*The Journal of Agricultural Sciences - Sri Lanka*
*Vol. 19, No 1, January 2024. Pp 31-48*
*https://doi.org/10.4038/jas.v19i1.9265*

# Agribusiness Small and Medium Entrepreneurs' Overall Perceptions of Institutional Support Towards Facing Technology Challenges: A Case of Sri Lanka

**K.B.T.U.K Bandara[1], R.P.I.R. Prasanna[1*], S.K.N. Gamage[1], P.S.K. Rajapakshe[1], E.M.S. Ekanayake[1], J.M.S.B. Jayasundara[1] and G.A.K.N.J. Abeyrathne[1]**

*Received:13th March 2022 / Accepted: 11th October 2023*

## ABSTRACT

***Purpose:*** *Technology challenges have been recognized as one of the growth retarding factors of Small and Medium Enterprises (SMEs), which further reduced their potential contribution to the national economy. Hence, this research aims to study the Sri Lankan agribusiness SMEs' overall perception of institutional support towards facing technology challenges.*

***Research Method:*** *A qualitative case study-based methodology was adopted, and a series of key informant interviews were held with 10 SME owners in the Agribusiness sector, using purposive sampling. An in-depth thematic area analysis was used to analyze the data gathered from the interviews and identified five technology challenges faced by SMEs.*

***Findings:*** *SMEs repeatedly stated weak financial base, lack of technical know-how, lack of institutional support, and practical problems that arose when commercializing new products. Many respondents showed a low tendency towards adopting E-Commerce/M-Commerce/E-Marketing and database management systems. The study revealed that they had built network partnerships with other SMEs in the industry on their own. Most SMEs are currently facing difficulties in connecting with Multi-National Companies (MNCs)/ Trans-National Companies (TNCs)/ Large-scale companies. According to the SMEs' overall perception of institutional support, many had low satisfaction in most of the areas.*

***Originality/value:*** *This study is important for the government institutions and relevant policymakers to identify the requirements of SMEs, and thereby, organize customized supportive programs to overcome technology challenges.*

**Keywords:** *agribusiness SMEs, information communication technology, innovation, perceptions of institutional support, technology challenges*

## INTRODUCTION

The Small and Medium Enterprise sector (SMEs) is renowned as an important strategic sector for promoting economic growth and social development in developed and developing regions (Upulwehera *et al*., 2022). Similar to most of the developing countries in the area, the SME sector of Sri Lanka also plays a significant role in the economy in terms of contributing to GDP, reducing unemployment, alleviating poverty, mobilizing domestic savings, distributing income, and contributing to export earnings (Vijayakumar, 2013). For instance, the SME sector in Sri Lanka accounts for more than 75% of the total number of enterprises, provides 45% of employment opportunities, and contributes to

[1*] *Department of Social Sciences, Rajarata University of Sri Lanka, Mihintale 50300, Sri Lanka.*

*prasannarjt@ssh.rjt.ac.lk*

*https://orcid.org/0000-0002-5132-1272*

52% of Gross Domestic Production (Robinson and Kengatharan, 2020). According to the Census and Statistical Department of Sri Lanka, there are 1,017,267 micro, small, and medium enterprises, comprising 73% of all SMEs operated in rural areas of the country.

Given these facts, evidence denotes many failures of SMEs in Sri Lanka (Prasanna *et al.*, 2021). According to Priyanath and Premaratne (2014), 70% of SMEs are closed down within three years of commencement, and 60% of them within the first year of commencement. Existing literature in the field highlighted that SMEs face a plethora of challenges, in terms of sustainability challenges, global challenges, and technology challenges that inhibit their performance and growth potential (Beyene, 2002; Ramukumba, 2014; Prasanna *et al*., 2019). However, many studies have cited technology challenges as one of the primary growth retarding factors of SMEs, which is the focus of this study.

There is no universal definition for SMEs (Berisha and Pula, 2015). SMEs are defined differently by different countries using different parameters such as the number of employees, amount of capital employed, and the amount of turnover or nature of business (Rajapakshe *et al*., 2021). By considering 132 economies' definitions onoMEs, the International Finance Corporation (2011) noted that most selected countries define enterprises with employees ranging between 10 to 50 as small-scale and 50 to 250 as medium-scale, respectively. The World Bank (2017) defines SMEs and large-scale enterprises based on the number of employees in terms of 5–19, 20–99, and more than 100 as small, medium, and large, respectively.

Many scholars emphasize the low level of utilization of improved technologies by SMEs as a critical challenge confronting SMEs, especially in developing regions like Sri Lanka (Asare *et al*., 2015; Prasanna *et al*., 2019; Gamage *et al*., 2020a). Existing small business strategy literature indicates the underlying reasons for such technology challenges involve resource constraint conditions, lack of technical know-how, basic utilities, low adoption of innovative strategies in production and marketing, weak financial base, and lack of training and modern management skills (Vijayakumar, 2013; Priyanath and Premaratne, 2014). Many studies have also cited the structural rigidities of the economy, particularly institutional barriers and lack of technological advancement in the country, as technological challenges encountered by most SMEs (Bayarçelik *et al*., 2014; Lee *et al*., 2015).

The existing literature in the SME field highlighted technological advancement as one of the critical determinants in eliminating SMEs' business failures, especially in developing regions. It leads to enhenhancinge productivity and efficiency of production factors, including land, labor, capital, and other resources, which involves the process of innovation and invention in advance (Prasanna *et al*., 2019). The term "invention" involves the scientific discoveries required to upgrade the production system, whereas "innovation" implies the utilization of new scientific breakthroughs to commercialize products (Prasanna *et al*., 2019). According to Schumpeter's theory of entrepreneurship, innovation needs entrepreneurial skills to manage txisting or new resources to match new scientific discoveries in the production process (Prasanna *et al*., 2019).

However, several scholars have made a consensus regarding limitations in adapting to new technologies in SMEs. Of them, lack of initial capital required to acquire technology (weak financial base), lack of skilled labor force and suitable strategies to utilize technology, lack of information, technical know-how and basic utilities, low adoption of innovative strategies in production and marketing, lack of training and modern management skills, and uncertainty are noted (Prasanna *et al*., 2019). For instance, a weak financial position may hamper technology upgrading, expansion of production capacity, and production efficiency, and does not allow the firm to go for new and sophisticated technology and spend on training and development of its workforce to increase productivity (Athambawa *et al*., 2017). In some cases, even if SMEs have a

strong financial base for the adoption of the latest technologies, they are unsure about the possible benefits; hence the management does not utilize them in areas such as training and development, research, and new product developments (Prasanna *et al*., 2019). Thus, adoption becomes challenging. Therefore, institutional readiness is critical for SMEs to be aware of new technologies' possible benefits, especially in the present era of globalization.

