



## UNCERTAINTIES AND RISK ON SMEs SUSTAINABILITY IN OMAN: A LOGISTICS PERSPECTIVE

Amira Saif Hamood Al Rashdi<sup>1</sup>; Abebe Ejigu Alemu<sup>2\*</sup>, Noorul Shaiful Fitri Abdul Rahman<sup>3</sup>

<sup>1</sup>International Maritime College Oman, Sohar, Sultanate of Oman, Email:([amira@imco.edu.om](mailto:amira@imco.edu.om))

<sup>2</sup>International Maritime College Oman, Sohar, Sultanate of Oman, Email Email:([abebe@imco.edu.om](mailto:abebe@imco.edu.om))

<sup>3</sup>International Maritime College Oman, Sohar, Sultanate of Oman, Email:([Noorul@imco.edu.om](mailto:Noorul@imco.edu.om))

\*Corresponding Author



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### ABSTRACT

**Purpose:** This study aims to discover internal and external SC uncertainties SMEs experience. The study conducted interviews with the authorities in Muscat and Sohar.

**Method:** a cross-sectional mixed method was used for the study. The study administered probability sampling among 100 SMEs.

**Findings:** the findings on internal SC uncertainties include lack of access to finance, unable to attract/satisfy customers, lack of skill/training, poor planning, long lead-time, high operation costs. External SC uncertainties include government regulations, complicated funding processes, lack of data, competition, technological changes, unreliable suppliers, and fluctuations in fuel prices. SMEs need to be knowledge-based, exploit policy initiatives, employ technology. It is expected to benefit policymakers to design intervention measures for the resumption of SMEs as they create employment opportunities and wealth distribution among society.

## 1. Introduction

The Sultanate of Oman is one developing country that supports small and medium enterprises (SMEs) since they add value to the country's economy and people's living standards. In 2019, SMEs contributed around 15 per cent of Oman's GDP (Mahi and Awlad, 2020). According to Oman's Public Authority of SMEs Development (Riyada), the organization's target is to encourage, educate, and sponsor the SMEs due to its fundamental role in building up economic and social advantages. It is also stated that SMEs in the Sultanate are classified into three categories based on the number of employees and capital. For instance, firms' capital with less than 100,000 RO and between 1 and 5 workers are classified as Microbusiness. Those with capital between 100,000 and 500,000 RO and 6 to 25 workers are classified as small businesses. Those with capital between 500,000 and 3,000,000 and 26 - 99 workers are medium businesses (Riyada, 2015). The latest reports of the SMEs number in Oman, the Bulletin of National Centre for Statistics and Information, stated that the total number of SMEs has increased up to 13% by the end of November in 2019-2020 (NCSI, 2020). And 16 % by the end of February in 2020 and 2021(NCSI, 2021). The previous comparisons from 2019 to 2021 indicate that about 3% of circumstances led the total cumulative number of SMEs to increase. However, a report of 2018 from the Times of Oman platform established that 78,848 SMEs had cancelled their registration from the 'Invest Easy' Portal, operated by the Ministry of Commerce and Industry (Alqassabi, 2020). The enterprises that cancelled their registration went through challenges affected their ability to survive. Al-Zakwani et al. (2019) mentioned that the challenges that impede the continuity of SMEs in Oman include lack of management knowledge and experience, weak labour skills, complicated government rules and regulations toward business, loans taking a long time exceeding one year, and lack of SMEs quotas system. On the other hand, Alqassabi (2020) raised some government contributions and efforts that most entrepreneurs are unaware of, from marketing, financial, advisory, management, technical and infrastructural.

One of the main objectives of Oman vision 2040 is concentrating on SME development and seamless SCs due to its significance on national economic growth (Oman Vision 2040, 2020). Therefore, people's living standards, SMEs' sustainability, and federal income determine economic growth. A shred of recent evidence proved that SMEs sustainability raises the country's GDP, reduces the unemployment rate, poverty alleviation, encourages innovations, and promotes competitive market and technology development (Muthuraman et al., 2021). Indeed, several external and internal SC risks and uncertainties obstruct the sustainability of Oman's SMEs. Several researchers have also studied factors affecting SMEs' expansion and growth. However, studies on supply chain uncertainty in SMEs are rare and have not been an area of research interest, particularly in the Sultanate of Oman. Hence, this research is designed to fill such empirical research gap and discusses certain latest supply chain risks and uncertainties affecting the performance of SMEs in Oman. Therefore, this paper tries to answer the following questions: What is the relationship between supply chain uncertainties and SMEs' sustainability? What is the supply chain risks and uncertainties that affect the sustainability of SMEs in Oman? What is the performance situation of Oman's SMEs toward the current crisis of COVID-19? How do SMEs support the economic growth of Oman? How is it possible to overcome the supply chain risks and uncertainties that obstruct the continuity of SMEs? The rest of the paper is structured as follows: the next part summarizes the literature

review related to the topic. It presents a review of related literature from empirical and theoretical summary related to SC uncertainties and risks on the SMEs. The third section describes the approaches and instruments employed to collect the study's primary data, such as surveys and interviews to assess the investigation in Logistic SMEs in Oman. The fourth section presents the results and discussion of findings. The paper ends up with conclusions drawn from the findings and implications.

