

## An Exploratory Study of the Supply Chain Logistics (SCL) Optimization of SME Cargo Companies

Abdulla Srmbikal Abdul Nizar<sup>1</sup>, Maria Teresa Matriano<sup>2</sup>, Center of Post-graduate Studies, Middle East College, Sohar University, Oman

Email: <sup>1</sup>[PG20F2204@mec.edu.om](mailto:PG20F2204@mec.edu.om); <sup>2</sup>[maria@mec.edu.om](mailto:maria@mec.edu.om)

**Citation:** Nizar, A.S.A & Matriano, M.T. (2022). An Exploratory Study of the Supply Chain Logistics (SCL) Optimization of SME Cargo Companies in Muscat, Oman. *International Journal of Research in Entrepreneurship & Business Studies*, 3(3), 01- 12.  
<https://doi.org/10.47259/ijrebs.331>

**Received on** 13<sup>th</sup> Apr. 2022

**Revised on** 7<sup>th</sup> Jul. 2022

**Published on** 11<sup>th</sup> Jul. 2022

**Copyright:** © 2022 by the authors.  
Licensee: Global Scientific Publications, Oman.

### Publishers Note:

This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/). This is an open-access journal and the articles published in this journal are distributed under the terms of CC-BY-SA.



### Abstract

**Purpose:** The aim of the study was to analyze the challenges faced by SME companies and analyze the opportunities and challenges in the supply chain logistics sector and analyze the best practices and techniques for the optimization of supply chain and logistics.

**Design/methodology/approach:** Exploratory research was carried out using the secondary data collected from the Supply Chain Logistics companies and the analysis of the study was carried out using prior academic literature.

**Findings:** From the study, it was found that the major challenges faced by SMEs in Oman were the lack of finance, lack of marketing knowledge, operational limitations, and lack of entrepreneurial culture and managerial skills. The opportunities in the supply chain sector included the Location, Infrastructure, Economic Opportunities, and Economic Diversification of Oman along with challenges like Human Resource Competency, Competition, Connection, Technology, and Transactions.

**Research limitations/implications:** Based on the results, it was recommended that SMEs should focus on improving their Human Resource Competency, and gain a competitive advantage through optimization of supply chain and logistics activities using technology and implementing optimization strategies.

**Social Implications:** The findings from this study have provided an academic and empirical contribution to the cargo and logistics companies and the SME community in Oman. Furthermore, provides contextual and managerial contributions to the literature on the optimization of supply chain logistics in SMEs.

**Originality / Value:** No prior studies were found addressing optimization challenges and opportunities faced by SME cargo and logistics companies. Through this theoretical study, the researcher attempted to shed light on and tackle this situation.

**Keywords:** SMEs in Oman, Supply Chain and Logistics Optimization, SME Cargo Companies in Oman, Porter's Value Chain, Challenges and Opportunities faced by SME Cargo companies in Oman.

### Introduction SMEs in Oman

Small and Medium Enterprises (SMEs) are an integral part of economic development as it encourages innovation, creates employment, generate value, and contribute to the country's GDP. Few notable among them are utilizing locally available resources, generating profits, and creating new employment (Katuka, 2018). Recently, many countries especially in the Arab world plans to adopt economic diversification and SMEs can play an apex role in economic development and diversification.

According to [Thanh](#) (2022), there is no definition given to SMEs that is accepted universally as among countries there are differences in the social, cultural, and economic factors.

The reflection of the same in terms of SME definition can be seen within the Gulf Cooperation Council (GCC) as well. The design, style of operation, physical size, and employee count vary among businesses. The resources needed to launch a firm also influence how big a market the business will serve and how quickly investors can expect to see a return on their investment. Many entrepreneurs have started small business organizations, also known as small and medium enterprises, due to challenges related to the ease of getting resources for use in beginning a firm (SMEs).

