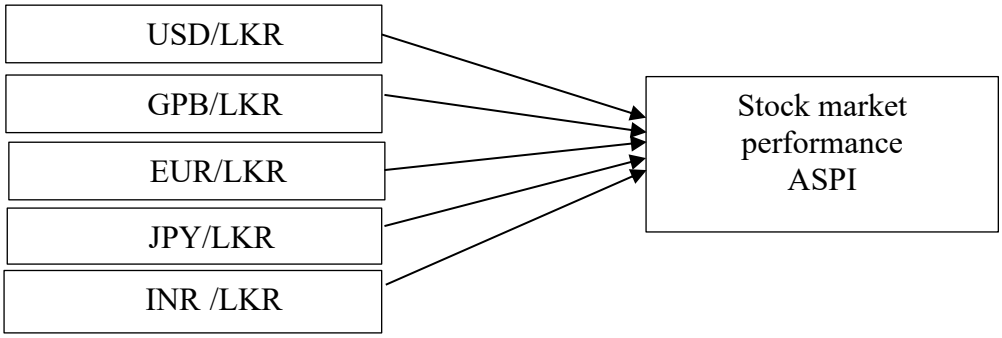

Figure 1: Conceptual Framework

4. Findings and Results

4.1. Descriptive statistics

The descriptive statistics of the data set are summarized in Table 2. The ASPI has ranged between 398.46 and 7701.19 with a mean value of 3853.30 and a standard deviation of 2462.93 within the 239 months under consideration. The EURO rate with a mean value of 144.30 (SD=34.92) has drastically changed within the 19 years from a minimum of 66.37 to a maximum of 208.05. The GBP rate has recorded the highest mean value for the period; being, 186.03 with a variation of 30.55. The GBP rate fluctuated between a minimum of 111.24 and a maximum of 235.15 within the period.

The JPY has recorded a mean of 1.14 (SD=0.28) while INR has a mean value of 2.26 (SD=0.25) and ranges between the minimum and maximum values of 1.59-2.88 respectively. Further, the USD rate with a mean of 118.88 and a standard deviation of 25.32 has ranged from a minimum of 72.36 to a maximum of 182.13.

Table 2. Descriptive statistics

	ASPI	EURO	GBP	JPY	INR	USD
Mean	3853.303	144.294	186.030	1.137	2.259	118.883
Median	2997.600	152.820	189.871	1.169	2.279	112.111
Maximum	7701.190	208.051	235.151	1.686	2.876	182.128
Minimum	398.460	66.374	111.239	0.666	1.589	72.359
Std. Dev.	2462.931	34.920	30.552	0.284	0.245	25.320
Skewness	-0.020	-0.621	-0.779	0.105	-0.305	0.640
Kurtosis	1.358	2.618	2.890	1.878	3.199	2.880
Jarque-Bera	26.867	16.836	24.272	12.968	4.111	16.469
Probability	0.000	0.000	0.000	0.002	0.128	0.000
Sum	920939.5	24486.37	44461.11	271.645	539.807	28412.990
Sum Sq. Dev.	1.440	290217.4	222150.9	19.214	14.341	152583.5
Observations	239	239	239	239	239	239

4.2. The Unit Root Test

The unit root test was conducted as the initial step using the Augmented Dickey-Fuller Test (ADF Test) (Richards & Sympson, 2009) in order to test the stationarity or the non-stationarity of the data incorporated. The unit root test results given in Table 3, depict that all the data are insignificant as the probability values are higher than 0.05. Therefore, the system-generated null hypothesis needs to be accepted, evidencing the presence of a unit root in the data set. Consequently, the entire data set needs to be concluded as non-stationary at the level which is considered reasonable as both the exchange rates and the ASPI are macroeconomic variables and such macroeconomic variables spontaneously change with time.

Table 3. Probability values at Level- ADF Test

Variable	Prob.
ASPI	0.7337
USD	0.9732
GBP	0.2786
EURO	0.5079
JPY	0.7474
INR	0.1213

Given that the data set was non-stationary at level, the ADF Test was reperformed at the first difference. The test results in Table 4 reflect a 0.000 probability for all the data which is less than 0.05 (<P value) and concluded as a stationary data set. The Granger Causality Test can be performed to assess any relationship among the variables, given a data set is stationary at level itself. However, given our data set is non–stationary at level, co-integration test was performed to analyze any existing relationship.

Table 4. Probability values at first differences - ADF Test

Variable	t-Statistic	Prob.
ASPI	1.2276	0.000
USD	7.2270	0.000
GBP	4.8335	0.000
EURO	4.4286	0.000
JPY	5.3686	0.000
INR	3.9676	0.000

4.3. Co-integration Test

The Johansen Co-integration Test was used to determine whether the data set was co-integrated. Given that the Johansen co-integration test is sensitive to lag lengths, several tests are run to determine the best lag duration where the study takes 1 to 12 as the optimum lag length as per Wooldridge, (2012).

The Johansen Co-integration performs the co-integration under two tests; the TRACE and the EIGENVALUE. As per the Johansen co-integration test findings in Table 5, the probability values are greater than 0.05 (p value > 0.05), under all five currencies i.e., USD, GBP, EURO, JPY, INR thereby rejecting the null hypotheses. This is further supported by the lower Trace and Max-Eigen statistics compared to the 0.05 Critical value under all five currencies attesting that the relationship between stock market performance and the foreign exchange rate is non-significant. Hence, we can conclude that there is no co-integration between the independent variable (Exchange rates) and the dependent variable (All Share Price Index), hence, no long-run relation exists among the variables. The study outcomes imply that the model is unlikely to converge over the long term in the presence of systemic shocks.

Table 5. Johansen Co-integration Test

Null hypotheses	Trace Statistics	0.05 Critical value	Prob.	Max-Eigen Statistics	0.05 Critical value	Prob.
USD						
r=1	6.063	15.495	0.688	5.239	14.265	0.711
r≤1	0.824	3.841	0.364	0.824	3.841	0.364
GBP						
r=1	8.551	15.495	0.408	6.416	14.265	0.560
r≤1	2.135	3.841	0.144	2.135	3.841	0.144
EURO						
r=1	10.290	15.495	0.259	7.606	14.265	0.420
r≤1	2.684	3.841	0.101	2.684	3.841	0.101
JPY						
r=1	11.169	15.495	0.201	10.140	14.265	0.203
r≤1	1.029	3.841	0.310	1.029	3.841	0.310
INR						
r=1	7.561	15.495	0.513	5.631	14.265	0.661
r≤1	1.931	3.841	0.165	1.931	3.841	0.165

5. Discussion and Conclusion

5.1. Discussion

By analyzing the monthly data totaling up to 239 observations for a period of 19 years from Jan'2000 to Nov'2019, the study found that there is a non-significant relationship between the exchange rates and the ASPI which reflects that the exchange rate does not exercise any impact on the stock market performance. Therefore, all five hypotheses that were developed, were rejected. Therefore, study results reflect the absence of a long-run relationship between the stock market performance and the foreign exchange rates.

