

**LEADING IN TIMES OF CRISES: WHAT ARE THE IMPACTS
OF COVID-19 ON OPERATIONS MANAGEMENT IN THE
MANUFACTURING INDUSTRY? A CASE STUDY ON A
SYRIAN MANUFACTURING COMPANY**

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CHAPTER 1: INTRODUCTION

1.1 Introduction

The Novel Coronavirus has affected the lives of people around the world and it has crippled emerging economies including manufacturing industries. Syria is one of these economies that experienced the first COVID-19 confirmed case in March 2020 and the disease spread rapidly in July with 328 confirmed cases (Al Ahdab, 2021). Nations around the world including the Syrian government imposed a curfew for stopping the virus from spreading and this caused economical losses, which also affected the manufacturing industry. This chapter is based on the issues that a plastic manufacturing company named Mansour Plast is facing while doing business in Syria. The chapter also discusses the issues that manufacturing companies are facing in general during the pandemic.

1.2 Background

The Coronavirus pandemic has spread around the world during the first quarter of 2020 and it created panic among people. As per the views of Hussain and Sen (2020), high transactional costs are created due to the shadow economy of Syria and it is affecting the health system of the country. In addition to this, the people of the country are also facing a rise in poverty and unemployment due to the pandemic. Since the healthcare system of Syria is degraded, it is prone to additional shocks that are created by the pandemic (World Bank, 2021). Thus, the Syrian government and its manufacturing sector are affected by the rise of the COVID-19 cases in the country.

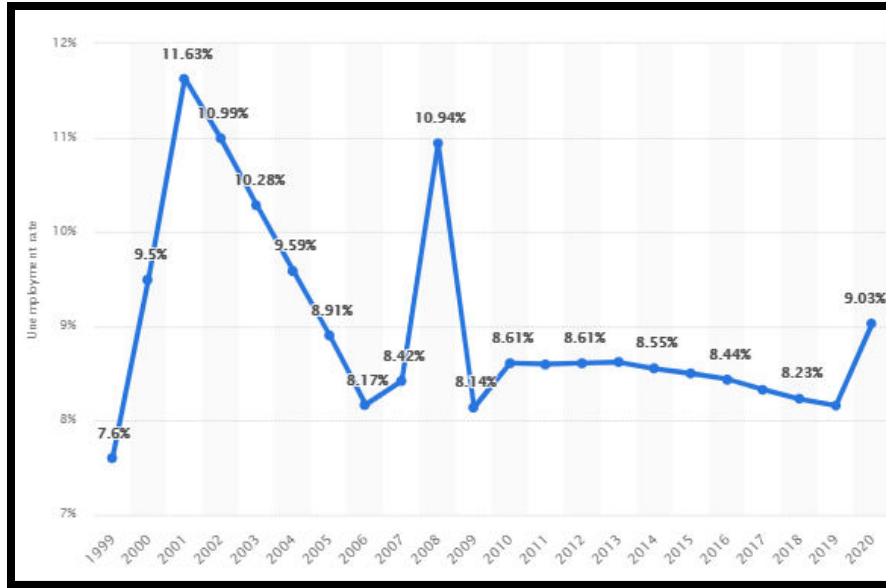


Figure 1.1: Unemployment rate in Syria

(Source: O'Neill. 2021)

As per the above figure, it can be seen that the unemployment rate in the country has risen to 9.03 % during the year 2020 and this is due to the Coronavirus pandemic. This figure shows the expectancy of raising work for the employee in this company, which will further enhance the condition of the operational performance within the organization. Thus, change in the employment rate can be related to the lack of business in the manufacturing sector of the country. Since the industrial sector is related to the manufacturing of products, unemployment in this sector also resembles a downfall of the manufacturing sector.