**Table 1. Classification of SMEs in Oman**

Category	Number of Employees	Financial Revenue (RO)
Micro establishments	1 to 10	Less than 150,000
Small establishments	11 to 50	150,000-1,250,000
Medium establishments	51 until 150	1,250,000 to 5m

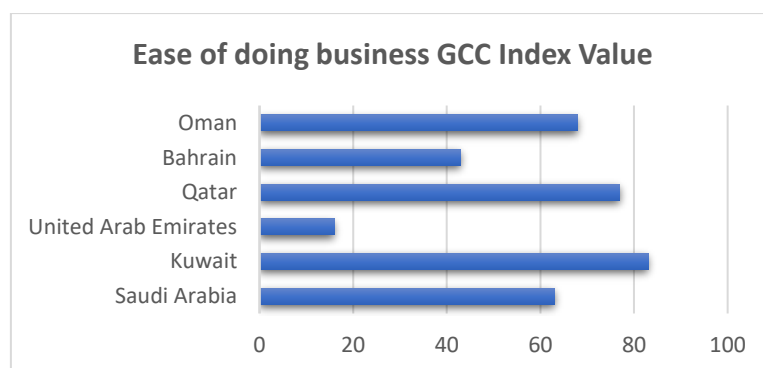
Source: [Zainab](#) (2020)

The number of employees working for a company and the total amount of income the company generates are the only factors used to classify small and medium-sized firms ([Doran et al.](#), 2018).

In Oman, the supreme council for planning defines medium enterprises as businesses having up to 100 employees with an annual sale of RO 250,000 and RO 1.5 million, and small enterprises as businesses with five to twenty employees with an annual sale between RO 25,000 and RO 250,000, while microenterprises as having up to five employees ([Maria](#), 2016). According to [ONA](#) (2022), the total number of SMEs registered in Oman reached 73741 at the end of March 2022 compared to 51663 in 2021 during the same period with an increase of 42.7 percent. The statistics report also showed that according to NCSI, the largest number of SMEs is in Muscat at 24977.

***Ease of Doing Business in Oman***

In a study conducted by [Alkhayat & Ramadhan](#) (2018) on the ease of doing business in the GCC, the study emphasized the ranking index which showed that UAE is ranked first followed by Bahrain, Oman, Qatar, Saudi Arabia, and Kuwait at last position. Furthermore, the study showed that Oman came third in the overall position ranking among GCC in DB. Oman scored the first position in the trading across borders and Starting Business category. However, there are four low categories for Oman ranking all at the fifth position when compared to the GCC countries.



**Fig 1. Ease of doing business index 2019**

Source: [The World Bank](#) (2021)

Even though Oman has advanced its ranking by jumping 10 places to ranking 68<sup>th</sup> in 2019 compared to 78<sup>th</sup> in 2018, there are still various challenges that need to be addressed to make an even greater impact on a

global level. The lowest ranking categories in ease of doing business in Oman are getting credit, resolving insolvencies, protecting minority investors, and enforcing contracts (Oman Observer, 2019). Even though there are various new government initiatives to address these challenges, this has direct effects on the establishment and growth of SMEs in Oman.

### Research Questions

1. What are the current practices in optimizing supply chain and logistics activities in SME cargo and logistics companies in Muscat?
2. What are the challenges in primary activities and sub-activities the SME cargo companies in Muscat face in optimizing supply chain and logistics?

### Research Objectives

1. To identify and analyze the supply chain and logistics optimization across SME cargo and logistics companies in Muscat.
2. To examine and understand the challenges that SME cargo companies face in their supply chain and logistics activities optimization in the primary value chain activities and sub-activities.

### Challenges and Opportunities for SCL-SMEs in Oman

SMEs globally play a crucial role in fueling economic growth. They help in terms of the creation of new job opportunities, expanding the tax bases, and driving the bandwagon of innovation. Furthermore, SMEs heat the market scenario by increasing the competitiveness among their peers which helps both the consumer and the provider as there is a constant battle for supremacy to bring out the best in a business. Promoting SMEs, especially in Oman is crucial to maintaining a thriving and stable economy in the long run as they act as the backbone for any long-term success and sustainability of the economy. According to ICSB, SMEs account for about 15% of GDP making up an average of 70% of total employment and over 90% of all firms and accounts (Kutty, 2022).

Even though SMEs benefit the economy in a crisis or recession by innovating and adapting to circumstances changes, in Oman SMEs can be most vulnerable in part due to a lack of resources to adapt to changes (Cherian, 2020). SMEs in Oman has seen an increase of 46.9 percent by 2022. However, there are various challenges faced by SMEs such as securing adequate finance, infrastructure, training, and lack of entrepreneurial culture. These challenges if not addressed could limit the growth of SMEs and even lead to shutting down before they cross the five-year threshold.