The findings are consistent with several prior studies conducted in this study context. Granger (1969) concluded that there is little evidence to prove a long-term association among the exchange rates and the stock market

performance in the long run in the Asian region. Rahman & Uddin (2009) examined the association amongst foreign exchange rates and stock market performance in three South Asian countries; i.e., Bangladesh, India, and Pakistan, and proved the absence of a relationship amongst the same. Further, the findings are consistent with the study done by Abdalla & Murinde (1997) on the relationship between the stock market performances and the exchange rate in emerging economies; including South Asian and East Asian countries; Philippines, India, Pakistan, and Korea which concluded the absence of a co-integration among the stock market performance and the exchange rates.

According to Ajyay, Friedman, & Mehdian (1998), the findings on the relationship among the exchange rates and the stock market in the developed economies and emerging economies were different from one another. The authors suggested that the stock markets are much more integrated and deeper in developed countries compared to the emerging or developing countries owing to the less access to foreign investment and the higher level of concentration in the economy. The authors further explained that investment in emerging economies is less attractive due to political instability and unsupportive legislation which results in a weak relationship between the stock prices and the exchange rates. Sri Lanka being an emerging economy in the South Asian region; the above reasons can be attributable to the absence of a long-term relationship between the exchange rate and the Sri Lankan stock market performance. Further, the absence of a co-integration posits that there is no predictive element between stock market performance and exchange rates. Consequently, there can be difficulties in forecasting future movements and no policy interventions can be made to produce long term effects.

5.2. Conclusion

This study investigated the effect of the Foreign Exchange rates on the stock market performance in Sri Lanka using the ASPI and five exchange rates; USD/LKR, GBP/LKR, EURO/LKR, JPY/LKR and INR/LKR considering 239 monthly observations from January 2000 to November 2019. The data set was tested for stationarity using ADF Test followed by Johansen Co-integration to establish any relationship among the two

variables using Eviews10. According to the statistical outcome, it was concluded that there is no significant relationship among the exchange rate and the stock market performance in the Sri Lankan context. Hence, all the developed hypotheses were rejected.

5.3. The Implications of the Study

The study findings have ramifications for the macroeconomic policies of the Sri Lankan economy. The findings are vital for the policymakers, regulatory authorities, and particularly central banks to make decisions with respect to foreign exchange rates and economic policies of a country. Further, given that the study area has implications for investors in terms of asset allocation decisions, investor portfolio management, and risk management decisions, it is of paramount importance to comprehend the interconnectivity of exchange rates and stock markets. Our study results depict that given the non-stationary nature of macro-economic variables; it is difficult to predict the variables in the long run. Also, the findings imply that the exchange rate is not the only factor that impacts the stock market performance or the ASPI for this matter. Other factors such as the performance of the listed companies, the economic and political stability of the country, and the foreign direct investment are having considerable influence on the stock market performance.

5.4 Limitations and future directions

The stock market performance is driven by many factors other than the exchange rate and consequently making it an impact on the reliability and the accuracy of the research findings. Future scholars can incorporate other elements such as company performance, macroeconomic atmosphere, and foreign direct investment as the independent variables of the study. The selected sample consists of data for only 19 years from January 2000 to November 2019 and this may not represent the entire population. The researchers could focus on the COVID-19 impacts and the current economic crisis prevailing in the country under the study. Better and advanced methods of interpreting and analyzing data were not applied given their complexity and the cost involved that would have predicted more accurate results. Thus,

it is advisable for future scholars to incorporate more advanced data analysis techniques such as the VAR model in their studies.

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Journal of Management Matters

Journal homepage: http://mgt.rjt.ac.lk/pages/journal.php

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Impact of ICT Usage and Dynamic Capabilities on the Business Resilience of SMEs During the COVID-19 Pandemic: A Case of Galle District

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Article History

Received Date: 25.09.2022

Revised Date : 26.11.2022

Published date: 31.12.2022

Abstract

The primary concern of this study is to examine how Information & Communication Technology (ICT) usage and dynamic capabilities impact the business resilience of Small and Medium Scale Enterprises (SMEs) to survive and continue during the COVID-19 pandemic. The data were collected from a sample of 129 ICT-used SMEs employing face-to-face and telephone interviews. Partial Least Square-Structural Equation Modelling (PLS-SEM) was used to analyse the data through SmartPLS software. The study findings reveal a significant positive relationship between ICT usage and business resilience during the pandemic. And ICT usage significantly affects the dynamic capabilities of the business. Results also claim that dynamic capabilities play a complementary mediating role in the relationship between ICT usage and business resilience. Consequently, the study concludes that the adoption of ICT and the ability to integrate, build and reconfigure the available resources of SMEs with ICT enablers enhanced their resilience and ensured survival during the pandemic. The research design, the methodology utilized, and the findings of this study will benefit researchers, policymakers, and entrepreneurs and contribute to future studies regarding the regrowth and resilience of SMEs during a crisis.

***Keywords**: Business Resilience, Dynamic Capabilities, ICT Usage, SMEs*

1. Introduction

The COVID-19 pandemic caused the global health system's breakdown and worsened the global economy. It is evident that in 2020 global GDP growth rate has been reported as -3.59% (Shang & Zhang 2021). During the lockdown period, the Sri Lankan economy also suddenly experienced a considerable deterioration in national output, trade, employment, and demand and growth, resulting in -3.57% GDP growth in 2020, while 1st quarter of 2020 reported -1.8% and 2nd quarter reported -16.4% and after easing the restrictions showing positive change as -1.3% in last two quarters (Faculty of Humanities and Social Sciences (FHSS), 2020). FHSS (2020) have identified that the income sources of 64% of households in Sri Lanka have been affected by the pandemic, while 7% of them lost income and 3% lost their entire livelihood in the crisis. The industrial sector, which includes the majority of SMEs, such as tourism, education, apparel, accommodation, food and beverages, and other retail sectors, has been affected severely by this crisis (International Finance Corporation (IFC), 2020). According to the Department of Census and Statistics (DCS) (2020), during the lockdown period, SMEs' total revenue and employment declined by 56.8% and 62.4%, respectively. Consequently, most SMEs failed to cope with the crisis and collapsed due to the lack of resilience of entrepreneurs.

Business resilience is the capacity of an organization to survive. It can help businesses to survive and sustain any hardship and setback they face by regaining pre-disaster levels of functioning to increase growth after the crisis. If a business has a high resilience ability, that firm can convert losses into profits using the existing situation as an opportunity and reduce costs. (Fiksel, 2006; Huggins & Thompson, 2015; Paton, Violanti & Smith, 2003). In Sri Lanka, even though most of the businesses couldn't be able to survive, 10% of SMEs have adjusted their business strategies by identifying the pandemic as an opportunity and survive as a resilient strategy firm adopted the online-based market concept and e-commerce technologies since the public preferred contactless transactions in the market (FHSS, 2020).