## **2. Literature Review**

SC risks and uncertainties disrupt the business environment, performance, and network, social, national, and international economy. Thus, any risk or uncertainty on the SC drives for expecting the probability of the business outcomes. However, SC risks and uncertainties exist in any business or transaction where there always be mitigation practices such as appropriate planning, performance assessments, monitoring, and control systems (Gurtu and Johny 2021). Besides, any business-sized sustainability, mainly focusing on SMEs, relies on the SC strategy and control. Magd and Gharib (2021) described that SME sustainability is crucial for a country's economic development. Arab Open University (2021) explained that SMEs sustainability raises the country's GDP, reduces unemployment rate, poverty alleviation, encourages innovations, and promotes competitive market and technology development (Muthuraman et al., 2021). The literature review indicates the relationship between SC uncertainties and the sustainability of SMEs, the internal and external effects of SC uncertainties on SMEs sustainability, the performance evaluation of Oman's SMEs, and their performance situation in the era of COVID-19.

### *2.1 The Relationship Between the SC Uncertainties and SME's Sustainability*

SC is a complex process of any business, including the big picture of selling, procurement, production, inventory, and logistics; any slight uncertainty influences the company's actual outcomes. Thus, strategic SC management is required for business success. Singh and Kumar (2020) worked on an empirical study on Indian SMEs toward implementing effective supply chain management (SCM). They found that implementing a strategic SCM is a driving factor for Indian SMEs to compete, sustain and succeed globally. Managing customers, organization of resources, and inventory were the primary SCM practice. Nevertheless, they observed that human resources and knowledge are not critical elements for SMEs to succeed. Indian SMEs' emphasis on having an effective SCM reduces costs and lead-time (Singh and Kumar, 2020). A case study on manufacturing SMEs by Rupasinghe and Wijethilake (2021) in Western provinces in Sri Lanka about the impact of leanness practices on SC sustainability has found that lean manufacturing practices positively reflect SMEs' SC sustainability. That includes such as on-time delivery, quality, environmental management, and the involvement of employees. The authors presented that the interactive use of SCS positively influences the relationship between the participation of the employees and social SC continuity.

In contrast, the diagnostic use of SCS affects the relationship between on-time delivery and economical supply chain continuity, environmental management, and economic supply chain continuity. On the other hand, they found that lean manufacturing and environmental SC continuity are not influenced by both uses of interactive and diagnostic SCS. The authors suggest that the nominated region's SMEs focus on diagnostic control systems to promote economic SC sustainability. A study on the context of the COVID-19 outbreak investigated the role of supply chain risk management (SCRM) in mitigating the impact of SC disruptions that influence its resilience and robustness. The study on 470 French firms found SCRM playing a significant role in SC resilience and robustness (El Baz and Ruel, 2020).

### *2.2 SC Risks and Uncertainties and its Effect on Sustainability of SMEs in Oman*

SC risks and uncertainties can also be defined as any information, practice, or reputation that influences the process of trade or business sustainability. Most of the published studies in Oman's SMEs strongly agree about the challenges that affect SMEs' sustainability. Such as complicated rules and regulations, improper business planning, competition, lack of financial access, advisory, complex funding process, technological changes, customer interaction, weak entrepreneurial and workforce skills and knowledge (AL-Zakwani and M. S. K., 2019; Ramachandran and Yahmadi, 2019, Al-Shandoodi et al., 2019, Alqassabi, 2020). The different studies indirectly proved the impact of SC risks and uncertainties on the sustainability of Oman's SMEs, the researcher divides them into internal and external SC effects. The internal SC effects are under the firm's control due to its management and employees. In comparison, the external SC effects occur outside the firm's control, such as the government policies, market situation, trends, customers, or SMEs' responsible authorities. Ramachandran and Yahmadi (2019) studied the challenges faced by SMEs in Oman. They found weak business performance ranked number first, followed by improper business planning due to the failure of bank loans. In the context of internal effects, their statistical findings indicated that more than 34% of SMEs included in their survey did not have the required knowledge to manage the business because they did not obtain prior training. Besides, 70% of the respondents strongly agreed lack of regulations on their institution is a significant challenge.

Additionally, 40% strongly agreed about lack of skilled labourers and poor management, and 11.2% of the respondents strongly agreed that they face problems attracting customers (Al-Zakwani et al., 2019). Furthermore, the study by Al-Shandoodi et al. (2019) in Oman indicated that about 29 per cent of the entrepreneurs did not have experience, and 64 per cent did not obtain any financial or business training before or during their interaction. The study concluded that poor business planning, weak administrative and labour skills, lack of knowledge, lack of financial and business training, weak

institutional regulations, and poor marketing are the internal SC uncertainties affecting SMEs' sustainability in the Sultanate of Oman. Arguably, government rules and regulations, competition, financial access, advisory, funding process, technological changes, economic crises, and customer's experience all are the external SC impacts on the sustainability of SMEs, as the various studies around Oman proved. Alqassabi (2020) found that the owners of SMEs admitted rules and regulations, competition, lack of financial access, customer interaction, and technology changes 'respectively' have a significant impact on the sustainability of their business. The study also cited that incubator plays a substantial role in enhancing Oman's SMEs' sustainability. The external SC uncertainties discovered through the survey, which SME incubators support, are lack of access to finance, lack of government support services, and lack of circle of networks within the same field to work cooperatively. Those incubators, including OM.HUB platform, (Riyada) a Public Authority for SMEs, National Business Centre, SAS for Entrepreneurship, OMIFCO, and Zubair SEC (Magd et al., 2021). Al-Zakwani and Mondal (2019) identified that most of Oman's SMEs were unsuccessful due to some external SC effects. Government credit facilities, labour laws, and license-issuing systems are not business-friendly.