In considering the challenges for SMEs in Oman, Al-Zakwani & Mondal (2019) observe that SMEs are facing some serious challenges in terms of lack of skill and administrative knowledge, access to finance, and administrative challenges. The study was conducted using both qualitative and quantitative data which targeted around 250 SME owners from Nizwa, Muscat, and Al-Mudhaibi. The study established that 34% of SMEs agreed to a lack of competent and adequate management and managerial skills. These SMEs have been deploying their strategies through trial and error based on operational procedures rather than strategic plans. SMEs are not able to acquire or retain qualified personnel due to a lack of resources. In addition, the study emphasized that SMEs have limited access to credit facilities and enough financial backup. This is because SMEs most of the time find it difficult to meet minimum requirements stipulated by the bank or banks are not willing to extend credit facilities as SMEs lack collateral to guarantee loans. The period taken for approval of a loan is also relatively high. Furthermore, the study also addresses the lack of marketing strategy, changing government policies, lack of entrepreneurial culture, and lack of morale support as key challenges faced by SMEs in Oman.

Ramachandran and Ali Al Yahmadi (2019) identified challenges faced by SMEs in Oman identified the main challenges of SMEs as a lack of basic business knowledge, adequate finance, market information and knowledge, and the delay and complicated procedures in loan disbursement. The study investigated the reason for the failure of acquiring a bank loan and identified poor business performance and inadequate business planning as the main hurdles. Furthermore, the researcher emphasized the SME needs in terms of adequate finance, training, and teaching of an entrepreneurial culture among students.

Al Bulushi & Bagum (2017) determined the major challenges and issues related to growth strategies in SMEs, in Oman. Through the qualitative and quantitative approach, the researchers emphasized four major constraints of growth including constraints in human resources, marketing, financial and operational management. The research concluded the following as factors that create issues and challenges for SMEs' growth.

**Table 2. SME growth strategies factors**

Major constraints	Challenges and issues
Finance	- Lack of long-term loans and credit facility - Cost of finance - Working capital management
Marketing	- Lack of marketing knowledge and budget - Inability to identify new markets due to lack of R&D
Operations	- Lack of basic business function knowledge - Technological limitations - Environmental Issues
HR	- Lack of entrepreneurial culture and managerial skills - Lack of professionalism - Lack of resources and knowledge to hire related employees

Source: [Al Bulushi & Bagum](#) (2017)

It is observed that there exists some shared agreement among various researchers and scholars on the existence of certain challenges for SMEs. However, the relevance and applicability of the prior researchers are limited to a broader audience and do not specifically address the SMEs Cargo and Logistics companies.

#### SCL Optimization and Best Practices

Supply chain optimization can simply be defined as operating a supply chain at peak efficiency. [Pečený et al.](#) (2020) aimed at addressing the optimization of the transportation process within the logistics chain, they emphasize that the main goal of supply chain optimization is delivering products to customers at the highest level of profit with the lowest cost. When there is a significant event, like a merger or acquisition, or when there are concerns about financial performance, businesses frequently think about supply chain optimization. Optimization of business processes such as Inbound Logistics, Operations, Outbound logistics, warehousing, marketing, sales, and services will help the organization manage resources more efficiently and reduce the cost of operations. Also, optimization is more focused on the effective utilization of technology, human resource, and transportation means.

#### Statement of the Problem

There are many challenges faced by SMEs in Oman currently as discussed by [Al Bulushi & Bagum](#) (2017) which include Finance, Marketing, Operation, and Human resources (HR). Also, the challenges and opportunities in the supply chain and logistics sector still have not been explored to an adequate extent. Even though there have been some studies in the field of logistics and supply chain within Oman there is a lack of studies that focus on the challenges and opportunities faced by SMEs in Muscat as a key indicator in optimizing their logistics and supply chain performance to increase profitability and efficiency.

#### Review of Literature

The theoretical underpinning of this research is based on Michael Porter's value chain analysis theory ([Porter, 2011](#)). Michael Porter's value chain was mainly aimed at analyzing the internal activities of any business in identifying the cost of each activity that adds value to the business. According to Porter's value chain theory, this helps to increase the efficiency and profitability of the business. Also, the organization's activities were mainly classified into two groups viz. primary activities and secondary activities ([Sutarmin & Jatmiko, 2016](#)). The activities which directly had an impact on the service or product are referred to as the primary activities, while those activities which supported the primary activities are referred to as support activities. The following table provides a brief description of the primary activities in Porter's Value chain analysis.