ICT usage consists of technological tools and resources such as computers, applications, and many other communication technologies with smartphones, enabling people to connect through social media regardless of

time or place (Wally & Koshy, 2014). As reported by Kemp (2020), from 2019 through 2020, it has scored that the number of internet users and social media users in Sri Lanka has increased by 399,000 (4.1%) and 491,000 (8.3%), respectively. Consequently, it decreased the limitations of travel restrictions. To address the global challenges, rapid technology or ICT adoption is the better path toward mitigating the barriers (Gamage et al., 2020). Expecting the resilience and sustainability of SMEs that resist the preconditions of digitization is insensitive in a crisis. (Guo, Yang, & Guo, 2020; Syed et al., 2020). Technology adoption and digital transformation have moved from growth enablers to business continuity determinant factors during the pandemic lockdown period (Dunne, Crowder, Pascoe, & Bakhru, 2020).

Dynamic capability is the firm's ability to integrate, build and reconfigure internal and external resources to address rapidly changing environments (Teece, Pisano, & Shuen, 1997). According to (Schepers, Vandekerkhof & Yannick, 2021), in a crisis, business resilience is highly dependent on the dynamic capabilities of a firm as a strong need to adapt and evolve in that situation. ICT adoption can increase small businesses' dynamic capabilities through ICT competencies. As a result, and solution for survival in the pandemic, small enterprises adopt ICT for resilience in the crisis by improving dynamic capabilities. Considering those relationships and concepts can examine the impact of ICT usage and dynamic capabilities on the business resilience of SMEs in Sri Lanka during the pandemic situation. Although few previous research studies have been conducted and are available about the impact of ICT adoption and dynamic capabilities on the business resilience of SMEs in the COVID-19 pandemic situation in other countries, Sri Lanka has not paid attention to business resilience from this perspective, especially in understanding the mediating role of dynamic capabilities on the relationship between ICT usage and business resilience. Therefore, the objective of this study was to understand the contribution of ICT to achieving the dynamic capability needed to enhance the resilience of SMEs during the COVID - 19 pandemic. Consequently, the study established the research problem of the impact of ICT usage on the dynamic capabilities and business resilience of SMEs in Sri Lanka during the Covid-19 pandemic. The findings of the study reveal new avenues for researchers, policymakers,

and entrepreneurs to overcome the damage of this crisis and develop the resilience of SMEs in Sri Lanka.

The paper layout is organized as follows. First, it reviews the literature on ICT, dynamic capabilities, and business resilience and their relationships. Research hypotheses are formulated based on the literature review. The description of the study materials and methods and the obtained results are presented and discussed in the next section. Finally, the paper concludes by reviewing the contributions and limitations of the study and providing directions for future research.

2. Literature Review

SMEs in COVID-19 Pandemic: Recent research states that SMEs in Sri Lanka provide 45% of employment and 75% of total enterprise in the economy (IFC, 2020). SMEs remain vulnerable to external shocks such as financial crises, disasters, and forced changes in the business environment during the COVID-19 pandemic (Shinozaki & Rao, 2021). The COVID-19 pandemic has become an unprecedented crisis for SMEs, which made to change their business operations and adapt to new circumstances (Paunescu & Matyus, 2020). According to IFC (2020), Most of the subsectors of SMEs, such as tourism, textiles, food, and footwear, were affected and lost continuously in Sri Lanka and reported that two-thirds of SMEs in Sri Lanka had faced a decrease in demand for their products and services due to the pandemic. Mainly firms in the agriculture, manufacturing, construction and service sectors were hit harder. Large corporations have well-established digital solutions in place to face the pandemic. However, SMEs are severely affected by the restrictions because of their concentration in the retail and hospitality sector, and consequently, most of the SMEs have closed down their firm, and others face hardship in paying the running cost of the organizations (FHSS, 2020; ITU, 2020; Warsame, 2020).

ICT usage: ICT is a set of different technological tools and resources such as computers and applications, telephones, mobile phones, communication services, and internet services which are used to communicate, create, distribute, store and manage information (Ashrafi & Murtaza, 2008; Matlay & Addis, 2003; Tinio, 2003). ICTs provide

opportunities for enhanced and innovative solutions for managing products and processes, hence allowing businesses to flourish in competitive markets (Mwantimwa, 2019; Sellens, Chao, & Gonzalez, 2015). ICT usage in enterprises in resource planning and e-commerce reduces the cost of operations and maximises the revenues of business firms (Jameel, Karem, & Mahamood, 2017). Access to new technology is a vital factor in the determination of the growth and expansion of SMEs (Amaradiwakara, 2017; Ranatunga, Priyanath & Meegama, 2020). Small businesses are using social media because of its effectiveness in identifying the changing consumer behaviour, new marketing strategies and increasing brand credibility by enhancing their brand image. It has emerged as an essential piece of business marketing strategy. According to Global Digital Statistics, 52% of social media marketers believe social media positively influence their company's revenue and sale (Benwell, 2014). With globalisation, most SMEs stepped towards ICT-based activities such as E-business and m-commerce, which indicated more positive consequences such as increasing productivity, reducing operational costs, and improving customer satisfaction (Gamage et al., 2020). During the COVID-19 pandemic, digital technologies have become a critical enabler of connectivity, facilitating the continuity of our regular lives and connecting people more than ever before (ITU, 2020). In Sri Lanka, during the pandemic situation, one-third of SMEs have tried at least one new digital business channel to continue their businesses. Even so, women-owned SMEs were significantly less likely to have digital business channels than other businesses (IFC, 2020). In a crisis like COVID-19, ICT usage is the best solution to keep the country's small business sector awakened as the economy also breaks down in Sri Lanka.

Dynamic Capabilities: Dynamic capabilities as the firm's ability to reconfigure operating capabilities and consequently allow the firm to adapt and evolve (Zahra, Sapienza, & Davidsson, 2006; Teece et al., 1997; Newey & Zahra, 2009). It is mainly involved in certain change routines and analysis, creative managerial and entrepreneurial acts such as product development, and establishing new markets (Teece, 2010). Dynamic capabilities have been conceptualised as a firm's capacity to sense, create, extend, modify, reconfigure, integrate, and renew, etc. its capabilities in fast-changing environments (Ambrosini & Bowman, 2009; Borch & Madsen, 2007; Helfat & Peteraf, 2009). Based on the dynamic capability theory of Teece (2007),

dynamic capabilities can be divided into the capacity (1) to sense and shape opportunities and threats, (2) to seize opportunities, and (3) to maintain competitiveness through reconfiguring, enhancing, combining, protecting the business enterprise's tangible and intangible assets. Sensing, which means identifying and assessing opportunities, and threats outside the firm, seizing and mobilising resources to capture value from these opportunities, and reconfiguring or transforming by continuously renewing, can make capability dynamic. Sensing describes the ability of a firm to identify and assess market and technology changes and opportunities through learning about the internal and external business ecosystems. Sensing and shaping opportunities involve scanning, creating, learning, and interpreting the market. Sensing capability enables the organization to obtain relevant knowledge about changing market environment and ensure that organizations respond quickly to opportunities and threats (Eisenhardt & Martin, 2000). Seizing refers to identifying opportunities by investing in and addressing new products, processes, or services. Reconfiguring can be identified as continuously renewing a firm's resources or assets to maintain competitiveness (Teece, 2007). Seizing capability is also considered the ability to integrate resources to maximise opportunities in the market, and reconfiguring capacity produces efficient responses to significant environmental changes (Zahra et al., 2006; Okuwa & Onuoha, 2019).