The study by Mahi and Awlad (2020) on the current economic crises of COVID-19 toward strategies used by SMEs to survive in the Sultanate of Oman, shown that most SMEs implemented significant layoffs. That has been done by focusing on their core employees, expanding their products and services to reach a broader range of customers, providing discounts, and offering extensive external and social media marketing. The study also cited government contributions toward SMEs, such as financial support provided by Al Raffd Fund, which is six months 50 per cent reduction of the total due amount for the deferred instalments and loan instalments for beneficiaries. Besides, the non-financial support by Riyada represents providing training and technical support to facilitate the movement of SMEs into online platforms, such as the Shop at stop initiative (Mahi and Awlad, 2020). Another recent evidence about SMEs and policy responses during the era of COVID-19 indicated that the COVID-19 pandemic opened the opportunity for new SMEs to enter the market. Exploit the technologies as an opportunity to boost their sales by online delivery and virtual business, for which the luck down restriction policy pushed SMEs to enter into virtual business (Alemu, 2021).

### *2.3 The Performance of SMEs in Oman*

The latest reports published in Oman indicated that SMEs contribute 15% to the entire country's GDP. Secondary data analysis-based investigation of Alemu (2021) shown that many Omani SMEs, especially the logistics firms, ambitiously responded to the health and economic crisis as an opportunity to discover long-term survival options such as exploiting each government's facilitation and supports and the trend of virtual business. In contrast, Ramachandran, and Al Yahmadi (2019) found that the significant reason for Oman's SME failures is weak business performance due to improper business planning. Accordingly, the authors recommended that sufficient training, finance support, and entrepreneurial culture teaching would improve SMEs performance (Ramachandran and Yahmadi, 2019). The study by Al-Zakwani and Swadhin (2019) found the same results as Ramachandran and Yahmadi (2019) and found that SMEs were not successful due to lack of training, knowledge, approval of loans that take so long (more than one year), and no particular quotas system for SMEs. The researchers suggest facilitating the process of loans and closer support by the government would improve SMEs performance. On the other hand, Alqassabi (2020) study on SMEs sustainability in Oman found that Oman's SME owners' experience and education level is meagre; 55 per cent of them have a secondary school education, whereas 15.7 only have BA education and above. Besides, in terms of experience, the owners who have no knowledge of their 35.13 per cent and who have only 1 to 2 years' experience scored 18.97 per cent. In comparison, those whose experiences exceeded six years scored 25 per cent of the total respondents. Moreover, the other significant performance impacts toward Oman's SMEs are rules and regulations, competition, lack of financial access, customer interaction, and association, and lack of skilled workforce which scored from the total respondents of the study respectively 78.7%, 73.1%, 72.6%, 69.2%, 69.0% (Alqassabi, 2020).

The sudden global crises of COVID-19 led each country to impose internal and external protection policies to limit the spread of the disease. Consequently, the trade is no more fluent than before the pandemic where the national and international economy has been affected. The situation drove the business owners to restructure their SCs. Alemu (2021) studied the effect of COVID19 on the operations of SME Logistics companies and policy responses in Oman and found that Oman's SMEs immediately adapted to the country's policies. They demonstrated quick recovery, and many new SMEs entered the market during the crises. The author's analysis presented that was with the encouragements of the vital institutions of Oman's government and their facilitation, financial and technical supports. Such as from the domestic banks, Public Authority for SME Development (Riyada), Al Raffd Fund, and the Ministry of Commerce and Industry to control the economic and social impacts that COVID-19 could leave. Besides the government contributions, online platforms and social media were among the main elements to open the opportunity for virtual business and SMEs sustainability during the pandemic. As a result, the GEM reported that the number of new SMEs registered at the end of April 2020 increased by 12.9% compared to the same period in the previous year, 2019. Whereas policy quick adaption and technology implementation should always be decisions followed by the entrepreneurs for a sustainable SME (Alemu, 2021).

### 3. Methodology

The study's main objective is to identify the presence of external and internal SC uncertainties and investigate its effect on Oman's SMEs' sustainability. To meet the objective, mixed method in interviews and surveys for data collection was adopted. Data from SMEs operating in logistics within Muscat and Sohar, cities of Oman, were collected. Descriptive research was employed as it helps to deeply understand the situations of Logistics SMEs in terms of uncertainties they are facing (Barcik, 2016a); (Saeed, Bekhet & Dhar 2017). The purpose of choosing descriptive research is to describe, explain and validate the objectives and hypothesis regarding a particular sector. Besides, to answer the status of the study's subject, to determine and report the way things are, can utilize elements of both quantitative and qualitative research methods (Servanda Celador et al., 2021). A mixed methodology was employed to conduct online interviews with the authorities managing SMEs and surveys distributed among logistics SMEs in Muscat and Sohar.

Thus, the reason for conducting mixed method is to develop a comprehensive understanding of phenomena. It is used to ensure the validity and quality of the study and support the findings with adequate analysis to add more value to the research paper and gain sufficient information from various perspectives. Besides, answering research questions cannot be answered by qualitative or quantitative approaches alone. It collects, analyzes, and mixes quantitative and qualitative data in a single study. This method's attractiveness combines inductive and deductive thinking and uses more than one research method such as interviews and surveys to address the research problem critically. The study employed a descriptive mixed-method cross-sectional design in interviews and surveys. The cross-sectional tool is a type of descriptive study to analyze data from a population or representative samples for one specific time. The advantages of cross-sectional studies are that they are used to prove or disprove a hypothesis, are not costly, and do not require much time. Besides, it contains multiple variables to gather data, captures a specific point in time. The data can be used for various types of research and multiple findings and outcomes analysis to create new studies or in-depth research.