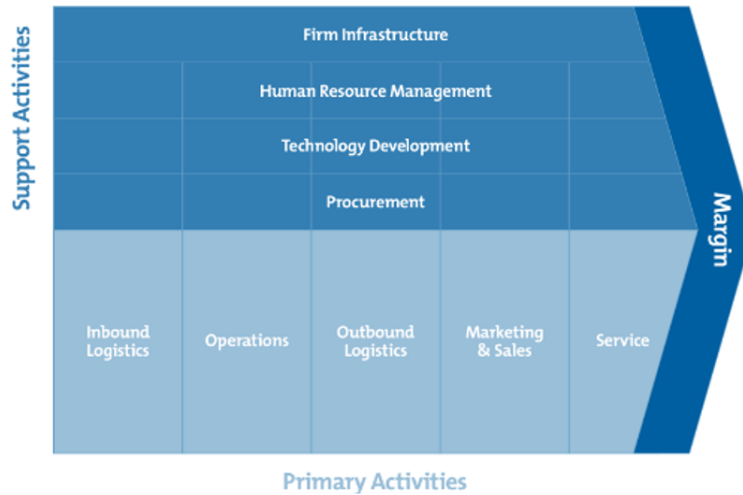
**Table 3. Porter's Value Chain Activities**

Porter's Value Chain Activities		
Primary Activities		
1	Inbound Logistics	All the business processes related to receiving, storing, and distributing inputs internally fall under this sub-activity. For creating value, supplier relation is a key factor.

2	Operations	Business transformational processes which convert inputs into outputs are focused here where operational systems create value.
3	Outbound Logistics	The activities such as storage, collection, and delivery systems deliver your service to a customer. These activities can be external or internal to your business.
4	Marketing and Sales	These are activities through which your business persuades clients to choose your service over the competition – benefits offered, and efficiency in communication are key factors in creating value.
5	Service	The activities offered to customers after delivering of product or service.

Source: [Razak & Vattikoti](#) (2018)

Figure 2 depicts Porter’s value chain and its activities:



**Fig 2. Porter’s Value Chain and activities**

Source: [Mind Tools](#) (2022)

[Kumar & Rajeev](#) (2016) emphasized value chain depends on the cost structure and pricing strategy. They concluded that businesses need to reanalyze their pricing on services or products encouraging them to keep their competitive advantage high. According to [Porter](#) (2011), for a business to conduct a porter’s value chain analysis, there are three steps:

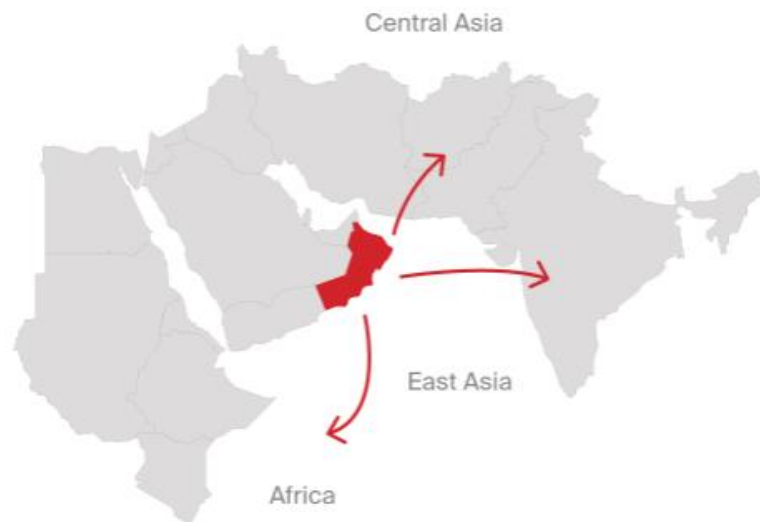
1. Analyzing the main activities involved in providing a service or product.
2. The value of each product must be assessed and checked to whether it provides a cost differentiation or advantage to the business.
3. The business must develop strategies that can be used in supporting weak areas in the supply chain and used to double its competitive advantage.

**Opportunities in the Supply Chain and Logistics Sector in Oman**

In the coming years especially with infrastructure integration in various crucial sectors, it is expected by most economists that Oman will emerge as a leader in the logistics and supply chain sector. In addition to the Oman, government outlaying billions in optimizing and advancing Supply Chain Logistics (SCL) sector to reach the nation's targets, Oman already has excellent trade agreements and international economic relations with most vital world countries of business, which allows Oman to advance its SCL sector even further.