Dynamic capabilities enable firms to quickly adapt, recognise the changes in the external environment, and take necessary actions to respond to those changes (Mishra, Singh, & Subramanian, 2021). For a firm to sustain its competitive advantage, it needs to renew its stock of valuable resources as its external environment changes, and dynamic capabilities enable firms to impact these changing environments, which build resilience to minimise enterprise risk (Ambrosini & Bowman, 2009; Lee & Rha, 2016). In a continuously and unpredictable changing market environment, firms are essential to developing dynamic capabilities to survive; mainly, SMEs should develop more dynamic capabilities to compete with large firms and compete in global markets (Borch & Madsen, 2007; Zhou & Li, 2009). During a crisis like COVID-19, dynamic capabilities can improve SMEs' operating performance and revenues with more substantial benefits for smaller SMEs (Clampit, Lorenz, Gamble, & Lee, 2021).

Business Resilience: Resilience is a psychological concept that emphasises organizations' and individuals' strengths in coping with unusual situations (Cooke et al., 2016). Also, it can be viewed as adaptability, responsiveness, sustainability, and competitiveness in evolving market (Gunasekaran, Rai, & Griffin, 2011). Business resilience can be defined as the capacity of a company to survive, adapt and grow in the face of turbulent change (Fiksel, 2006). Hendry, Stevenson, Macbryde, and Ball (2019) defined business resilience as preventing and absorbing changes and regaining the initial performance level after an unexpected disturbance. Resilience is adapting to and growing within a disaster (Rusell, 2016). Resilience enables businesses to recover from hardships and setbacks experienced by crises faced by managing the business process (Duchek, 2018; Huggins & Thompson, 2015). If an enterprise manages to deliver a positive transformation, to escape the threat while becoming more active and efficient in a crisis, it is enterprise resilient (Riaz-Martin, Lopez-Paredes, & Wainer, 2018).

The COVID-19 pandemic has complicated the global business environment, making the resilience of the small and medium enterprise sector a criterion for business sustainability (Aldianto et al., 2021). Due to the lack of investments required to increase resilience, SMEs are considered unprepared for challenging opportunities and are at risk in the face of adversity (Sullivan-Taylor & Branicki, 2011). Resilience is regarded as a suitable indicator of SMEs' performance during an economic crisis. The resilience of SMEs must be considered to enable them to compete in the global market (Gunasekaran et al., 2011). Business resilience enables SMEs to maintain or regain pre-disaster levels of functioning or adapt successfully and enhance their business growth after the crisis (Paton et al., 2003). To promote the resilience of organizations, especially SMEs, the owners or the managers must satisfy several factors, such as dynamic capabilities, access to finance, external support, and adequate planning (Ali, 2021). Some of the previous literature refers to business resilience as whether the business is open after a disruption or how long the business can remain open after a disturbance, while some studies consider resilience as recovery or adjustments of the firm in income, profit, and business process. (Wasileski, Rodriguez, & Diaz, 2010). Based on the different definitions of previous literature (Sanchis, Canetta, & Poler, 2020) have adopted preparedness

capacity, recovery capacity, and adaptive capacity as the capabilities of resilience in a different disruption based on the enterprise resilience conceptual reference framework. Campos (2016) concluded that business resilience is multidimensional and has identified five significant factors that characterize business resilience in the context of post-disaster recovery. Those are institutional control, planning and preparedness, philosophy and integrity, external support and linkages, and communication and media.

Empirical Evidence: According to ITU (2020), the economic impact of COVID-19 on digital infrastructure has identified that the countries with the most extensive broadband infrastructure have been able to offset the adverse effects of the pandemic. While researching the economic crisis of 2008 – 2009, Bertschek, Polder, and Schulte (2019) mentioned that ICT adoption by firms can adjust their business process by improving resilience during a crisis. Millan et al. (2019) stated in the investigation of ICT implication of self-employers and their business performance during the pandemic they have identified that with the level of ICT use, their earnings also have increased, showing ICT adoption is positively related to entrepreneurial performance. Raj, Sundararajan, and You (2021) imply that the digitalisation of small businesses is crucial in creating business resilience in the post-COVID-19 period. Empirical research conducted by Gunasekaran et al. (2011) on the resilience and competitiveness of SMEs has identified that the ICT usage of firms positively impacts the resilience of SMEs. Social media has revolutionized the way people connect, relate, communicate and interact with other people. Organizations can enhance and develop their business operations using social media for knowledge creation and innovation. Through mass collaboration using social media, SMEs can adopt new business ideas which strengthen resilience to meet the challenges of the COVID-19 pandemic or other unseen turbulence or a crisis. Business resilience, sustainability, and continuity rely on sustainable ICT infrastructures (Yu, Pauleen & Jafarzadeh, 2021).

Guo, Yang, and Guo (2020) have identified from their study that ICT usage enabled SMEs to respond effectively to the crisis using dynamic capabilities. Prida, Oghazi, and Cedergren (2016) reveal that the use of ICT in firms in such ways; as internal efficiency, collaborative service, and communications influence the capabilities of dynamic capabilities of small

firms. Mobile app usage in SMEs in Nigeria helps to increase firms' dynamic capabilities by enhancing SMEs' adaptive, absorptive, and innovative capabilities (Owoseni & Twinomurinzi, 2018). Conversely, Adeniran and Johnston (2016) stated that a positive relationship exists between dynamic capabilities and ICT utilisation, and dynamic capabilities can increase the SME's long-term benefits through ICT applications, functions, and tools. However, Kedemeteme and Twinomurinzi (2019) suggest that the African SMEs' dynamic capabilities do not influence their adoption and emergence of ICT.

Most researchers utilised quantitative methods in their research studies to find the impact of ICT on business resilience and dynamic capabilities (Akpan, Johnny, & Sylva, 2021; Deakins & Battisti, 2015; Owoseni & Twinomurinzi, 2018). They have chosen large samples and analysis techniques such as PLS-SEM, covariance-based structural equation modelling, maximum likelihood estimation (MLE) method etc. Some researchers have constructed conceptual frameworks for examining the impact of dynamic capabilities on business resilience and studied the digitalisation of SMEs and their crisis response to the COVID-19 pandemic. They have used the qualitative approach for their studies (Aldianto et at., 2021; Guo et al., 2020; Martinelli, Tagliazucchi, & Marchi, 2018). Literature analysis and conceptual frameworks, content analysis, and semi-structured in-depth- interviews were employed in these qualitative analyses. As a whole, in research regarding the concept of resilience, a smaller number of studies have followed systematic empirical studies.