In contrast, it cannot analyze behaviour over time, does not help determine cause and effect, and may face some challenges putting together the sampling pool based on the variables of the population being studied (Saeed, & Bekhet 2018); (Wilson, 2020). The technique that matches this study design is a probability-sampling method with a random selection from the targeted respondents used to get responses. The study population consists of logistic sector SME entrepreneurs and national institutions managing SMEs, of which a list of 100 SMEs was received from Riyadh. The data population is from different logistic companies and providers, such as customs clearance, trucking companies, marine service, warehousing activities, towing and roadside assistance activities, shipping and discharge, operation and maintenance of pumping stations and pipelines, and sea transport, ASYAD, and Riyadh. Forty-five respondents replied to the survey questionnaire. For the interview, three higher officials from Riyadh and ASAYD holding leading positions were chosen.

Table: 1 Interview participants

Type of organization	Position of interviewee	of	Interview question and issue	grand	Remark	
Public Authority of SME development	Entrepreneurship Department		Riyada initiatives and experienced complaints from SMEs.	from	Respondents and address available.	name is
Asyad	In-Country Department	Value	Asyad initiatives and experienced complaints from logistics SMEs	from	Respondents and address available.	name is
Public Authority of SME development	Planning and Development Department	and	Government plans and strategies toward the challenges facing SMEs		Respondents and address available.	name is

### 4. Data Analysis and Results

This part of the paper analyses data acquired through interviews from three officials who possess higher positions in public and private organizations. The interview with the officer from Riyadh indicated a lack of statistics regarding the logistic sector in Oman as a whole field. However, the existing data under the logistic sector are transport and storage. The Public Authority of SMEs Development receives the data for further analysis from different mentor organizations. For instance, the National Center for Statistics and Information, the registered enterprises in the Public Authority of SME development database, and the Ministry of Labor. Therefore, according to the document shared by the Head of data analysis and statistics at the Public Authority of SME development, the latest available data of SMEs shows that 551 micro-enterprises, 159 small and 32 medium enterprises in the transport and storage business. The number of SMEs

operating in transport and storage include 919 (663 micro-enterprises, 227 small scale and 29 medium scales); 180 in Muscat (149 micro-enterprises and 31 Small scale enterprises). Table 3 demonstrates the number of SMEs in transport and storage for each of Muscat and Sohar according to the received report from the Ministry of Labor. Therefore, the survey questions were built based on the enterprise size. As a result, SMEs in the Sultanate are classified into three categories based on the number and yearly revenue. During an interview with the Acting Director of Entrepreneurship Department at the Public Authority of SME development (2021), he mentioned the updated SMEs classifications of the sultanate. The resolution issued in June 2020 has been changed since this sector is growing to match the global and GCC business classifications. Accordingly, microenterprises are businesses with 1 to 10 employees and less than OR 150,000. Small enterprises have employees between 11 and 50 and capital of OR 150,000 and 1,250,000. Medium enterprises have 51-150 employees OR1,250,000- 5 million. The survey analysis is based on several supply chain segments of logistics SMEs located around Muscat and Sohar. The SME logistics enterprises covered in the survey are composed of those performing such activities. That includes road transport, towing and roadside assistance activities, sea transport, marine service, warehousing activities, operation and maintenance of pumping stations and pipelines, shipping and discharge, custom clearance, wholesale, and retail, forwarding, maintenance, and contracting (see Figure 1).

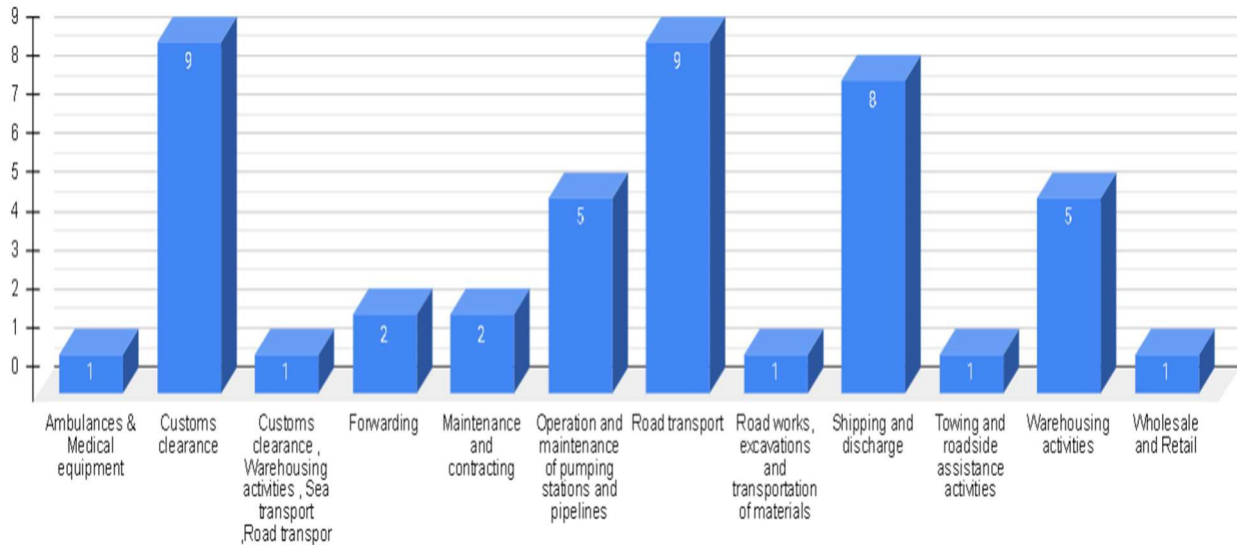


Figure: 1 The number of responded enterprises and their logistic activity.