**Location**

With connections from the Indian subcontinent to the east, the Middle East to Pakistan, Africa to the south, and Iran to the north Oman has long been recognized as a major trading hub. But Oman has only recently begun to fully capitalize on its advantageous location and seize the opportunities afforded by positioning itself as a major Middle Eastern logistics hub with hopes of becoming a significant worldwide player in this industry, following the implementation of the ‘Tanfeedh’ program ([Simpson](#), 2018).



**Fig 3. Oman's Strategic Location**

Source: [Taderera & Al Balushi](#) (2018)

[Taderera & Al Balushi](#) (2018) in their study aimed at analyzing the supply chain practices in Oman vs global best practices, describes Oman's location as the jewel of the Middle East and the strategic location of GCC on the Gulf of Hormuz which is involved heavily in the supply chain. In addition, the importance of Oman's location is emphasized by [Ba-Awain & Daud](#) (2018) as Oman is the only member of the GCC to be located beyond the Gulf of Arabia, and thus avoiding passing via the politically sensitive Strait of Hormuz is crucial to the country's standing in this regard. Thus, Oman has a substantial opportunity with its unique location, geopolitical allocation, strong economic relations, global investments, and the economy being naturally into the seaport logistics and global supply chain.

#### ***Infrastructure***

Several mega projects have been implemented by Oman related to infrastructure development. Infrastructure networks have become increasingly important in recent years enabling logistics connectivity by connecting a nation's territorial and economic system ([Sanchez](#), 2017). The construction of infrastructure that enables the development of various industries, private sectors, and regions is one of the pillars of economic growth ([Azolibe & Okonkwo](#), 2020). According to [Virgili](#) (2018), the logistics sector was granted the status of infrastructure in November 2017. A significant qualitative shift in the SCL sector was undertaken in providing road networks linking all parts of the region. By building a road network that connects all the country's regions and portions, the logistics and supply chain sector in Oman participated in a significant qualitative transformation. New Muscat Airport, Salalah Airport Improvements, and Duqm & Sohar Ports are the most important recent projects. Oman's infrastructure in the year 2016 grew by 3.4% compared to 2015 ([Ba-Awain & Daud](#), 2018). [Geilenkirchen](#) (2017) illustrated that heavy investment has led to a steady flow of projects in non-oil industries like infrastructure for rail, transport, power, and construction.

#### ***Economic Opportunities***

Creating more employment opportunities in the process of shifting towards SCL and boosting economic diversification, is one of the key objectives of the Oman government. According to [Virgili](#) (2018), this shift creates growth in specific sectors by 15-40% per year and employs over 45 million people across the nation. Furthermore, as per ([Ba-Awain & Daud](#), 2018) creation of more job opportunities and providing low costs in export and import activities will be possible. Moreover, the OSS initiative in the free zones helps SMEs set up and operate their businesses effectively and efficiently. OSS offers several essential services through a single window with improved resources to provide high-quality services ([Geilenkirchen](#), 2017). Free zones in four different locations that are connected to modern ports, accurate, flexible, and quick clearance of goods, all present business potential for SME freight and logistics operations.

#### ***Economic Diversification***

As there exists fluctuations in oil prices last few years, high production costs and deterioration in the production capacity of Oman's economy were described as dangerous in the study ([Ba-Awain & Daud](#), 2018). To enhance the economy and settle earnings economic diversification is crucial. According to ([Mubeen et](#)

al., 2017), Oman must employ plans and policies on economic diversification, employment opportunities, controlling inflation, and creation of new technologies. This is beneficial for SMEs as they can undertake this requirement.

### **Challenges in the Supply Chain and Logistics Sector in Oman**

#### ***Human Resource Competency***

Various challenges are existing in the SCL sector in Oman. These challenges pertain as a hurdle in achieving the establishment and growth of SMEs in the logistics sector. The lack of qualified workers with expertise and training in the logistics and supply chain industry is Oman's first challenge. In the study by [Hamed Al-Wahaibi](#) (2019) aimed to investigate the relationship between political uncertainty in Gulf and logistics hubs in Oman in Gulf, the author emphasized on the logistics sector not being an attractive field for the local population due to long working hours, poor wages, and lack of automation in the industry. This applies to SMEs as they will be facing these same challenges with lesser resources. [Taderera et al.](#) (2018) justified this as the shortage of educational institutions in Oman and the lack of a link between the career environment and higher education intuitions. Furthermore, he added that without a supporting university to provide a constant flow of highly skilled personnel and to exchange international research expertise, no industry can prosper.