In some cases, SMEs with a limited range of technology may tend to imitate or copy the technologies adapted by adopted similar firms in the industry, and sometimes they seek to acquire new technology from universities, research institutes, governments, and large-scale companies like Multinational Companies (MNCs) and Transnational companies (TNCs). (Choi and Lim, 2017).

Based on the lack of technological advancement in most developing regions, the institutional arrangement in terms of government support plays a significant role in influencing SME's performance via different approaches (Kang and Park, 2012; Thongsri and Chang, 2019). However, previous studies have provided insights from the institutional environment logic to argue that increases in institutional support for business will be associated with performance increases because government institutions regulate and motivate the behavior of actors in a given environment (Dunning and Lundan, 2008). They tend to shape the nature of a firm's activities and enhance performance from different perspectives. Hence, institutional support in terms of business support services and related sectors, such as tax allowances, loans, information technology, productivity improvement assistance, and financial capital, would enrich firm performance in advance (Athambawa *et al*., 2017).

Therefore, any country's government should have a higher priority for economic growth by implementing preferential policies and institutional services, primarily focusing on technological progress in the SME sector. However, scholars have made several consensuses regarding the institutional arrangement of countries promoting SMEs. Accordingly, Hurmerinta-Peltomdki and Nummela (1998) categorized business support services as "reactive" and "transitional" approaches, whereas the "reactive" process refers to businesses acquiring support services to address their short-term issues operations, and the "transitional" approach refers to the use of support programs to achieve long-term strategic goals.

Bennett (2008) states the policy methods that can support small businesses in terms of finance, providing information, providing specialist advice, and helping with training and development. Some other models of institutional support include direct financial assistance through loans, grants, subsidies; training services through numerous private and public sector organizations; establishing business collaboration and networking systems among SMEs in the same or different industries and creating public-private-producer partnerships systems that enables achieving a long-term success (Athambawa *et al*., 2017). Realizing the SMEs' positive impact on economic development, many countries have put massive efforts into developing this vital sector (Vijayakumar, 2013). Accordingly, successive governments in Sri Lanka have taken several steps to form a conducive environment for small and medium businesses by introducing several policy reforms, laws, supportive services, and providing greater incentives over the past years (Upulwehera *et al*., 2021).

Given these circumstances, scholars have suggested the need for institutional support in terms of government collaboration as a way of overcoming the challenges described above (Prasanna, 2009; Kang and Park, 2012; Ratten, 2014; Lu *et al*., 2015; Songling *et al*., 2018). Accordingly, this research aims to address the noticeable lack of scholarly work on the SME's overall perception of institutional support towards facing technological challenges in Sri Lanka.

Having understood the positive impact of SMEs on the country's economy, the key objective

of this study is to contribute to the existing literature by providing empirical evidence on SME's overall perception of institutional support towards facing those challenges, with a special reference to the agribusiness SME sector in Sri Lanka. Since we use a developing country like Sri Lanka as a case study investigating the SME's overall perception of institutional support towards facing technology challenges, this study can enrich existing knowledge in the field, especially for the agribusiness SME sector, particularly in developing countries.

Hence the following research questions are raised in the survey: *What are the technological challenges and constraints faced by agribusiness SMEs, and what is the overall perception of agribusiness SMEs on institutional support towards facing technology challenges?*

## MATERIALS AND METHODS

### *Research Methods*

Due to the nature of the phenomenon studied in the study, we have adopted a qualitative, case study-based methodology. According to Mohajan (2018), qualitative research is a method used to narrow down a vast research field into one easily researchable topic, which provides an in-depth understanding of a particular scenario or a problem. Based on SMEs' high failure rate in Sri Lanka, an in-depth analysis is essential to determine the SME's overall perception of institutional support towards facing technology challenges. Thus, the study adopted a case study based on analytical techniques.

Interviews are popular data collection methods in the case of study-based research methodology, and hence, we conducted a series of key informant interviews to collect data from the sample of respondents using a pre-tested interview guide. In such qualitative research, data saturation points could be recognized when the researcher realizes that the amount of information required to understand the problem under investigation is sufficient through experiences in in-depth interviews. Thus, the study reached 10 SME operators in the agri-business sector in Sri Lanka, recognizing it as the data saturation point of the problem under investigation. The owner/operator of SMEs was selected as the unit of analysis since they are the ones who primarily confront these challenges and their views are highly significant in this regard. We have adopted a purposive sampling technique while selecting the sample respondents, ensuring that they have a minimum of 10-15 employees in their workplace and a minimum of one year business experience in the field, and assumed that they have sufficient knowledge about technological challenges they face and the degree of institutional support. The interviews lasted for 45-60 min on average, and the interviews were conducted via face-to-face meetings or over the phone.

The interview guide mainly consisted of open-ended questions. The first part of the interview guide elicited the demographic/personal information of the sample respondents. The second part consisted of questions about SME's overall perception of institutional support towards facing technological challenges.

We also conducted an in-depth thematic area analysis and divided the difficulties faced by SMEs as follows: 1) Challenges related to innovation-utilization of new scientific discoveries, 2) Challenges related to social capital approach, 3) Challenges related to information communication technology (ICT), 4) Challenges related to technology transfer with MNCs/ TNCs/ Large-scale companies, and 5) Challenges about productivity-enhancing technologies. The interviews were recorded with the permission of the sample respondents.

### *Research Context and Data Analysis*

We collected data from the SME operators in the agriculture sector in Sri Lanka since the industry contributes 7% of the country's GDP, employs around 2.072 million people, and contributes to

25.3% of the total workforce across all sectors in Sri Lanka in the year 2019 (Central Bank of Sri Lanka, 2019). Although the sector substantially contributes to the Sri Lankan economy, agriculture activities recorded only a marginal growth of 0.6 percent in the year 2019 in value-added terms, compared to the growth of 6.5% percent in the year 2018, due to the considerable decline in key agricultural activities including fishing, forestry, and plantation crops (including tea and rubber), and the slowdown in value-added of agriculture-related activities reflected in the sub-indices related to the Agriculture segment of Business Outlook Survey (BOS) conducted by Central Bank of Sri Lanka in 2019. However, since SMEs are confronted by competitive challenges, this study is focused on thoroughly investigating the SME's overall perception of institutional support towards facing technology challenges. Therefore, we conducted an in-depth thematic area analysis after transcribing and coding the interview recordings' data.

We took appropriate measures to verify our findings' reliability by using purposive sampling. This ensures that SME operators in the Agro-based SME sector are represented and maintains the data ambiguity (Shah and Corley, 2006). Subsequently, we carefully analyzed the interview data to identify the technology challenges faced by SMEs and their overall perception of institutional support towards facing those challenges. Accordingly, most of the respondents converged on perceptions of vital technological challenges and overall institutional support towards facing those challenges. Table 01. shows the sample of profiles adapted for this study.