Most studies have followed theoretical approaches, focusing on conceptual framework development and selecting suitable measurements (Aldianto et al., 2021; Fiksel, 2006; Huggins & Thompson, 2015). And also, the review of existing literature revealed the absence of a universally accepted definition for resilience and a uniform scale for measuring business resilience. Consequently, most studies have considered the relationship between dynamic capabilities and competitive advantages rather than resilience. Considering previous literature, most researchers have felt the effects of ICT adoption on supply chain resilience during the COVID-19 pandemic. Even though some studies have given their attention to the impact of dynamic capabilities on ICT adoption (Adeniran & Johnston, 2016;

Kedemeteme & Twinomurinzi, 2019), there is a lack of previous research investigating the impact of ICT usage on the dynamic capabilities of SMEs. As well as the mediating role of dynamic capabilities in business resilience studies not considered by previous scholars.

3. Conceptual Framework and Hypotheses

The main goal of SMEs is to achieve a satisfactory level of resilience to survive in the turbulent environment generated by the pandemic situation. Three theoretical aspects have been introduced and combined to examine the problem. ICT usage, dynamic capabilities, and business resilience. The independent variable is ICT usage, the dependent variable is business resilience, and the dynamic capability performs as mediating variable. ICT usage contains four forms; ICT applications, infrastructure, human resources, and mobile technology. According to the literature, dynamic capability comprises three dimensions: sensing, seizing, and reconfiguring. Business resilience considers situation awareness, keystone vulnerability, and adaptive capacity. The study constructed three hypotheses while it was connecting these three variables.

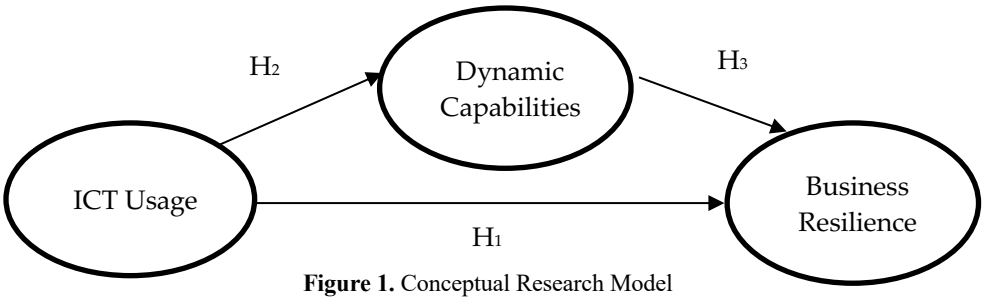

Figure 1. Conceptual Research Model

ICT usage and Business Resilience: ICT usage of a business in different modes and systems such as E-commerce, internet, website, and social media positively influenced the resilience of SMEs (Gunasekaran et al., 2011). Using social media and advanced data analytics technology in the business process can make SMEs generate better business ideas and solutions, enhancing the business resilience to face COVID-19 or other turbulent situations (Yu et al., 2021). The adoption of ICT has been a survivor for small businesses during the COVID-19 pandemic, which increased business

resilience without the need for high investment, resources, and lengthy process adjustments (Bianchini & Wong, 2020). ICT-intensive firms were hit less hard by the productivity and continuity of firms in the service sector during a crisis period (Bertschek et al., 2019). In enhancing business resilience, technology plays a significant role. In service sector firms, different types of technology such as information systems, artificial intelligence (AI), and industry 4.0 and intelligent systems positively contributed to building business resilience during the COVID-19 pandemic (Huang & Jahromi, 2021; Jameel et al., 2017; Min, 2019; Saravi et al., 2019). Thus, ICT usage can increase the business resilience of SMEs in a pandemic, and the study predicts that

H1: There is a significant positive relationship between ICT usage on the business resilience of SMEs during the pandemic situation.

ICT Usage and Dynamic Capabilities: ICT usage of SMEs has enabled them to respond effectively to the COVID-19 crisis by using the dynamic capabilities of organizations (Guo et al., 2020; Prida et al., 2016). ICT usage as a mobile app in SMEs can increase the dynamic capabilities of SMEs (Owoseni & Twinomurinzi, 2018). Using ICT capabilities in small businesses positively affects firms' dynamic capabilities and competitive advantage (Prida et al., 2016). ICT utilisation has a significant positive impact on enhancing the dynamic capabilities of SMEs (Adeniran & Johnston, 2016). Therefore, a firm's ICT usage can increase SMEs' dynamic capabilities. Considering these facts, the study assumes that;

H2: There is a significant positive relationship between ICT usage on the dynamic capabilities of SMEs during the pandemic situation.

Dynamic Capabilities and Business Resilience: Ali (2021) stated that there is a positive relationship between dynamic capabilities and the business resilience of SMEs. Adopting a dynamic capability in the organization corresponds with the organizational resilience process, which looks beyond including capabilities that can adapt to changing circumstances and identify new opportunities to survive and grow (Martinelli et al., 2018). A company's dynamic capabilities help to increase business resilience during the COVID-19 pandemic (Aldianto et al., 2021). SMEs which have developed dynamic

capabilities have the potential to raise the firm's recovery and growth capacity in a post-disaster environment (Deakins & Battisti, 2015; Raj et al., 2021). In a crisis period, the dynamic capabilities of an organization enable firms to survive and evolve in crisis by increasing their resilient ability. Thus, a firm's dynamic capabilities can increase SMEs' business resilience. Hence, the study predicts that;

H3: There is a significant positive relationship between dynamic capabilities on the business resilience of SMEs during the pandemic situation.

ICT usage dynamic capability and Business Resilience: ICT usage increases the business resilience of SMEs and creates a positive relationship with business resilience (Gunasekaran et al., 2011). Conversely, dynamic capability positively influences business resilience (Ali 2021). As mentioned above, ICT usage increases dynamic capability (Guo et al., 2020; Prida et al., 2016). Although the previous empirical studies combining ICT usage, dynamic capability, and business resilience do not appear, it is reasonable to consider that the positive effect on business resilience under ICT usage may be increased by the positively effecting factor of dynamic capability. Conversely, the impact of dynamic capability on business resilience can be increased by ICT Usage. Consequently, the study has considered that dynamic capability mediates the relationship between ICT usage and the business resilience of SMEs. Therefore, the study assumed that;

H4: There is a mediate effect of dynamic capabilities on the relationship between ICT usage and business resilience of SMEs during the pandemic situation.