Therefore, a company's most valuable and crucial asset is its human resources, and investing in human resources is regarded as the cornerstone and can significantly contribute to the growth and development of SMEs.

#### ***Competition and Connection***

Oman faced several external and internal challenges in the logistics sector. The competition and connection in SCL services have increased over the past years. There are many numbers of players in the sector both SMEs, large organizations, and MNCs. This has led service providers to provide steady and attractive offers. One of the main internal challenges is the connection of the network of roads, free zones, and ports. This was confirmed by [Omanuna](#) (2017) when the report emphasized the existing issue of limited connections to free zones, airports, and ports in Oman to other GCC countries. Furthermore, [Ba-Awain & Daud](#) (2018) also shed light on the poor land transport infrastructure and connectivity between other GCC countries and Oman. Therefore, the external global, and internal competitive and connective challenges affect the development and growth of SMEs.

#### ***Technology and Transactions***

According to [Ilin et al.](#) (2019), resistance to change when a new technology is introduced in an organization due to the need to transform working habits and the process is almost inevitable. Several scholars also pointed out that the global economy had been significantly and successfully shaped by technological development and digital transactions. Referring to one of the most important infrastructures for the logistics trade, the changes in business practices & how they affect all of it. [Dębkowska](#) (2017) stated that the growing competition and increasing demand of the market have forced technology-based innovative solutions to support processes maximally in SCL.

Even though automation helps companies build competitive advantage and create new opportunities, [Virgili](#) (2018) indicated that adopting modern technology and new market trends transaction is one of the most considerable challenges for organizations. Furthermore, the report emphasized that market trends and challenges need to be accepted by logistics companies. As [Hamed Al-Wahaibi](#) (2019) pointed out that logistics operations by 2040 will be heavily relied on technology to stay competitive and cut costs. It is important that SME logistics companies also drive towards technological adoption within their SCL activities so that they are not let out of the action. According to [Chaudhari](#) (2019) in SCL, automation technologies, information, and communication have significantly boosted the speed of data processing, identification, transmission, and analysis while maintaining high accuracy.

Hence, with an increasing number of new SMEs and competition from already existing logistics companies adopting technology various SCL activities and sub-processes is crucial to gain an advantage over the competition.

In Oman however, the increasing competition, limited resources, and the need for better standards within SME cargo and Logistics companies bring up the need for optimization of the supply chain for having a competitive advantage, increased profits, lower costs, and better customer services ([Syverson](#), 2020).

### ***SCL Optimization Techniques***

In recent years, there have been significant developments and breakthroughs in the field of SCL Management to make it more effective and efficient. However, there will always be room for more improvements as logistics is considered the backbone industry having a direct or indirect effect on everything within any nation. This can include improvements that need long-term commitments or are quick wins. The entire flow in the supply chain, from the procurement of raw materials to the delivery of goods to final consumers, is included in the scope of logistics optimization. In the study aimed at systematically reviewing published papers on optimization strategies integrating production, inventory, and distribution (Mirabelli & Solina, 2022), the authors emphasize more on the potential of transportation and warehousing improvements. The study is purely using qualitative methods for analysis. In the study, the author separates optimization levels into one of the most classical ways of understanding opportunities. These are as follows:

#### ***Strategic Level Optimization***

This level aimed to identify solutions that are long-term and generates the highest impact within 3-5 years. These are usually done by consultancy firms externally or by the in-house strategy department. In a larger context, the project involves everything from logistics benchmarking research to evaluating market entry potential and deciding whether to outsource or insource certain tasks.

The most common type among all strategic level projects is Supply chain network optimization (NO) where complete supply chain nodes like manufacturers, the flow of goods, and distribution centers are evaluated. This will help the organization to solve pain points and become more transparent with SCL.

One of the main challenges of this level is poor data quality and companies need to allocate enough resources and budgets for data collection. In addition, understanding and defining constraints of optimization is important which is a challenge to most companies.

#### ***Tactical Level Optimization***

This level aims to focus more on specific business units or regions within 1-3 years. This is crucial as it can contribute to regional or departmental excellence even though there are no dramatic SCL changes. One of the typical challenges at the tactical level is how to get buy-in from other departments (internally and externally). For example, waiting for a container to fill up might delay the order but also will reduce the shipping cost.

#### ***Operational Level Optimization***

This level is can be related as it addresses people in warehousing, transportation, planning, customer service, and others. This section explains how the strategy will be implemented in practical terms through policies, plans, and programs. To increase operational efficiency, the plan assigns resources and measures performance. Operational planning includes activities that are scheduled and kept track of on a daily, weekly, or monthly basis, depending on the activity.