## RESULTS AND DISCUSSION

As discussed in materials and methods, results of the thematic area analysis suggested five technology challenges faced by SMEs in terms of 1) Challenges related to innovation-utilization of new scientific discoveries, 2) Challenges related to social capital approach, 3) Challenges related to information communication technology (ICT), 4) Challenges related to technology transfer with MNCs/ TNCs/ Large-scale companies, and 5) Challenges related to productivity-enhancing technologies. Subsequently, several sub-thematic areas were identified under each challenge after transcribing and coding the interview data. Table 02. depicts the thematic area analysis structure we have adapted.

**Table 01: Profile of sample respondents**

| Respondents | Product category | Company size (No. of employees engaged) |
|---|---|---|
| R1 | Dairy | 12 |
| R2 | Dairy | 48 |
| R3 | Fruits and vegetables | 29 |
| R4 | Mushroom | 14 |
| R5 | Arobiotic products | 08 |
| R6 | Dehydrated fruits and vegetables | 10 |
| R7 | Spice products | 28 |
| R8 | Spice products | 40 |
| R9 | Spice products | 20 |
| R10 | Cultural products (Incense sticks) | 17 |

**Table 02: SME's overall perception of institutional support towards facing those technology challenges.**

| Thematic areas (Challenges) | Sub thematic areas | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Innovation - utilization of new scientific discoveries (T1) | New product development | | * | * | * | * | | * | * | * | |
| | Access to human capital | * | * | * | | * | * | * | * | * | * |
| | Market knowledge | * | * | * | * | * | * | * | * | * | * |
| Social Capital (T2) | Business collaboration through networking | * | * | | * | * | | * | | | |
| Information communication technology (T3) | Using database management systems for quality decision making | | * | * | | | * | | | | |
| | Using E-Commerce/M-Commerce/E-Marketing | | | * | | | * | | * | * | |
| Technology transfer with MNCs/TNCs (T4) | Links with MNCs/TNCs/ large-scale companies | | | * | | | | | | | |
| Productivity-enhancing technology (T5) | Adoption of productivity-enhancing technology | * | * | * | | | * | | | * | * |
| Overall perception of institutional support towards facing technology challenges | | * | * | * | * | * | * | * | | * | |

***Innovation-Utilization of New Scientific Discoveries***

We identified three sub-thematic areas under the concept of innovation or utilization of new scientific discoveries - new product development, access to human capital, and marketing knowledge - from literature.

***New product development:***

Respondents indicated in the interviews that most SMEs showed a greater tendency towards product development and innovations. However, they mentioned that the biggest challenge they now confront is the limited availability of resources in terms of financial capital, raw materials, and labor. As R6 mentioned, the implementation/commercialization of most of his innovations was confronted due to the limited availability of raw materials, financial capital, and lack of institutional support. *"*I always tried to do something new with waste materials, and once an idea came to my mind to do something with the banana tree. First, I tried to produce a lunch sheet using banana leaves, and it was not successful due to the limited availability of raw material because local banana varieties are not suitable enough to process, whereas banana leaves in Vietnam are much more suitable for this. So, I discussed with the Department of Agriculture regarding this matter whether there is a possibility to bring Vietnam varieties here, and they said that our local conditions would not be suitable enough to cultivate Vietnam varieties. So, I gave up that and am now in the experimental level of producing banana fiberboard using the banana stem. This product is quite successful,

and I have stopped production due to limited capital. I am planning to implement in the future*"* (R6). This indicates the barriers beyond their limits and shows the areas which required the institutional interventions in terms of discovering alternative techniques and materials, designing special financial packages to motivate innovative entrepreneurs, and developing the SMEs' human capital base.

R2 stated that due to limited resources at the early stages, businesses adopted to process innovations to accomplish things with the currently available material. SMEs tend to leverage their existing resources to the best of their knowledge to reach their targets without any hesitation. *"*At the very early stage of the business, due to the limited budget, we didn't have enough capital to purchase a cream separator. So, we did experiments and found a way to separate cream via refrigerator. So, for a long time, we have adapted to that process to separate cream.*"* (R2).

As R1 stated, most of the time, practical problems arose when commercializing new products due to other competitive products in the market. "These days, we are in the process of making a fruit juice product, still at the experimental level. But commercialization of products is a somewhat difficult process since there are already competitive products in the market like ……*"*(R1). Similarly, R10 mentioned that the commercialization of new products is sometimes hard for them due to practical problems, such as competition, pricing, and demand conditions. *"*Yes, we have tried 100% natural incense sticks, which are made out of sandalwood, but commercialization of the product failed due to lack of demand and high price.*"*(R10). This indicates business planning weakness, specifically, a lack of knowledge of product competition in the market and demand forecasting for new products.

***Access to human capital:***

Concerning the discussions held with SMEs, the majority mentioned that they consider employees' ideas when making decisions. As per R5, the owner of the business has clearly identified innovative skills of their employees and utilizes those when reaching their business targets. *"*Yes, for example, my sales executive. I know that he is very innovative, right. He has so many ideas. I remember that in the last Index exhibition, so we wanted to be unique. We wanted to have a unique stall with us. For that, I remember that my two executives put so many inputs, and we implemented those inputs, and we ended up with a good one. That is how. So, we use that kind of their ideas also most of the time.*"* (R5).

Similarly, R3 mentioned, "I usually get their innovative ideas when making important business decisions. Actually, they have brought the idea of selling cut vegetables to nearby hotels, from remaining vegetables in each day after-sales*"* (R3). This practice is close to the Kaizen concept – a combined meaning of two Japanese words, "Kai (change) and "Zen" (better) – which is mostly applied in technology exploitation and technology exploration in the firm innovation process. It indicates that a change in business process or minimizing the error points or waste of the business process, and thereby improving the production process's efficiency, could be achieved through everyone participating in the firm. Thus, the use of innovative ideas of workers in making business decisions by R3 could be recognized as a constructive point that could be promoted among SMEs.