Forty-five SMEs logistics-related companies have participated in this study, of which 51.1% (23 companies) are located at Sohar, and the rest 48.9% (22 companies) were in Muscat. In terms of the business sizes, 23 respondents own a small size of business, 16 of them own micro size of business, and six enterprises own medium size of business, and they form 51.1%, 35.6%, and 13.3% of the survey participants respectively. In terms of ownership, 39 were private, four were public, and 2 were public-private businesses. About the services they provide, 28 carried freight services, 11 carried passenger and freight services, and the rest six carried passenger services.

#### 4.1 Survey Results Toward the SC Uncertainties Facing SMEs

As reviewed from the literature part, the current crises of COVID-19 drove the business owners to restructure their SCs. Business owners and leaders were asked to respond to the effect level to confirm its effect on their operations. Their response is summarized as follows, and 23 of them replied to its negative and highly negative impact, as presented in figure 2.

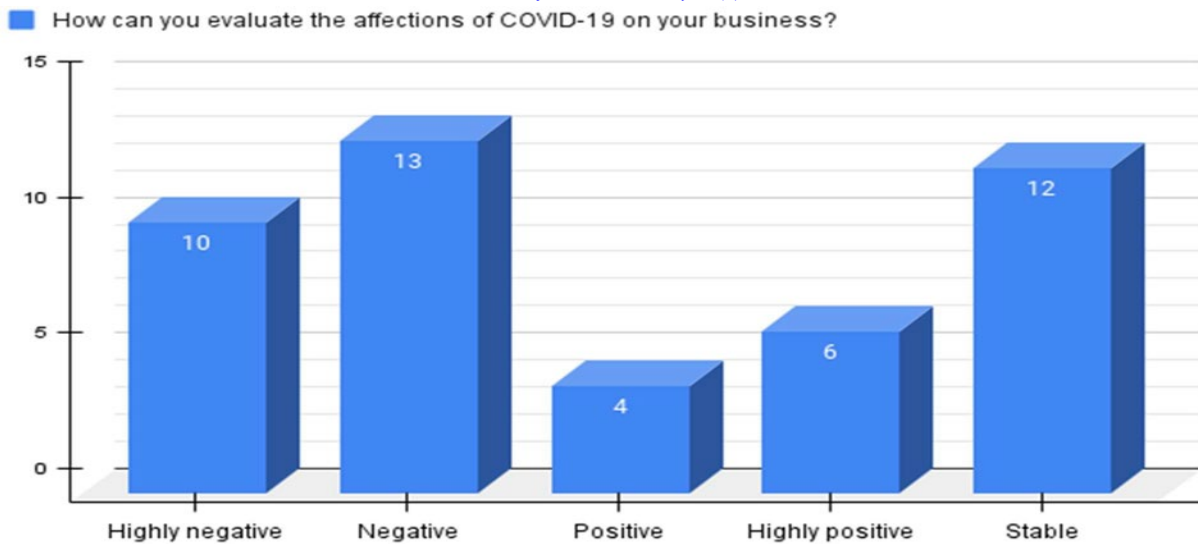


Figure: 2 Evaluation of COVID-19 effect on the responding enterprises.

Figure 2. illustrates 5-dimensional options of COVID-19’s effects on the business performance of logistics SMEs. The first ranked result demonstrates that 13 participants agreed that COVID-19 hurts their business. The second-ranked result dimension consists of 12 participants who showed that the pandemic did not affect their business where they consider their performance is still stable. The third-ranked measurement with ten enterprises confirmed that COVID- 19’s effect is highly adverse to their business. The fourth-ranked measure with six responses proved that coronaviruses influenced their business to a highly positive level. Finally, the fifth-ranked dimension with 4 participants approved that COVID-19 positively affected their business.

Table: 2 dimensions Effect

Ranking as per responses	Effect dimensions
1	Negative
2	Stable
3	Highly negative
4	Highly positive
5	Positive

On the other hand, another question raised in the survey regarding the way that logistics SMEs are overcoming the losses getting during COVID-19, and the options were as demonstrated in the following pie Figure: 3

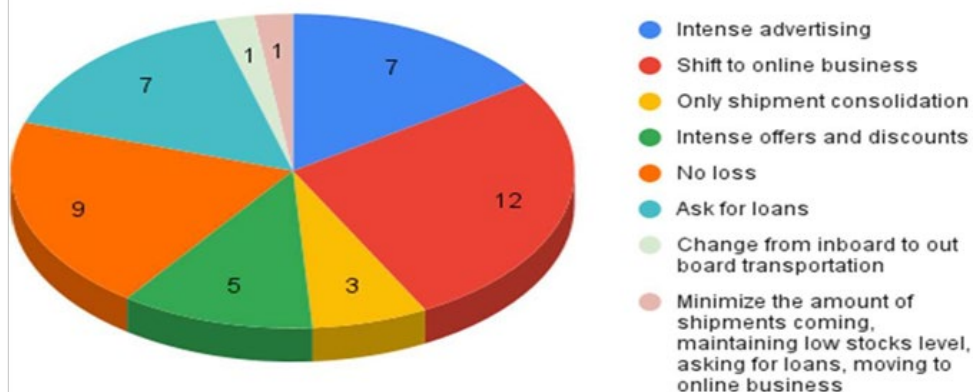
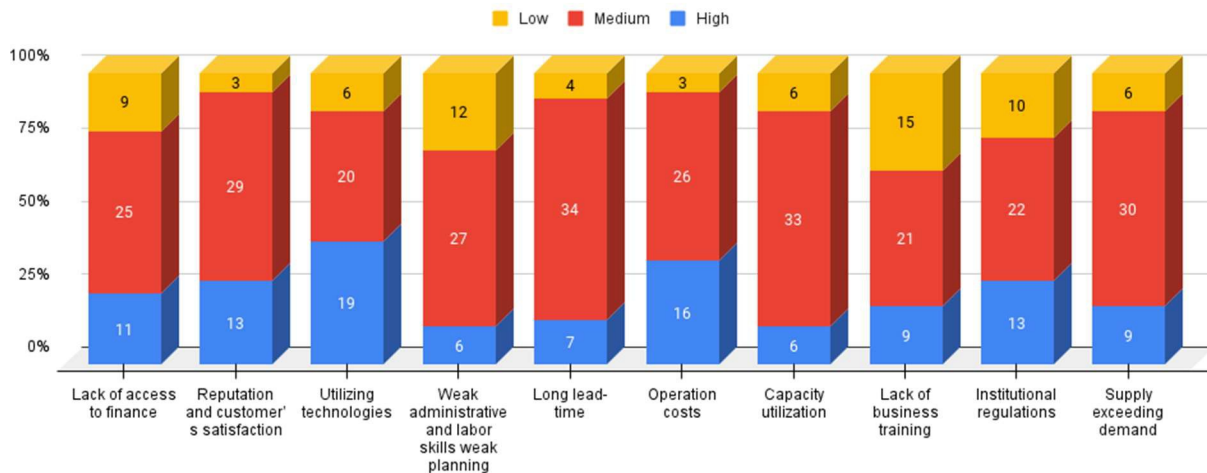