There are three main challenges at this level:

1. Lack of relevant skillsets and knowledge.
2. Excessive dependence on experience by professionals especially experienced professionals.
3. The willingness of the employees and desire to change and improve the quality of operations.

Therefore, the researcher concludes that the generation of positive results is inevitable no matter which level of optimization is embarked upon by the company such as lower logistics costs, loyal customers, improved and efficient processes, more revenue, and happier employees.

### **Conclusion**

From the above discussion, it is evident that there are certain challenges that SME businesses in Oman face. It is emphasized that these challenges should be addressed in detail with the number of SMEs almost increasing by 42.7% as of 2022.

According to research carried out earlier concerning challenges and opportunities faced by SMEs the main challenge faced by SMEs in Oman are lack of financial resources, Human resources, skilled labor, unavailability of loans due to lack of collateral, delay in loan approvals, and lack of entrepreneurial culture among locals.

Furthermore, the researcher also describes the various opportunities and challenges in the Supply chain and Logistics sector in Oman. The main Opportunities include the strategic location of Oman referred to as the Jewel of the Middle East, Infrastructure, economic opportunity, and diversification. However, there are certain challenges in the sector as well. This includes a lack of technology and transactions, competition and connection, and human resource competency.

In addition, the researcher also provides an overview of SCL optimization and best practices in the industry. Finally, the research sheds light on various techniques that can be used for the optimization of SCL. However, future research into the various challenges and opportunities faced by the SME cargo and logistics companies in optimization of supply chain activities in Muscat is needed to develop effective strategies and solutions to help them increase profitability and efficiency of the supply chain and logistics activities as the researcher discovers that availability of research or study specific to SMEs in the cargo and SCL industry as none. Through the research investigation, the researcher found that optimization of SCL activities in SME cargo and Logistics companies can help them in terms of improving competitive advantage, lower costs, managing resources efficiently, better customer experience, and providing faster services.

## References

1. Al Bulushi, B.H.S. & Bagum, S. (2017). Growth Strategies of SME in Oman-Issues and Challenges. *International Journal of Small Business and Entrepreneurship Research*, 5(2), 21-61.
2. Alkhayat, A. & Ramadhan, M. (2018). *Analysis of the GCC Ease of Doing Business Performance*, International Conference on Social Science and Management, Sapporo, Japan, 118-126. <https://www.researchgate.net/publication/325335154>
3. Al-Zakwani, H.M. & Mondal, S.K. (2019). Small and Medium Enterprises in Oman: Challenges and Opportunities. *International Journal of Social Science and Economic Research*, 3–15. <https://ijsr.org/more2019.php?id=302>
4. Azolibe, C. B. & Okonkwo, J. J. (2020). Infrastructure development and industrial sector productivity in Sub-Saharan Africa. *Journal of Economics and Development*, 22(1), 91–109. <https://doi.org/10.1108/jed-11-2019-0062>
5. Ba-Awain, A.M. & Daud, D. (2018). Oman as a Future Logistics Hub: A Conceptual Study. *International Journal of Economics, Commerce and Management*, 6(6), 141-148.
6. Chaudhari, N. (2019). Impact of Automation Technology on Logistics and Supply Chain Management. *American Journal of Theoretical and Applied Business*, 5(3), 53-58. <https://doi.org/10.11648/j.ajtab.20190503.12>
7. Cherian, L. (2020, 30<sup>th</sup> Jun. 2020). SMEs need to adapt to survive. *Oman Observer*. <https://www.omanoobserver.com/article/12234/Business/smes-need-to-adapt-to-survive>
8. Dębkowska, K. (2017). E-logistics as an Element of the Business Model Maturity in Enterprises of the TFL Sector. *Procedia Engineering*, 182, 143–148. <https://doi.org/10.1016/j.proeng.2017.03.141>
9. Doran, J., McCarthy, N. & O'Connor, M. (2018). The role of entrepreneurship in stimulating economic growth in developed and developing countries. *Cogent Economics & Finance*, 6(1), 1442093. <https://doi.org/10.1080/23322039.2018.1442093>
10. Geilenkirchen, M. (2017). *Thought Leadership Report- GCC LOGISTICS 2017*. Sohar Port Freezone, [https://www.soharportandfreezone.com/SHRCMS/Uploads/Meed/2017-5-29-8-42-28GCC\\_Logistics\\_2017.pdf](https://www.soharportandfreezone.com/SHRCMS/Uploads/Meed/2017-5-29-8-42-28GCC_Logistics_2017.pdf)
11. Hamed Al-Wahaibi, M.H. (2019). Logistics Hubs in Oman and Political Uncertainty in the Gulf. *Contemporary Review of the Middle East*, 6(2), 109–153. <https://doi.org/10.1177/2347798919832694>
12. Ilin, V., Simić, D., & Saulić, N. (2019). Logistics Industry 4.0: Challenges and Opportunities. In Ilin, V., Simić, D., & Saulić, N. (eds.) *LOGIC: 4th Logistics International Conference*.
13. Katuka, M. (2018). Role of Holistic Leadership in Kenyan Small and Medium Enterprises. *Journal of Business and Management Sciences*, 6(1), 12–15.
14. Kumar, D. & Rajeev, P.V. (2016). Value Chain: A Conceptual Framework. *International Journal of Engineering and Management Sciences*, 7 (1), 74-77.
15. Kutty, S. (2022, 6<sup>th</sup> Jun. 2022). Small Yet Mighty. *Oman Observer*. <https://www.omanoobserver.com/article/1120442/business/markets/small-yet-mighty>
16. Maria, P. (2016). *Entrepreneurship in the Gulf Cooperation Council*. Elsevier. <https://doi.org/10.1016/C2016-0-01270-6>
17. Mind Tools. (2022). *Porter's Value Chain: Understanding How Value Is Created Within Organizations*. Mind Tools. [https://www.mindtools.com/pages/article/newSTR\\_66.htm](https://www.mindtools.com/pages/article/newSTR_66.htm)