4. Methodology

This research used three theoretical aspects to answer the research problem, and hence combining these aspects to produce a new concept belongs to the deductive approach. The quantitative research design was utilized for testing the established hypotheses. Seven points Likert scale questionnaire was applied to primary data collection for the study. The unit of analysis of the survey contained SME owners of Sri Lanka. The multistage sampling technique was utilized, and the primary sampling units

are districts. Randomly selected Galle district from 24 districts as in the first stage. The secondary sampling units are the divisional secretariat, and hence, Ambalangoda divisional secretariat was randomly selected in the second stage from 19 divisional secretariats of the Galle district. The sampling frame of the study was developed using the data sources of a list of ICT-used SMEs in the Ambalangoda DS division area provided by the Galle district secretariat. These data were used as a sampling frame to derive a particular sample for the current study. The study determined that 129 ICT-adopted SMEs which were utilized at least mobile technology, mobile applications, internet, and data link for their business activities as sample size and was distributed among 10 Grama Niladari divisions according to the established location.

A two-step procedure has been utilized to prepare the seven-point Likert scale questionnaire, which included strongly disagree to strongly agree on scales. After carefully reviewing the past literature, confirmatory factors for all the constructs have been included in the questionnaire. A pilot survey was conducted before organising the distributing questionnaire to examine whether the obtained data was appropriate for achieving research objectives as well as clear and understandable for the respondents to give their responses to gain validity and reliability of gathered data. The structured questionnaire was sent online through Google forms and used to collect data through face-to-face interviews and Telephony interviews with the managers or the owners of the selected SMEs.

According to the conceptual framework, multiple independent and dependent variables and evaluating more than one construct simultaneously should be done to test the hypotheses. Therefore, Partial Least Square - Structural Equation Modelling (PLS-SEM) was selected as the analysis tool since it provides all the capabilities to conduct such analysis. There are two main approaches to evaluating the relationships in a structural equation model: PLS-SEM and CB-SEM (Hair, Ringle, & Sarstedt, 2011). CB-SEM is used to confirm theories, while PLS provides causal explanations (Hair, Hult, Ringle, Sarsedt, & Danks, 2021). The measurement model is assessed by examining reliability (indicator reliability and internal consistency reliability) and validity (convergent validity and discriminate validity) tests.

The study developed latent variables to measure all the variables (ICT, dynamic capability, and business resilience), following a hierarchical model using PLS path modelling. The efficiency of the structural model was tested by multi-collinearity issues, R^2, and predictive relevance (Q^2).

ICT usage was divided into four dimensions: ICT applications, infrastructure, human resources, and mobile technologies (Ranatunga et al., 2021). According to Ranatunga et al. (2021) and Ashrafi and Murtaza (2008), ICT applications were operationalised using six items, including the use of the web, email, social media, standard software, online selling, and online banking. The other four items include the use of computers for business, fixed-line telephone, nature of internet connection, and internet-enabled devices for operationalising ICT infrastructure. Three items measured in ICT human resources: employee IT knowledge, use of e-mails or Internet Messaging, and capability to access and use the internet. Five items were utilised to operationalised ICT mobile technology, which included the use of mobile phones, the use of mobile equipment with internet for business purposes, the use of mobile apps for communication, the use of social media through the mobile connection, employees' use of internet messaging or email through mobile phones for business purposes (Ashrafi & Murtaza, 2008; Ranatunga et al., 2021; OECD, 2015). The dynamic capability was divided into three subcategories: sensing capability, seizing capability, and reconfiguring capability. The sensing capability was measured using four items, seizing capability operationalised using another three items, and reconfiguring capability measured using another three items (Adam, Strahle, & Freise, 2018; Akpan et al., 2021; Teece, 2007). Business resilience contained three sub-items situation awareness, keystone vulnerabilities, and adaptive capacity. Five items were utilised for measuring situation awareness. Keystone vulnerabilities were measured using another five items, and finally, adaptive capacity was operationalised by four items (Asgary, Azimi, & Anjum, 2013; McManus, Seville, Brunsdon, & Vargo, 2007; Tibay et al., 2018).

5. Results

According to Hair et al. (2021), the analysis depended on multivariate techniques and, therefore, some degree of measurement error should be expected. Hence, the validity and reliability of such measures should be assessed. The validity of a measure refers to the degree to which the measure accurately represents what it is intended to be used for (Hair et al., 2011). Ten endogenous latent variables were evaluated as the outer model. Table 01 shows standardised factor loadings above the minimum threshold criterion of 0.7, confirming the indicator reliability of first-order reflective constructs and factor loading also statistically significant at 0.05 level. Furthermore, it shows that Cronbach's α was higher than the required threshold value of 0.7 and the composite reliability was higher than the recommended 0.7 value. Therefore, it depicts and confirmed the convergent validity of the first-order constructs.

Considering the discriminant validity test, which is the other test used to measure the validity of a construct, the square root of the AVE of each construct should be higher than the highest squared correlation with any other construct (Fornell and Larcker, 1981). Table 2 included the square root of AVE values of each construct in bold. According to the above table, the values horizontally below the √AVE values (Correlation of other variables) are lower than the √AVE values. Therefore, the Discriminant validity of the constructs exists in the first-order analysis. As a result, we can conclude that all the constructs build in the first-order analysis have validity where the items adequately represent the constructs.

Table 1. Validity and Reliability constricts of First Order Analysis

Construct	Internal Reliability		Internal Consistency Reliability		Convergent Validity
	Loading	T Statistics (|O/STDEV|)	Composite Reliability	Cronbach 's alpha	AVE
ICT USAGE					
ICT Applications			0.817	0.668	0.599
have an email address for business	0.845	33.332			
use applications on the computer for business purposes	0.708	9.622			
Uses e-banking /e-Money applications for our business	0.763	15.123			
ICT Human Resources			0.832	0.705	0.623
have IT knowledge	0.840	16.645			
use e-Mail/Internet Messaging for business	0.795	19.005			
have access to the Internet	0.728	13.832			
ICT Infrastructure			0.895	0.766	0.810
the business has a fixed /mobile broadband connection or Wi-Fi	0.892	37.323			
use computers for business purposes	0.908	45.402			
ICT Mobile Technology			0.967	0.954	0.880
uses mobile phones for business purposes	0.922	54.063			
use mobile phones with internet facilities for business activities	0.963	94.975			
use social media networks through mobile phones for business	0.950	60.898			
Mobile apps are used for communication	0.916	24.746			