***Marketing Knowledge:***

Concerning the discussions held with SMEs, almost all the respondents showed their alertness to existing market trends. As R3, R8, R9, and R10 mentioned, they mostly engage in continuous market research to address the existing market gaps. R3 stated that they could establish an efficient product delivery system through analysis of the output supply chain of fruits and vegetables and thereby minimize the post-harvest losses. "We have researched and found that due several of intermediaries in fruit and vegetable

supply chains, it will take around 30-36 hours to reach customers, and even in supermarket supply chains, it will take around 24-30 hours. So those fruits and vegetables have been subjected to many post-harvest losses when reaching customers. So, we have identified and addressed this market gap, by providing quality fruits and vegetables to customers within 12-18 hours, directly from our farms*"* (R3). The analysis of R3's views on research on future trends of demand for their primary products – fruits and vegetable-based products – has updated the entrepreneur about existing opportunities for their product in the market and takes appropriate business decisions. Thus, the firm is in an attempt to introduce new food preparation techniques to cater to the diverse demand of consumers in the future. *"*Actually, there's a huge potential for fresh fruits and vegetables in Sri Lanka, since 22 million of the population consume vegetables during three meals per day, which means that there's a potential of targeting 66 million consumers per day. So as marketers, we have to create a new market to feed them. In the future, I have the idea to start a food festival, by giving the people with different food experiences; for instance, we'll open new avenues for people to eat the same vegetable in different ways and thereby increase their consumption level*"* (R3). The interview with R8 revealed emerging business opportunities due to the Covid-19 pandemic situation. It indicates that market information helps SMEs for business adjustments to changing consumer preferences for food and thereby discover new production techniques. "……. there's a growing demand for traditional spices with the effect of the Covid-19 pandemic, which leads to an increase in human immunity and warrants me to start this business. Further, I am planning to start a street food business to identify market opportunities, including customer preferences in other geographical regions, and expand operations accordingly*"* (R8).

Analyzing case R9 revealed that they had utilized market information to cater to low-end customers by producing a budget pack of soya meat. *"*Yes…. Once we have introduced a budget soya meat pack for 30 LKR, especially targeting low-end customers who are focusing on a low budget, whereas none of the companies has yet been introduced"(R9). A similar experience was reported by R10. "We are the one who first introduced the 'sambrani' in the packeted form to market, since there aren't such packeted products in the market except in a bulk form*"*(R10).

***Social Capital***

***Business collaboration through networking:***

Our interviews revealed many ideas for utilizing social capital by SMEs in business collaboration through networking. As R4 mentioned, SMEs by themselves have already built up linkages/ network partnerships with other SMEs in the industry when reaching their day-to-day business targets. *"*Among the other mushroom producers in the region, we are supporting each other; if someone asks for 1,000 packets today, I will supply them. Two suppliers are working with me, and we are making around 1,000-1,500 packets (R3).

This implies that a product-specific clustering system enables SMEs to understand the demand pattern for their specific product and thereby determine business scale, specifically the decision over techniques adopted in the production process. It further enables SMEs to manage the issue of excess supply, which eventually leads to the expiration of the product in the market due to the product's nature - mushroom. R4 further revealed the advantages of networking in terms of adaptation of marketing techniques to manage the product surplus or shortage in the market. *"*As I said, there are five businessmen who are working together. They all are students of mine, but their business is bigger than mine. In the morning, we are using our phones and communicating with each other. 'Machan (friend), you go for that store; I will cover this. Do you have a surplus? Do you have a shortage? How many? I need this much, send me' likewise....*"* (R4).

Some respondents also mentioned the internal

conflicts arising among the members, which is the main barrier when reaching a common goal through networking. According to R2, *"*Yes, there's a society of dairy producers in the area, and even I have borne the presidentship of that society. I tried to promote buffalo curd to the international market as a combined effort of all the members in the society, but it failed due to several conflicts*"* (R2).

As many SMEs revealed in the discussions, the Industrial Development Board (IDB) and Vidhatha Resource Centre support building linkages with other SMEs in the industry. As R1 and R5 mentioned, *"*Yes, through IDB, we could build links among other SMEs in the region, whenever we are participating in their meetings and training programs" (R1). R5 stated that "Government sector, they helped us a lot. Currently, also they are helping us. Once they asked us to join with Index exhibition, and there were so many suppliers and so many agents and so many buyers we met and so many contacts we built up. Which means the government sector helped us a lot*" (R5).*

These cases indicate a mechanism in the institutional setting to build up a network among the SMEs, enabling them to share business experiences, particularly in a challenging environment. However, the interviews revealed less focus on institutional settings in building product-specific or technology-specific networking systems. Specifically, product-specific networking or clustering systems would help SMEs to recognize the need for technological advancement of their business process through sharing information about the production and marketing practices applied by each firm. Further, it disclosed that training programs organized by the related institutions for SMEs have not adequately considered the technology-specific clustering approach.

***Information Communication Technology (ICT)***

We identified two sub-thematic areas under ICT using E-Commerce/M-Commerce/E-Marketing and using database management systems from the literature.

***Using E-Commerce/ M-Commerce/E-Marketing:***

According to the discussions, many SMEs revealed a low tendency towards adopting E-Commerce / E-Marketing, mainly due to the absence of technical know-how and financial constraints. As R5 and R9 mentioned: *"*At the initial stage, it was somewhat difficult to adapt to online system…." (R9). "A bit, I think. We are still beginners to E-Marketing because we tried to boost our posts. But I think of the other side; we tried to outsource E-marketing companies. But their rates are very high. They are very expensive, and we cannot afford their price. Therefore, we tried our things to do. But I think as we felt, we failed at that moment. Because of our boosting methods and we tried to boost, some are false, and yeah, that's a kind of failure. In E-Marketing, we tried something, but still, we feel like we are not on the correct path. I think we need help in that*"* (R5). In-depth discussions with R9 and R5 on ICT adaptation indicate that SMEs are less aware of techniques for publicizing their products and product-specific characteristics using online mode. SME adaptation to online marketing or product promotion activities would support them in transferring messages to target consumers on the technology adopted in the production process - traditional or modern or environmentally friendly methods -, materials used – local or imports - or health-specific, specifically in terms of processed food, cultural values, or local identities of the product or societal values of the products, etc. This is a much more suitable approach with a business plan of R3, as stated previously. These new trending approaches require the SMEs to approach new customers and protect the existing customer base in the competition by promoting their product and crossing the broader barriers, as globalization does not concern the geographic limitations in the business. This implies that it is vital for the institutional intervention

in promoting E-commerce/M-commerce/E-marketing concepts among SMEs if the country expects to shift firms in the SMEs setting to the next scale and make stability and resilience of the SMEs in the competition.