Figure: 3 Strategies used by the respondents to overcome the losses getting from Covid-19.

Figure: 3. includes different coping strategies SMEs implemented to survive the economic crises imposed by COVID-19. In this study, most of the respondents counted 12 who have shifted their business online as a strategy to overcome the losses they are facing during the COVID-19 period. The next score is nine respondents who admitted that they did not face loss. On the other side, seven respondents opted for intense advertising while another seven asked for loans. Furthermore, 5 participants provided intense offers and discounts to rescue their business from loss. Three respondents providing freight services tend to ship only consolidated shipments to cut costs. Besides, 1 participant replied that the enterprise applied various strategies to minimize the amount of incoming shipment, maintain a low stock level, ask for loans, and move to online business. At the same time, another respondent wrote that they shifted from providing inboard transportation to outboard to overcome the effects of COVID-19 on their business. In the other aspect, a non-mandatory question was mentioned in the survey to investigate how the SMEs cooperated with the government during the pandemic; and 34 of them replied to this question. However, there were negative and positive answers as with any normal issue. The positive responses agreed in the same context, which their cooperation represented by adhering to the preventive measures and following the decisions of the supreme committee, staying patient, and continuing their business by changing their traditional supply patterns to boost their sales, which is contributing to the national economy. On the other hand, the negative responses were few and replied that they expect cooperation from the government and look for extra support. On the other side, an evaluative form of questions was included in the survey related to the internal and external supply chain obstacles based on their impact on the participated SMEs' performance. The impact levels are defined as High, Medium, and Low effects. The categories options of internal obstacles presented in 11 divisions and the options of external obstacles presented in 9 divisions where the following stacked column charts summarizing the results (Figure: 4.):

Figure: 4 The internal obstacles and their impact level to the survey respondents.  
Evaluate the following internal obstacles based on its impact level on your organization performance



The SC efficiency of any business substantially relies on a practical and comprehensive feasibility study of the entrepreneurs toward their business, including studying the market requirements to ensure a sustainable business. However, many entrepreneurs struggle to maintain their target turnovers due to various internal impediments. Chart 8 above elucidated the number of survey respondents for each internal SC challenge and voted its impact on their business performance. Based on the respondents' evaluation toward the three impact levels of each internal challenge they are experiencing, the researcher ranked the challenges in the following table as per the number of responses shown in the above chart (Table 3).

Table: 3 The ranking level of impact for each internal uncertainty evaluated by the respondents

Internal challenges facing logistics SMEs	High	Medium	Low
Lack of access to finance	4	7	4
Reputation and customers satisfaction	3	4	7
Utilizing technologies	1	10	5
Weak administrative, labor skills and weak planning	7	5	2
Long lead-time	6	1	6
Operation costs	2	6	7

Capacity utilization	7	2	5
Lack of business training	5	9	1
Institutional regulations	3	8	3
Supply exceeding demand	5	3	5

Table 7 presents the ranking levels of impact for each internal uncertainty facing SMEs. The summary table depicts that weak administrative, labor skills, poor planning, and capacity utilization were the highest-ranked internal uncertainty for logistics SMEs. The extended lead time was the subsequent ranked internal uncertainty SMEs were facing. Lack of business training and excess supply exceeding demand was the third-ranked high internal uncertainty affecting logistics SMEs. The fifth-ranked internal uncertainties were lack of access to finance, institutional regulations, and reputation. Operational costs and technology utilization were the least leveled/ranked internal uncertainties affecting logistics SMEs.