18. Mirabelli, G. & Solina, V. (2022). Optimization strategies for the integrated management of perishable supply chains: A literature review. *Journal of Industrial Engineering and Management*, 15(1), 58-91. <https://doi.org/10.3926/jiem.3603>
19. Mubeen, S.A., Kumar, A.R. & Nazneen, Q. (2017). Economic Diversification in Sultanate of Oman amidst Oil crises. *IOSR Journal of Business and Management*, 19(6), 09–12. <https://doi.org/10.9790/487x-1906030912>
20. Oman Observer (2019, 26<sup>th</sup> Oct. 2019). Oman Jumps 10 places in Ease of Doing Business 2020. *Oman Observer*. <https://www.omanobserver.om/article/22124/Local/oman-jumps-10-places-in-ease-of-doing-business-2020>
21. Omanuna (2017). The national program for enhancing economic diversification: Tanfeedh handbook, The official Oman eGovernment Services Portal.
22. ONA (2022, 28<sup>th</sup> Apr. 2022). Number of SMEs registered in Oman reaches 73741. *Times of Oman*. <https://timesofoman.com/article/115925-number-of-SMEs-registered-in-Oman-reaches-73741>
23. Pečený, L., Meško, P., Kampf, R., & Gašparík, J. (2020). Optimisation in Transport and Logistic Processes. *Transportation Research Procedia*, 44, 15–22. <https://doi.org/10.1016/j.trpro.2020.02.003>
24. Porter, M.E. (2011). *Competitive Advantage of Nations: Creating and sustaining superior performance*. Simon and Schuster.
25. Ramachandran, N. & AL Yahmadi, H.M.A. (2019). Challenges Faced by SMEs in Oman. *Shanlax International Journal of Arts, Science and Humanities*, 7(1), 15–25. <https://doi.org/10.34293/sijash.v7i1.496>
26. Razak, A. & Vattikoti, K. (2018). Critical Evaluation of Value Chain Analysis for Assessing Competitive Advantage - A Study on Select Companies of E-Tailing Industry. In *Academy of Strategic Management Journal*, 17(6), 1-14.
27. Sanchez, R. (2017). Economic impact of changes in logistics infrastructure networks: two case studies in Argentina. *Facilitation of Transport and Trade in Latin America and the Caribbean*. Infrastructure Services Unit, Natural Resources and Infrastructure Division, United Nations and Economic Commission for Latin America and Caribbean (UNECLAC), Issue No. 356, No. 4/2017, Cepal. [https://repositorio.cepal.org/bitstream/handle/11362/42722/1/S1700829\\_en.pdf](https://repositorio.cepal.org/bitstream/handle/11362/42722/1/S1700829_en.pdf)