With the onset of the Covid-19 pandemic, most small business operators have identified the necessity of adapting to E-Commerce/ M-Commerce due to the competition that arose in online retail businesses. Now, a few of them are in the initial stage of executing online business platforms. R3 reported it as, *"*The main challenge is the competition arising in online businesses with the effect of the pandemic situation. So, we are in the process of online delivering our products, partnering with Daraz and NDB Bank. Also, another new website will be launched in the near future, partnering with the virtual system*."* It indicates the requirement for adjustment of the business model, particularly the delivery method to cater for the changing demand pattern in the context of a crisis environment. R9 explained the need for the online delivery platform to reach high-end customers or approach a specific customer base that was not reached previously and thereby expand the customer base and sales volume. It enables them to increase product demand redefining the distributional network based on determining demand patterns. *"*We are doing a Facebook campaign and planning to start an online delivery platform, since with the effect of the Covid-19 pandemic, it has become trending among most of the high-end customers in urban areas" (R9). "Yes, we are more into e-marketing now. We have our own Facebook page and linked with online marketing platforms such as Alibaba and Daraz*"*(R6). Covid-19 pandemic is one of the global challenges facing SMEs, as cited in the literature by Gamage *et al*. (2020b), and it brought the SMEs world, like other business, into a new normal situation, which led to changes the consumer preferences or demand. Thus, the institution's intervention to be aware of ICT adaptations to adjust to the new normal situation maintain existing product demand or grab new opportunities is essential.

Also, most non-adapters towards E-Commerce/ M-Commerce include older people, and they have mentioned their less technical know-how and reluctance to adapt to those technologies. For instance, as R2 mentioned, "Mainly I have practiced cutouts, posters, and newspaper advertisements. As far as I think that word of mouth is the best way to convey the quality of our products to the community. However, my two sons now focus more on social media marketing, where I don't have any involvement"(R2).

***Using database management systems:***

Only three respondents reported the practice of database management systems in the business process. As revealed by many respondents, financial barriers and shortcomings of database systems are their main challenges when adapting to database systems. R5 and R7 revealed the limitations of practicing database management systems: *"*Not much, but yes. We use a kind of Google Sheet most of the time for selling and recording our sales. Selling means the number of parts that we sell and which type and those types of things we note in a Google sheet. So, therefore, that kind of technology we use.

And on the other hand, we are planning to buy QuickBooks accounting software for our accounting part. But still, it is very expensive. So still, we are having kind of discussion about that"(R5). "I have a database system developed by one of my friends. But currently, I am not using that due to some limitations. Thus, the database is not 100% line up with the business operations, and now it is set*"*(R7). According to the interviewed entrepreneurs' perceptions, related institutions are not well-prepared to support SMEs to gain the specific advantages of practicing database management systems in the business process. Specifically, data related to the business process is essential to taking entrepreneurial decisions in the whole business, gaining cost advantages and marketing benefits, and viewing the limitations, etc. (Prasanna *et al*., 2019). Also, most of the non-adapters towards database management technologies include older

people or people above middle age, and they have mentioned their less technical know-how and reluctance to adapt to those database management systems. Hence the related institutions should specifically target those people when designing their training programs.

***Links With MNCs/TNCs/ Large-scale Companies***

Since MNCs, TNCs, and large-scale enterprises are an important sector for technology transfer to local firms, particularly to the SME sector, we set out to investigate the readiness of SMEs to linking with those companies to enable them to upgrade their business to face global competitiveness and enter international markets. As revealed by R6, it is quite difficult for them to be connected with those large-scale companies. Hence most of the time, they even get connected to them via other local intermediaries when entering the international market. According to R6, the related institutions have not recognized the importance of business partnerships with large firms, specifically in moving to the global market. *"*We are mostly acting as a raw material supplier for most of the large-scale companies locally and globally, but it's very difficult to build up direct contacts with them, so we just connect them via intermediating companies*"* (R6).

Also, R5 revealed that even the SMEs on their side sometimes are not ready to get partner with such companies, based on the idea that their products have to be more standardized than now. SMEs must become technologically flexible in supplying products to large-scale firms, whereas most firms are still not. R5 stated *"*No, the reason is we are still developing our product these days. So, without having a proper product base or without having a proper certificate (I do not doubt about my certification), there is no point in going to such partnerships. However, last week also, a company called me, and they asked about our products…. On that occasion, the problem was, they wanted to have a joint venture with us, but finally, I decided not to go for that. Because I think we have other plans as well. We have to go further to have a partnership with that kind of multinational company, I guess. It is my personal view*"*(R5). These views state that SMEs are not ready to grab the advantages or learning experiences connecting with large firms or MNCs/TNCs directly.

***Productivity-Enhancing Technology***

Most respondents mentioned that the lack of initial capital required to acquire new technology is one of the leading challenges when adapting to productivity-enhancing technologies. As per R6, most of the time, high machinery cost is mainly due to the increased tax concessions imposed when importing. *"*Once I tried to import a dryer plant, which is highly expensive due to tax. The machine was worth of 14 lakhs which is inclusive of a tax of 10 lakhs" (R6). According to R7, the high cost of purchasing the latest technologies/ machinery is the constricting factor in enhancing business productivity. "The main problem is the high capital required to purchase the latest technologies/machinery. Most of the time, it will incur a high cost to purchase machinery with the latest technologies. For example, I am planning to purchase a block for labeling, which will cost around three lakhs. Finally, it will take the overall rupees eight lakhs for packaging and all with the latest technology*"* (R7). Hence most SMEs have designed machinery by themselves due to financial constraints. Even though it induces technological innovation in the production process, which leads to enhanced productivity, the broad view of the statement of the R7 indicates a lack of institutional readiness to address the issue. Specifically, it is essential to link SMEs with research institutes of the country or assess and fit the SMEs' technological requirements.

The stimulation of technological innovation within the firms could also be identified in a challenging environment in accessing modern technologies. As R6 mentioned, *"*Yes, as I explained earlier also, the dryer plant is 95% efficient in burning sawdust and producing

heat, which is already my design." R2 reported that "We have established pit silage to store feed to animals and utilize in shortage periods to increase milk production and currently in the experimental level of producing bail silage, which is highly efficient in storing feed in the dry zone. R3 explained, "Yes, we have designed a spray machine, which has the efficiency of 1- and ½ *man*-days for the whole 50-acre farm, whereas the ordinary sprayer machine has the efficiency of 15 man-days for the whole 50-acre farm*."* These statements imply that entrepreneurs are doing continuous experiments and applying firm-level newly designed different technologies to upgrade the productivity and efficiency of the production process. However, there is no specifically established or recognized setup in the institutional setting to support SMEs in upgrading their technological base or supporting entrepreneur-driven technological upgrade processes aiming to enhance the productivity and efficiency of the production process.

### *The Overall Perception of Institutional Support towards Facing Technology Challenges*

When exploring SMEs' overall perception of institutional support towards facing technology challenges, some repeatedly stated their dissatisfaction throughout the interviews, especially regarding government support. Thus, R2 mentioned that most institutional setups are highly inefficient due to less flexibility and a lack of a workaholic nature. "Actually, I hate the government sector. Most government officials are highly inefficient; they avoid their responsibilities. As far as I experienced, we can't find any flexible and workaholic culture in government institutes"(R2). The negative impression of government support was clearly indicated by the interview made with R4: "If we consider the government support, it is like minus points in all the areas." According to R5, some government officials are even less updated on the latest technologies, which is the main barrier for SMEs to move ahead with new technologies. Even the training programs conducted by some institutions are not at a satisfactory level.