Moreover, the external SC uncertainties listed in another evaluation question of the survey have been analyzed from the data reviews to investigate its effect level on the performance of the logistics SMEs to the respondents of this study. However, the following stacked column charts demonstrate the number of responses for the three impact levels of each external uncertainty (figure 5):

Evaluate the following external obstacles based on its impact level on your organization performance

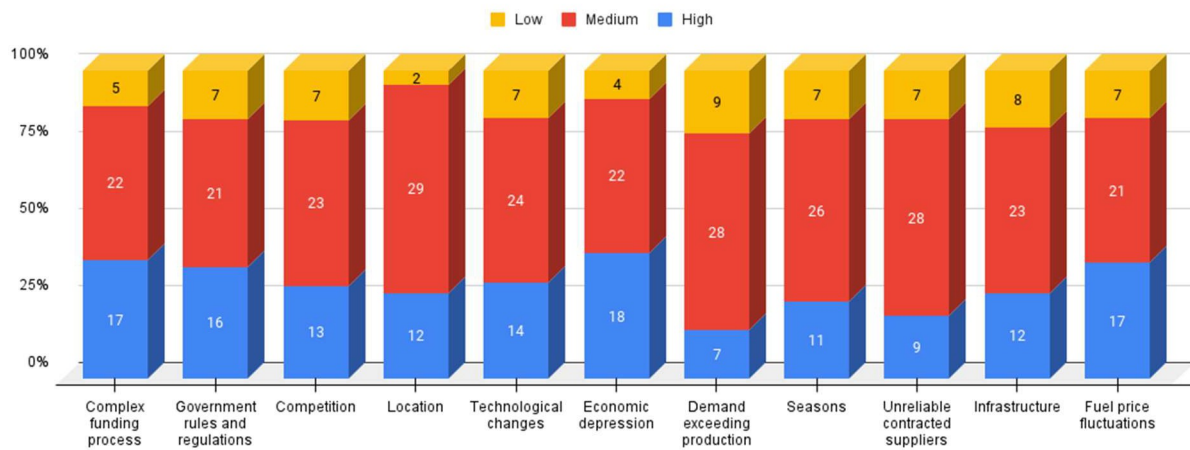


Figure: 5 The external obstacles and their impact level to the survey respondents.

Table 4 shows the total responses for each external uncertainty factor affecting the performance of the reactions and sets their evaluation toward its impact level, whether High, Medium, or Low. The below table displays the ranking level of impact for each external uncertainty based on the votes of the survey participants presented in chart 9:

Table 4: The ranking level of impact for external uncertainty evaluated by the respondents

External uncertainties	High	Medium	Low
Complex financing/loan process	2	6	3
Government rules and regulations	3	7	2
Competition	5	5	2
Location	6	1	5
Technological changes	4	4	2
Economic depression	1	6	4
Demand exceeding production	9	2	1
Seasons	7	3	2
Unreliable contracted suppliers	8	2	2
Fuel price fluctuations	2	7	2



Table 4 summarizes the results, illustrating that each challenge has a different dimension of impact, and the lowest ranking value is different for each level based on the number of respondents' evaluations for some challenges has concluded in similar grades. Thus, the complex funding process ranked the 2nd highest impact level, the 6th as a medium, and the 3rd as lowest. At the same time, government rules and regulations ranked 3rd highest, 7th medium, and 2nd as lowest impact level. Competition as a challenge ranked 5th in both highest and medium impact level and 2nd as lowest toward the participants' performance. Whither location element ranked 6th highest, 1st as a medium, and 5th as lowest. The technological changes ranked 4th in both highest and medium impact levels and 2nd as lowest, which concludes that some enterprises cannot implement. The technological trends and patterns due to many reasons such as unavailability of experts using the technologies or inability to be acquired because of financial issues. Besides, economic depression ranked 1st as high effect on enterprises' performance, 6th as a medium, and 4th as lowest.

In contrast, demand-exceeding production ranked lowest as highest, 2nd as a medium, and 1st as low impact level experienced by participants. Seasons ranked 7th as highest, 3rd as a medium, and 2nd as low. At the same time, unreliable constructed suppliers ranked 8th as highest, 2nd in both medium and low levels of impact. Finally, fuel price fluctuations ranking 2nd, both as highest and lowest, and last as medium challenge voted by respondents.

Another question raised to the participated logistics SMEs in the survey as if they benefit from the government and responsible authorities managing SMEs or not. The bellow pie chart demonstrates that 29 respondents covering 64.4% of the survey participants, admitted they do not benefit. In comparison, 16 respondents formed 35.6% of the survey participants and agreed they get certain benefits from the concerned entities. The subsidiary question to the above is if their answer was "yes", they were requested to explain. Therefore, they admit that they receive continuous support and facilitation of procedures. And they have priority in tenders, features of Riyada card on special discounts they acquire, providing loans, postponing of paying the installments from banks, economical packages since pandemic time, and prompt completion of transactions.

#### *4.2 Interview Results Toward the SC Uncertainties Facing SMEs*

According to the Director of the Entrepreneurship Department at the Public Authority of SME development, there are many pillars, services, and programs to empower the SMEs in Oman, such as training programs, arranging periodic exhibitions, and incubations around Oman's governesses. New financial programs for the SMEs, consultancy and feasibility study service, one-year mentorship programs for startups, entrepreneurship awards. Besides, an entrepreneur card provides various features like discounts on licenses and government permit offers from private sectors up to 50%. They can get more foreign employees from the Ministry of work and many more. The authority recently cooperated with Asyad express to provide an incubation program, especially for logistic SMEs. Meanwhile, since this pandemic time, the Ministry of Transport has provided special discounts for the license, especially for SMEs and entrepreneur cards.

On the other side, from his experience, he agrees with the survey results and stated four significant SC risks and uncertainties affecting the logistics SMEs in Oman, such as rules and regulations, lack of specialized mentorship programs, lack of accurate data analysis in the logistics field, and complicated financial support. However, rules and regulations need to be updated according to the logistics sector trends and exploit the county's opportunities in this field. For instance, small enterprises compete with large and global companies where no special rules support SMEs and protect them from the intense competition. Hence, they pay the same license charges for around 5-7 thousand OMR to be renewed every three years. Another limitation is a lack of specific training, incubations, consultancy, and mentorship programs specialized for the logistics sector. There is a lack of statistics, analysis, and data regarding the logistics sector. Finding the opportunities to help build a business for this sector remains unclear. For example, a prominent institution called Dry Dock Company requested to be provided with a qualified Omani logistic enterprise for their business. Hence, the SME's managing authority tends to search about these enterprises where if there were an accurate periodic analysis for this sector, it would be an efficient and seamless process.