DYNAMIC CAPABILITIES					
Sensing Capabilities			0.827	0.592	0.706
Considers proposals regarding business from outside parties	0.895	33.233			
Communicates with competing businesses	0.782	13.498			
Seizing Capabilities			0.812	0.539	0.683
Customers respond promptly	0.791	5.596			
Always work to identify customer habits, factors that affect customer satisfaction, and existing barriers to innovative solutions	0.860	21.200			
Reconfiguring Capabilities			0.842	0.628	0.728
Creates and shares new knowledge from other external networks	0.829	16.331			
Business is based on customer feedback	0.877	43.483			
BUSINESS RESILIENCE					
Situation Awareness			0.802	0.596	0.709
have a good understanding of my roles and responsibilities of myself as well as others in the business	0.886	4.327			
Have a good understanding and awareness of all the stakeholders in the organization. E.g., suppliers, customers	0.796	3.031			
Keystone Vulnerabilities			0.974	0.947	0.949
have good relationships with other organizations in the day-to-day affairs of the organization and have a good understanding of that relationship	0.974	30.348			
have a good understanding of the organization's internal and external resources and their impact on a disaster	0.975	17.135			
Adaptive Capacity			0.802	0.530	0.672
In the event of a disaster, the organization works independently of all individuals to achieve its goals	0.901	34.993			

The day-to-day operations of the business are highly independent and decentralised	0.729	21.531

Source: Survey Data, 2021

Table 2. Discriminant Validity of the Measurement Model

	Applications	Infrastructure	HR	Mobile techno	Sensing	Seizing	Reconfiguring	Situation	Adaptive	Keystone
Applications	**.774**									
Infrastructure	.636	**.900**								
HR	.611	.590	**.789**							
Mobile Techno	.259	.301	.393	**.938**						
Sensing	.244	.088	.083	-.037	**.840**					
Seizing	.145	.187	.150	.436	.179	**.827**				
Reconfiguring	.313	.309	.134	.222	.479	.395	**.830**			
Situation	.345	.377	.316	.201	.274	.143	.402	**.842**		
Adaptive	.007	.063	.149	.368	-.230	.288	-.170	-.180	**.820**	
Keystone	.338	.406	.274	.117	.278	-.018	.430	.585	-.238	**.974**

Note: Diagonal values in bold are the square roots of the AVE values. To establish discriminant validity, the diagonal elements must be greater than the off-diagonal elements below in the corresponding rows and columns.

The latent variable scores of the first-order constructs were used to develop the second-order constructs (independent and dependent variables) of the study. Same as the first-order analysis indicator reliability using order loadings, t-statistics, and internal consistency reliability using composite reliability and Cronbach's alpha was tested, and the validity of constructs was tested using Convergent validity (AVE) and Discriminant validity in between indicators and the variables. Table 3 shows that all the constructs obtained the values above the mentioned thresholds.

Table 3. Validity and Reliability of Second-Order Constructs

	Internal Reliability		**Internal Consistency Reliability**		**Convergent Validity**
	Loading	**T Statistics (|O/STDEV|)**	**Composite Reliability**	**Cronbach's Alpha**	**Average Variance Extracted (AVE)**
ICT Usage			0.895	0.826	0.739
ICT Applications	0.884	30.669			
ICT Human Resources	0.814	21.428			
ICT Infrastructure	0.880	39.150			
Business Resilience			0.884	0.738	0.793
Situation awareness	0.888	45.850			
Keystone Vulnerabilities	0.893	37.437			
Dynamic Capabilities			0.844	0.648	0.731
Sensing Capabilities	0.784	10.313			
Reconfiguring Capabilities	0.921	38.503			

Source: Survey Data, 2021

According to Table 3, the AVE value results above 0.5 by proving the convergent validity in the final model. Therefore, the second-order analysis indicates both the reliability and the validity of the constructs in between indicators with the variables. Considering the Discriminant validity test, the second test for testing the validity, according to Fornell & Larcker (1981) square root of the AVE value of the variable can be considered the discriminant validity value. The bolded values in table 04 show the calculated square roots of AVE.

Table 4. Discriminant Validity of Second-Order Constructs

	Business Resilience	Dynamic Capabilities	Ictus age
Business Resilience	**0.890**		
Dynamic Capabilities	0.469	**0.855**	
ICT Usage	0.453	0.292	**0.860**

Note: Diagonal values in bold are the square roots of the AVE values. The diagonal elements must be greater than the off-diagonal elements below in the corresponding rows and columns to establish discriminant validity.

Table 5. Assessment of Structural Model for Collinearity Issues

Variable	Collinearity Statistics	
	Tolerance	VIF
ICT Usage		
ICT Applications	0.474	2.109
ICT Human Resources	0.495	2.022
ICT Infrastructure	0.485	2.061
ICT Mobile Technology	0.631	1.586
Dynamic Capabilities		
Reconfiguring Capabilities	0.575	1.740
Sensing Capabilities	0.599	1.671
Business Resilience		
Adaptive Capacity	0.670	1.492
Keystone Vulnerabilities	0.525	1.905
Situation Awareness	0.580	1.725

Source: Survey Data, 2021

The structural model has been assessed following the guidelines of Hair et al. (2014) to estimate the hypothesised causal relationship among the latent variables constructed using the measurement model. There are five steps to examine the inner model; Assessment of collinearity issues, significance and relevance of structural relationships, R^2, effect size f^2, and predictive relevance Q^2.

The initial step is assessing the collinearity issues. To identify the multicollinearity between independent and dependent variables, use the Tolerance value and the VIF (Variance Inflation Factor). It is essential to test the multicollinearity since it reduces the statistical significance of the independent variable. The acceptable level of collinearity is VIF values lower than 5 and values higher than 0.2 Tolerance values. Table 5 indicates that the obtained values are established at acceptable levels, and the outer model has no collinearity problem.

The next step is evaluating the path coefficients of the hypothetical relationship constructed based on the conceptual model. Table 06 presents the path coefficients and t-statistics of the latent variables of the structural model. According to the model results, there are significant relationships between ICT usage and Business Resilience, ICT usage and Dynamic Capabilities, and Dynamic Capabilities and Business resilience.

Table 6. Path Coefficient and Significance

Hypothesis	Relationship	T-statistics	Coefficient	Decision
H_1	ICT -> BR	4.716	0.345	Accepted
H_2	ICT -> DC	4.032	0.292	Accepted
H_3	DC -> BR	5.573	0.368	Accepted

Source: Survey Data, 2021

The next step is to examine the correlation between independent and dependent variables. According to Hair et al. (2014), the model having R^2 of 0.67, 0.33, and 0.19 are considered substantial, moderate, and weak, respectively. According to this model, Business resilience, R^2 contains 0.329, which shows a moderate effect of the model. That means the independent variables of the model explain a 32.9% variation in business resilience. f^2 effect size measures the contribution of any exogenous variable in a model if there is more than one exogenous variable for an endogenous variable. According to (Cohen, 1988), if f^2 values 0.02, 0.15, and 0.35, respectively, it represents small, medium, and large effects.

Table 7 presents the effect size result obtained from the SmartPLS software. According to the result, ICT usage has 0.162, and Dynamic Capabilities contains 0.185, which indicates a medium effect on business resilience. According to the calculation of cross-validation redundancy, ICT usage and Dynamic Capabilities obtained Q^2 values of 0.246 and 0.051, respectively. Since these values are greater than 0, both business resilience and dynamic capabilities have predictive capability. While business resilience has a medium capability, dynamic capabilities have a small predictive capability.