The interview with R5 revealed that authorities are not ready to take the risk of adopting new technology even if they recommend it and cover part of the financial capital requirement. It indicates that officers who recommend the machinery do not have the confidence in generating its expected outcomes, and it also reflects the conditions of the proposed loan scheme. As per R5: "Recently, I dealt with an officer, who is working especially in the Mushroom industry and provided infrastructure to develop the business to the next level. I need to contribute 50%, and they will give 50%. The advice they gave was to import a mist machine from China. The cost is around 80,000 LKR to set up the net and install the machines, it costs a lot. I know how it works. It is not practical. They should try it by doing it before passing it to us. They asked us to do it without that. So why should I pay 50%? So, I denied it. I asked them to pay me to continue my way with new machines. How can I do something impossible? They will provide a loan, and I need to pay it back with interest. But if the process is a loss, I need to bear it also." R5 further stated that he had attended two or three training programs held for a new mushroom variety called "*Makadura White,"* which are useless, and he was charged 100 LKR for the training certificate, which he has not yet received.

However, two respondents agreed and were satisfied with the support given by Vidyaa Dhaana Thakshanaya (Vidhatha) Resource Centre, Industrial Development Board (IDB), and Institute of Post-Harvest Technology (IPHT) in reaching the latest technologies. R6 states that *"*Mainly the IPHT provides us with the necessary technical support ....*"* (R6). Similarly*,* R1 provides evidence of support of IDB and Vidhatha Resource Center. *"*IDB and Vidhatha Resource Centre always support us in updating new technology; for example, if we want a new machine to purchase, the field officer of Vidhatha Resource Centre takes us to a place where such machines are available and show how it works in advance*" (R1).*

R3 emphasizes the need for the government and related institutions like universities to build up a proper system to direct and guide SMEs in production, marketing, and financing. *"*As entrepreneurs, we always need technical support, market, and industry knowledge, and I am pretty much sure that most of the academics have done good industrial and technical analysis; that would be beneficial for entrepreneurs like us, and they might publish those in conferences or journals, but the outcome should also be shared with us since we are the ones who practically involve in the industry. Agriculture Faculties should provide consultancies to Agribusinesses and start farmer-cells to open avenues for farming communities to get necessary advisory services*"*(R3). This statement reveals the gap between the SME sector, recognized as the backbone of the economy, and research institutes, including higher education centers. There are Business Incubation Centers in some countries attached to the universities to support the SME sector and cultivate entrepreneurial attitudes among graduates. Sharing the research findings with the SME sector will help them lead their businesses in a competitive environment. The interview conducted with R9 revealed a lack of SMEs' readiness to gain the benefits from specifically designed SME development support programs. *"*Recently, some businesses have received grants to build factories and purchase machinery. Whereas I still did not receive such. But I think there should be a commitment on our side also to be acceptable for such grants*"* (R9).

## CONCLUSIONS

This paper aimed to answer two research questions – what are the technological challenges and constraints faced by the SMEs, and what is the overall perception of SMEs on institutional support towards facing technology challenges?

The technological progress in the SME sector is a critical determinant in confronting the competitive challenges in a free-market economy. The analysis was performed based on five thematic areas. This qualitative study disclosed several points to discuss in a broader perspective to derive policy guidelines for SME development in Sri Lanka in specific and other developing countries in general.

In terms of innovation-utilization of new scientific discoveries, many respondents showed a greater tendency towards product development and innovations. Still, they repeatedly stated weak financial base, lack of technical know-how, lack of institutional support, and practical problems that arose when commercializing new products due to other competitive products in the market as the limitations towards new product development, suggesting the relevant authorities to provide effective solutions. The government should seriously consider developing effective market structures to help those SMEs in commercializing their new products by opening trade centers, which those SMEs cannot reach (such as the "Laksala" concept for different product categories that are locally produced).

As for the information communication technology, many respondents showed a low tendency towards adopting E-Commerce/M-Commerce/ E-Marketing and database management systems due to financial constraints and lack of technical know-how. Hence most respondents (who are above middle age) were not keen on investing in E-Commerce and database management systems in the businesses. However, due to the competition for online retail businesses due to the effect of the Covid-19 pandemic, four respondents (mostly below middle age) agreed on the necessity of adapting online sales. They are now in the initial stage of developing online business platforms while partnering with different types of stakeholders such as Daraz, Alibaba, and NDB. But as they mentioned, even though private sector institutions like banks, software companies, and E-commerce websites are highly supportive in this regard, there is still very little government support received in changing their traditional business models into online business models, which is a more significant challenge than they are facing now.

Therefore, government institutions should identify and implement necessary programs and supportive services to address these problems via subject specialists in the field. They can focus on building the resiliency of businesses by integrating emergent IT technologies such as blockchain technology, the Internet of Things (IoT), social media marketing (Facebook, Twitter, Instagram), and data-driven business operations to those SMEs who are capable and willing to take challenges. To address a similar issue, China and Malaysia have adopted the technology-specific human resource accumulation process. Specifically, Malaysia has established the Human Resource Development Fund to upgrade the technological conditions of its SMEs (Ndiaye *et al*., 2018).

Under the social capital approach, few respondents revealed that they had built network partnerships with other SMEs in the industry on their own, whereas only two government institutions (i.e., Vidhatha Resource Centre, and Industrial Development Board) supported creating such partnerships. The government institutions need to play an active role here to develop industry-specific or technology-specific clusters and common clusters of SMEs, which enable the businesses to achieve their targets in a more collaborative approach by linking with both up-stream and down-stream partners to ensure efficient functioning of supply chains in each industry.

Concerning technology transfer with MNCs/ TNCs/ Large-scale companies, most SMEs are currently facing difficulties in connecting with those companies. Thus, most SME operators stated that they even associated with those large-scale companies/ MNCs/ TNCs via other local intermediaries in the region, especially when entering foreign markets. These are some success stories in the garment industry in Sri Lanka during the period of phasing out of the Multi Fibre Agreement in 1995 – 2005. Specifically, the sub-contracting experiences of SMEs in the sector later supported them to enter the international market directly (Prasanna, 2009). The experience of Singapore also provides the best example of how they build up their own MNC by using SME sector relations with MNCs since the early stage of the development (Nadiaye *et al*., 2018; Soon, 1994; Choy, 1995). Therefore, government authorities must focus on building strong trade relationships between SMEs and those large-scale companies while ensuring the smooth transfer of technology. Government institutions should take necessary steps to construct long-lasting linkages among SMEs and large-scale companies, such as trade agreements and contracts which provide the long-term survivability of SMEs. However, based on the several discussions made by the SMEs, it was noted that SMEs, on their side, sometimes are not ready to partner with such companies, thinking that their products have to be more standardized than now. SMEs must become technologically flexible in supplying products to large-scale firms, which most firms are still not.