Besides, the financial programs are not always suitable for SMEs because business is about innovations and new ideas. So the financial programs don't want to take a risk and will not be available for startups from the beginning unless they register in insurance and the insurance standards are complicated to the SMEs, such as they cannot take a loan of OMR 50 thousand if their revenue is less than OMR 30 thousand. Another discussion was made with the authority with SME behind the increase in SMEs during the pandemic time. The results were that many employees were fired out due to the unsafe economic situation the government and companies are experiencing. Hence, to secure their economic life, they found that initiating a small or medium enterprise is the best way to survive and exploit their innovation and benefit from the significant advantages and supports provided by the Authority of SME development. On the other interview, held with a Group Leader of the In-Country Value Department at Asyad, the department supports local logistic SMEs and provides incubation programs. However, they have a strategy and initiatives to support logistics SMEs by the business incubation called IBHAR launched in 2017, and it is supporting the new ideas and providing entrepreneurs with physical support like an individual office that is free of cost and consultations to help SMEs link their business to the market. Besides, a cycle time of incubation colonial within the entrepreneurs' incubation period. Another Assad initiative is customized activities provided mainly for SMEs, implementing 10% of the contract's total value for SMEs only.

Moreover, signed MOU with the Public Authority of SMEs Development to provide funding and training programs for entrepreneurs who benefit from Assad groups. They receive monthly performance reports evaluation from the authority regarding the support of SMEs. Furthermore, utilizing SMEs' innovations by building a network and joint ventures between them and different private companies to enhance, encourage their ideas, sustain in the market, and grow fast. Throughout the discussions with authorities around the uncertainties encountering the logistics SMEs and influencing their performance, it has been understood that many internal obstacles match the survey responses. However, these obstacles lead to SME failures. It is represented in a weak feasibility study, improper business plan, lack of knowledge regarding the demand of the service or product, and inability to improve the excellent relationship with customers. Furthermore, there is a lack of periodic business development plans, not focusing on core business, no alternatives to the services and activities they provide, and challenges in getting clearance and certificates from different government entities. The In-Country Value department of ASYAD is cooperating with the Authority of SMEs development to help entrepreneurs overcome all the challenges they face and ensure their sustainability in the market.

## 5. Conclusions and Implications

Since the SC is a complex process of any business, including the big picture of selling, procurement, production, inventory, and logistics process, any slight uncertainty influences the real outcomes of the company. SC uncertainties and risks disrupt the business environment, performance, network, social, national, and international economy. Thus, any risk or uncertainty on the SC drives for expecting the probability of the business outcomes. However, SC risks and uncertainties exist in any business or transaction where there always should be mitigation practices such as appropriate planning, performance assessments, monitoring, and control systems. According to the survey results, it is concluded that most logistics SMEs are expecting extra supports, facilitation, and follow-ups from the responsible authorities managing SMEs and requesting to see the government plans a reality and to be implemented as soon as possible. From the interview result, since the 2020 royal decree to develop the SMEs, the public financial and physical supporting systems were merged under one umbrella consisting of ALRafid fund, Riyada, and handicraft, as a complete supportive system in one responsible Authority for SMEs named Authority of SMEs development. The merged structure enabled to enhance the development of SMEs in Oman. The authority to release new rules include all the incentives, criteria, and standards to support the different SMEs sectors through training, funding, coaching, and monitoring. To protect the business from future uncertainties and risks, the startups should consider having a proper feasibility study by taking the consultancy from several experienced people regarding the sector they wanted to invest in and set risk preventive actions. The business idea should be created with comparative advantage, which means startups should avoid imitating other existing businesses by employing innovation and creativity to catch customers' attention, be competitive in the market, and efficiently achieve the goals.

The most sensitive part of the business efficiency and sustainability is the employees' skills. From this context, it is crucial to employ a skilled and reliable workforce and obtain courses and training for the managerial components of the business and the senior and operational employees to expand knowledge, skills, and experience of doing business, which directly affects the performance and development of the enterprise and its outcomes. The SMEs should integrate with extensive and successful organizations to help them build a wider network, strong business base, gain significant experience, spread in the market, and grow fast. Entrepreneurs should have a customer orientation and focus on developing according to the reviews of their customers. The entrepreneurs should consider implementing periodic and monthly assessments and KPIs to track all productions, assets, equipment, and employees to set mitigation plans. This will help to monitor, manage, and control uncertainties and risks. It is wise to use agile and lean supply chains to make the business effective and efficient. The government should accelerate the development strategies and plans regarding SMEs that will directly influence their sustainability and growth in the market. The government should make particular rules for SMEs in the logistics sector since it is an essential norm in its supply chain. Thus, the national statistics and information authority should publish a monthly enumeration for logistic sector SMEs in every region of Oman. Another critical focus that the government should make for the SME logistics sector is providing special training, incubations, and consultancy and mentorship programs. The government may encourage competent SMEs quarterly by giving them rewards. This will motivate their productivity and innovations. Readers are advised to carefully interpret results as it was challenging to collect data from selected samples due to COVID19 fully. Still, the study's conclusions may help researchers and policymakers better understand the uncertainties, consider intervention measures, and identify gaps for future research.

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