Table 7 represents the evaluation of the mediating effect of dynamic capabilities between ICT usage and business resilience. Since the indirect

effect is significant at a 0.05 significance level by scoring t-statistics higher than 1.96, there is a complementary mediating effect of dynamic capabilities in the current study.

Table 7. Mediator effect of dynamic capabilities

Path	Direct Effect		Indirect Effect	SD	T-Stat	Total Effect		Type of Mediation
	Beta	T-statistics	A*B	SE	(A*B)/SE	(A*B)+C	VAF	
C	0.345	4.576	0.107	0.039	2.744	3.089	0.035	Complementary
A	0.292	3.850						
B	0.368	5.178						

Source: Survey Data, 2021

6. Discussion

The main objective of this study was to examine whether the ICT usage of SMEs can impact and increase the dynamic capabilities and business resilience during the COVID-19 pandemic. Since the spread of the pandemic has taken place, most businesses have adopted technology for survival. Most businesses lend themselves to digital readiness and technological change, resulting in them surviving the slowdown (Ahamad, 2020; Millan et al., 2019). Establishing and enhancing the digital capabilities of SMEs in crises increase their business resilience which has been empirically examined by proving the positive relationship (Bertschek et al., 2019; Nation, 2021; Syed et al., 2020). According to this study, the adoption of ICT for SMEs during COVID-19 has helped to enhance the resilience of the SMEs and maintain continuity. The result indicates that an increase of 1 unit in ICT usage will increase business resilience by 0.345 ($\beta = 0.345$ and t-value = 4.716) during a pandemic.

Considering the relationship between dynamic capabilities and business resilience, this study identified that dynamic capabilities considerably amplify the resilience of SMEs during the pandemic situation. The results show that an increase of 1 unit in dynamic capabilities will increase business resilience by 0.368 ($\beta = 0.368$ and t-value = 5.573) during a pandemic. This growth has been achieved through the development of dynamic capabilities through ICT, which includes proper communication, immediate response to customers and easy identification of their needs and feedback, as well as the

ability to implement innovative approaches to improve their satisfaction. This finding is similar to findings by Aldianto et al. (2021) and Prida et al. (2016), who mentioned dynamic capabilities of a firm are critical to organisational resilience under environmental disaster situations and contain a significant positive relationship between them. It has been proved that the dynamic capabilities of Sri Lankan SMEs can modify and rearrange their internal resources to meet the uncertainties of their business environment generated by the COVID-19 pandemic. Researchers who examined the business resilience of this pandemic, like Akpan et al. (2021) and Ali (2021), have obtained similar results, and they explained that dynamic capabilities contain a significant positive relationship with business resilience and take various advantages to overcome uncertain environment, and this study proved their findings.

ICT plays a critical role in the business capability of a dynamic competitive environment (Jameel et al., 2017; Owoseni & Twinomurinzi, 2018). Prior studies have identified adopting or enhancing a firm's ICT-related competencies to develop and increase its dynamic capabilities (Owoseni & Twinomurinzi, 2018; Prida et al., 2016;). The current study results are in line with the previous studies like Adeniran and Johnston (2016) by proving the positive relationship between ICT usage and dynamic capabilities in this crisis and depicting an increase of 1 unit in ICT usage will increase the dynamic capabilities of SMEs by 0.292 ($\beta = 0.292$ and t-value = 4.032) during a COVID-19 pandemic situation.

The next specific objective was the study to examine whether dynamic capabilities impact as a mediating factor between ICT usage and business resilience of SMEs in such a disaster situation. Dynamic capabilities can be considered the central engine of business resilience under any dynamic, turbulent condition (Ali, 2021; Akpan et al., 2021; Rusell, 2016). Conversely, ICT usage enhances the firm dynamic capabilities (Owoseni & Twinomurinzi, 2018). According to the current study results, the dynamic capability effect is a complementary mediating effect on the relationship between ICT use and the business resilience of SMEs. This new finding implies that accelerating the improvement of business resilience through the

use of ICT can be further significantly accelerated by exploiting the dynamic capabilities that SMEs gain through the use of ICT.

7. Conclusions

This study revealed a new approach that has not been noticed in Sri Lanka either empirically or in the literature that can save SMEs in a developing country when the world economy suffers a severe recession due to the COVID-19 pandemic. It conceptually combined three theoretical aspects to achieve the objective and established four hypothetical relationships which assumed positive relations among ICT usage, dynamic capabilities, and business resilience. According to the result, all these established hypotheses were accepted. It examined and provided a better understanding of how the usage of ICT and the dynamic capabilities of SMEs enable the firms in Sri Lanka to be resilient during a disaster. A pandemic such as COVID-19 can disrupt businesses, and generally, ICT can be used as an enabler in a business disruption to make it resilient. It was pointed out that computer applications, infrastructure, internet services, social media, as well as mobile technology tools are also essential to get rid of this instability. Furthermore, the study revealed that the dynamic capabilities of the business could be used as a great stimulus that can be utilized to enhance its performance with this pair. To overcome the problems of running a business in such a business environment, the sensing capabilities, the seizing capabilities, and the reconfiguration capabilities contained in the dynamic capabilities are critical, and information technology makes a significant contribution to their development. According to the study's findings, the increased resilience of businesses through information technology is further intensified by the dynamic capabilities that information technology develops.

According to this study, entrepreneurs require to innovate their business strategies and adapt to digital or enhanced business information systems with new technology. SMEs must identify and use the right information technology tools that are appropriate for them to reduce the risk of collapse. They should not blindly adopt technology tools that large businesses use in their business models. Policymakers should ease the heavy taxation imposed

on technological tools and provide space for SMEs to acquire them at a minimal cost. The government should do the necessary work to create good coordination between other institutions that need to advance SMEs technically. Examples include communication service providers, computer and mobile software manufacturers, freight service providers, banking service providers, etc.

This study has examined the 129 SMEs to understand how they have built up resilience through ICT usage and the dynamic capabilities of the enterprises. The study findings have addressed the gaps in previous literature and still have offered several limitations, which provide opportunities to continue future studies. Firstly, this research was conducted using SMEs in one Divisional Secretariat in the Galle district, which is not a broader representation of the whole district or the country. Therefore, a considerable amount of the population of SMEs should be involved in future research for highly generalisable results. Furthermore, this study only considered two factors affecting resilience during a disruption. Future researchers can consider more areas and factors and contribute to filling the gap in the literature. This research was conducted in the Asian region, and researchers are encouraged to conduct similar studies in different regions with different educational, social, and cultural environments since ICT usage and dynamic capabilities can vary widely due to such contextual differences.

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Journal of Management Matters
Volume 9 Number 2 December 2022

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