Reaching towards productivity-enhancing technology surfaced as another technology challenge, that most of the SMEs currently face, as revealed by this study. According to the discussions made with several respondents, the high cost of machinery due to increased tax concessions imposed by the government when importing from overseas is one of their main limitations. Thus, few respondents stated that they had designed productivity-enhancing machinery by themselves as their inventions. Besides, most SME owners become aware of those latest technologies by screening YouTube, and frequently, they find machinery suppliers by themselves. But as they mentioned, finding suppliers at the lowest possible cost is the main concern, for which they receive constant support from the field officers of Vidhatha resource centers and the Industrial Development Board.

When considering SMEs' overall perception of institutional support, many have low satisfaction in most of the areas mentioned above. Hence, the government's services to SMEs in the Agribusiness sector should be improved with owner-managers' readiness to get support and ensure they provide practical solutions to their problems. Also, most respondents mentioned in the interviews that many services offered by

the government sector are not at a satisfactory level; hence there should be a proper screening mechanism to assess and improve the quality of business support services periodically. Support providers should have a self-developed procedure to guarantee the quality of the services that they offer continually. It is necessary to develop an appropriate performance evaluation scheme to increase the quality of the services, which includes many obvious criteria that could measure the development of business support services. Proper training programs for SMEs should be included in the scheme of business support services covering all the production, marketing, finance, human capital management, etc. The government must also have a proper screening mechanism to identify the highly capable SMEs and provide special business development services in terms of grants, subsidies, and interest-free loans to upgrade their businesses to the next level. However, as one respondent mentioned, SMEs on their side also should exert a kind of commitment to be acceptable for such grants. In essence, the owner's commitment to the business is essential in this regard.

The respondents further suggested that universities must play an active role in building up a proper system to direct and guide SMEs in reaching the latest technologies. Universities and research institutes should focus on disseminating their research output to society and relevant authorities. Also, the respondents expect the Agriculture Faculties to provide consultancies to Agribusinesses and start farmer-cells to open avenues for SMEs to get advice, when necessary.

This contribution of this study is remarkable since the research findings have substantial relevance for both theory and practice. In essence, practitioners, particularly government officials and relevant authorities, can undeniably use these findings to understand the technology challenges faced by SMEs and their overall perception of institutional support towards facing those technology challenges. This study further suggests specific improvements to develop the regime's existing support for the SME sector development of Sri Lanka. Even though it is useful to identify common perceptions among the owner-managers of SMEs related to their readiness and institutional support in adapting to technological challenges, the study outcome suggests that those factors are mostly unique to the sector in which it is operated. Such evidence is important for the government institutions and relevant policymakers to identify their requirements, and thereby, organize customized supportive programs to overcome technology challenges.

## ACKNOWLEDGEMENT

This research was supported by the Accelerating Higher Education Expansion and Development (AHEAD) Operation of the Ministry of Higher Education, funded by the World Bank, through the Research project of the Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka.

## REFERENCES

Asare, R., Akuffobea, M., Quaye, W. and Atta-Antwi, K. (2015). Characteristics of micro, small, and medium enterprises in Ghana: gender and implications for economic growth. *African Journal of Science, Technology, Innovation and Development*. 7(1), 26-35. DOI: 10.1080/20421338.2014.979651

Athambawa, S., Wickramarachchi, A. P. R. and Puspakumara, C. (2017). Business transformation through technology adoption: special reference to rice millers in Eastern Province, Sri Lanka. International Research Symposium on Pure and Applied Sciences 2017. Faculty of Science, University of Kelaniya, Sri Lanka. (pp. 139). http://repository.kln.ac.lk/bitstream/handle/123456789/18227/139.pdf?sequence=1&isAllowed=y

Bayarçelik, E. B., Taşel, F. and Apak, S. (2014). Research on determining innovation factors for SMEs. *Procedia-Social and Behavioral Sciences*. 150, 202-211. DOI: 10.1016/j.sbspro.2014.09.032

Bennett, R. (2008). SME policy support in Britain since the 1990s: what have we learnt? *Environment and Planning C: Government and Policy*. 26(2), 375-397. DOI: 10.1068%2Fc07118

Berisha, G. and Pula, J. S. (2015). Defining Small and Medium Enterprises: a critical review. *Academic Journal of Business, Administration, Law and Social Sciences*. 1(1), 17-28. Retrieved from http://iipccl.org/ (ISSN) 2410-3918

Beyene, A. (2002). Enhancing the competitiveness and productivity of small and medium scale enterprises (SMEs) in Africa: An analysis of differential roles of national governments through improved support services. *Africa Development: A Quarterly Journal of CODESRIA*. 27(3-4), 130-156. Retrieved from https://www.africabib.org/query_a.php?pe=!308203070!&SR=3 (ISSN) 0850-3907

Central Bank of Sri Lanka. (2019). Annual Report of Central Bank of Sri Lanka 2019. Retrieved from https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports/annual-reports/annual-report-2019

Choi, Y. S. and Lim, U. (2017). Contextual factors affecting the innovation performance of manufacturing SMEs in Korea: A structural equation modeling approach. *Sustainability*. 9(7), 1193. DOI: 10.3390/su9071193

Choy, C. L. (1995). The globalization of SMEs in Singapore: strategic options. *Journal of Small Business & Entrepreneurship*. 12(1), 78-83. DOI: 10.1080/08276331.1995.10600482

Dunning, J. H. and Lundan, S. M. (2008). Multinational enterprises and the global economy. Edward Elgar Publishing, Gloucestershire, UK. 919pp.

Gamage, S. K. N., Ekanayake, E., Abeyrathne, G. A. K. N. J., Prasanna, R. P. I. R., Jayasundara, J. M. S. B. and Rajapakshe, P. (2020a). A review of global challenges and survival strategies of small and medium enterprises (SMEs). *Economies*. 8(4), 1-24. DOI: 10.3390/economies8040079

Gamage, S. K. N., Prasanna, R. P. I. R., Jayasundara, J. M. S. B., Ekanayake, E. M. S., Rajapakshe, P. S. K., Abeyrathne, G. A. K. N. J., Kumudumali, S. H. T. and Nedelea, A. M. (2020b). Social capital and SME: A systematic literature review and research directions. *Ecoforum*. 9(3). Retrieved from http://www.ecoforumjournal.ro/index.php/eco/article/view/1165/721

Hurmerinta-Peltomdki, L. and Nummela, N. (1998). Market orientation for the public sector providing expert services for SMEs. *International Small Business Journal*. 16(2), 69-83. DOI: 10.1177%2F0266242698162004

International Finance Corporation. (2011). Financials and Projects. Washington DC, USA: International Finance Corporation.

Kang, K. N. and Park, H. (2012). Influence of government R and D support and inter-firm collaborations on innovation in Korean biotechnology SMEs. *Technovation*. 32(1), 68-78. DOI: 10.1016/j.technovation.2011.08.004

Lee, N., Sameen, H. and Cowling, M. (2015). Access to finance for innovative SMEs since the financial crisis. *Research Policy*. 44(2), 370-380. DOI: 10.1016/j.respol.2014.09.008

Lu, M. T., Hu, S. K., Huang, L. H. and Tzeng, G. H. (2015). Evaluating the implementation of business-to-business m-commerce by SMEs based on a new hybrid MADM model. *Management Decision*. 53(2), 290-317. DOI: 10.1108/MD-01-2014-0012

Mohajan, H. K. (2018). Qualitative research methodology in social sciences and related subjects. *Journal of Economic Development, Environment and People*. 7(1), 23-48. Retrieved from https://www.ceeol.com/search/journal-detail?id=1872 (ISSN) 2285-3642

Ndiaye, N., Razak, L. A., Nagayev, R. and Ng, A. (2018). Demystifying small and medium enterprises' (SMEs) performance in emerging and developing economies. *Borsa Istanbul Review*. 18(4), 269-281. DOI: 10.1016/j.bir.2018.04.003

Prasanna, R. P. I. R., Jayasundara, J. M. S. B., Naradda Gamage, S. K., Ekanayake, E. M. S., Rajapakshe, P. S. K. and Abeyrathne, G. A. K. N. J. (2019). Sustainability of SMEs in the competition: a systemic review on technological challenges and SME performance. *Journal of Open Innovation: Technology, Market, and Complexity*. 5(4), 100. DOI: 10.3390/joitmc5040100

Prasanna, R. P. I. R., Upulwehera, J. M. H. M., Senarath, B. D. T. N., Abeyrathne, G. A. K. N. J., Rajapakshe, P. S. K., Jayasundara, J. M. S. B., Ekanayake, E. M. S. and Gamage, S. K. N. (2021). Factors determining the competitive strategic positions of the SMEs in Asian developing nations: case study of SMEs in the agricultural sector in Sri Lanka. *Economies*. 9(4), 193. DOI: 10.3390/economies9040193

Prasanna, RPIR. 2009. Impact of GSP+ scheme on Sri Lankan apparel industry in post MFA world. Retrieved from http://repository.rjt.ac.lk/handle/123456789/4733

Priyanath, H. M. S. and Premaratne, S. P. (2014). Government SME development programs in Sri Lanka: a review in the lens of transaction cost economics. *Sabaragamuwa University Journal*. 13(2). Retrieved from http://repo.lib.sab.ac.lk:8080/xmlui/handle/123456789/692 (ISSN) 1391-3166

Rajapakshe, P. S. K., Upulwehera, J. M. H. M., Bandara, K. B. T. U. K., Gamage, S. K. N., Ekanayake, E. M. S., Jayasundara, J. M. S. B. and Prasanna, R. P. I. R. (2021). The readiness of local institutions in addressing sustainability challenges confronting the SMEs: a case study of Sri Lanka. *Sri Lankan Journal of Business Studies & Finance*. 1(1), 16-37. Retrieved from https://fbsf.wyb.ac.lk/wp-content/uploads/2021/11/Article-02-I.pdf

Ramukumba, T. (2014). Overcoming SMEs challenges through critical success factors: A case of SMEs in the Western Cape Province, South Africa. *Economic and Business Review*. 16(1), 2. DOI: 10.15458/2335-4216.1178

Ratten, V. (2014). Future research directions for collective entrepreneurship in developing countries: a small and medium-sized enterprise perspective. *International Journal of Entrepreneurship and Small Business*. 22(2), 266-274. DOI: 10.1504/IJESB.2014.062505

Robinson, J. and Kengatharan, N. (2020). Exploring the effect of Covid-19 on small and medium enterprises: Early evidence from Sri Lanka. *Journal of Applied Economics & Business Research*. 10(2), 115-124. Retrieved from https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/en/covidwho-665263

Shah, S. K. and Corley, K. G. (2006). Building better theory by bridging the quantitative-qualitative divide. *Journal of Management Studies*. 43(8), 1821-1835. DOI: 10.1111/j.1467-6486.2006.00662.x

Songling, Y., Ishtiaq, M., Anwar, M. and Ahmed, H. (2018). The role of government support in a sustainable competitive position and firm performance. *Sustainability*. 10(10), 3495. DOI: 10.3390/su10103495

Soon, T. T. (1994). A pragmatic approach to SME development in Singapore. *Journal of Small Business & Entrepreneurship*. 11(2), 38-45. DOI: 10.1080/08276331.1994.10600455

Thongsri, N. and Chang, A. K. H. (2019). Interactions among factors influencing product innovation and innovation behaviour: Market orientation, managerial ties, and government support. *Sustainability*. 11(10), 2793. DOI: 10.3390/su11102793

Upulwehera, J.M.H.M., Gamage, S.K.N., Rajapakshe, P.S.K., Jayasundara, J.M.S.B., Ekanayake, E.M.S., Abeyrathne, G.A.K.N.J. and Prasanna, R.I.P.R. (2021). Readiness of institutional setting to address the competitive technology challenges of SME sector in Sri Lanka: Perceptions of officers in local settings. *Journal of Management Matters*, *8*(2). 51-74. Retrieved from https://jmm.sljol.info/articles/abstract/10.4038/jmm.v8i2.27/

Upulwehera, J.M.H.M., Liyanage, D.Y.H., Bandara, K.B.T.U.K., Lalani, J.M.G., Gamage, S.K.N., Rajapakshe, P.S.K., Jayasundara, J.M.S.B., Ekanayake, E.M.S. and Prasanna, R.P.I.R. (2022). Preparedness and overall opinions of the owners of agro-based businesses to attain institutional support to face global challenges: a case of Sri Lankan SMES. *Sri Lanka Journal of Economic Research*. 9(2), 43-67. DOI: 10.4038/sljer.v9i2.162

Vijayakumar, S. (2013). The status of small and medium enterprises and promotions for their growth in Sri Lanka. *International Journal on Global Business Management and Research*. 1(2), 1-12. Retrieved from http://www.rajalakshmi.org/ijgbmr (ISSN) 2278 8425

World Bank. (2017). Enterprise Surveys. World Bank Group: Washington DC, USA.