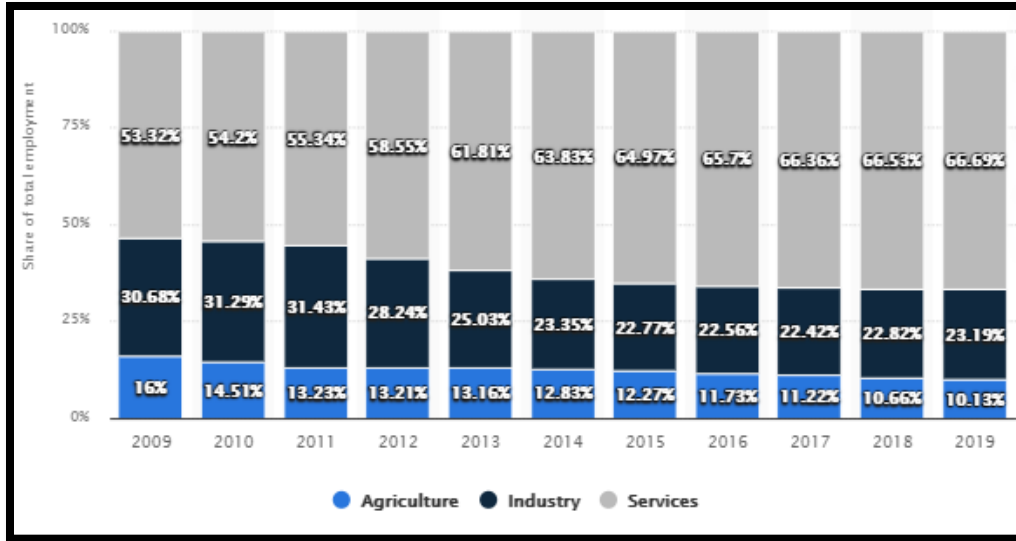


Figure 1.2: Share of employment in different economic sectors between 2009 and 2019

(Source: O'Neill, 2021)

Figure 1.2 represents employment of Syrian people linked to different economic sectors in the country. As per the above figure, 23.19 % of the employment comes from the Industry sector while the rest comes from agriculture and services. Thus, a downfall of the economical conditions of Syria also affects the manufacturing sector of the country. The plastic manufacturing sector requires resources and the pandemic has forced lockdowns that reduced the availability of resources in the country. As per the views of Juergensen *et al.* (2020), manufacturing companies have faced logistical issues such as higher demand and supply shocks due to the disruption of transportation and labour shortages. In addition to this, Operations management (OM) in manufacturing plants is affected due to the pandemic situation that negatively impacted transportation through the unavailability of vehicle connectivity. Thus, unavailability of labour due to the pandemic has affected the plastic manufacturing industry in Syria. Lack of resources in the country also affected the production industry in the country.

1.3 Significance

The significance of the study is to provide a detailed analysis of the problems that are faced by manufacturing firms during the Covid-19 pandemic. OM of manufacturing firms is studied categorically and the flaws are discussed. The ways to counteract such flaws in OM are also

discussed in this study and it can make managers of manufacturing firms more knowledgeable. The management of firms is comparatively difficult in countries such as Syria due to the unstable economy and social environment. Thus, it is essential to find effective operations to handle manufacturing firms in crises, which this study fulfils.

1.4 Rationale

What is the issue?

The issue is unavailability of resources that manufacturing firms need for the production of goods during the Covid-19 pandemic. As stated by Shokrani *et al.* (2020), the worldwide spread of the Coronavirus has forced governments to halt manufacturing and exports. Due to this, manufacturing firms are affected by the unavailability of labour and resources that disrupted their operations. The decrease in demand during the Covid-19 pandemic is also a reason for reducing the production rate in manufacturing firms globally. The manufacturing sector of Syria is a key to the stability of its economy and boosts local production in the country (Daher, 2018). Thus, the crisis in the manufacturing sector also affects the economy of the country and this is evident from the market condition of Syria.

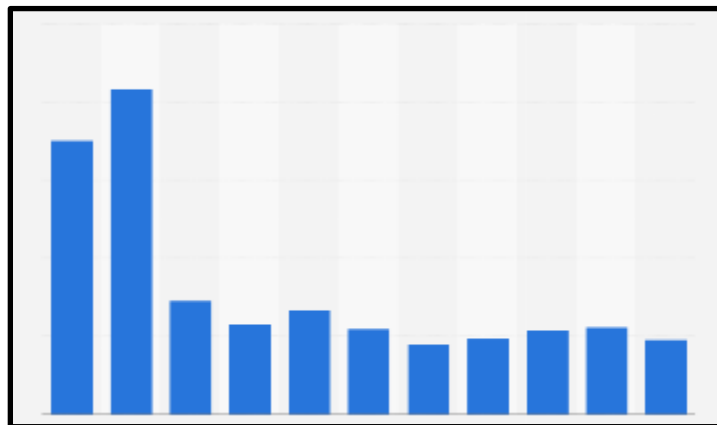


Figure 1.3: Import of products to Syria between 2010 and 2020

(Source: O'Neill, 2021)

The above figure resembles the yearly import volume of products to Syria between 2010 and 2020 and it can be seen that imports in 2020 have been 4.8 billion US Dollars, which is

decreased from the previous years. Thus, resources in the form of imports have decreased that affected manufacturing firms in Syria also.

Why is it an issue?

Shortage of resources is an issue because without it manufacturing industries such as plastic production are disrupted. Due to border closures and delays in exports Syria has been affected by high demand for fuel and has led to the depreciation of the currency (iMMAP, 2021). Due to sanctions and restrictions in movements, the people of Syria have been losing their livelihoods and purchasing capability for fulfilling their basic needs. The budget of the country gives an idea of such issues and the way it affects the economy of the country.

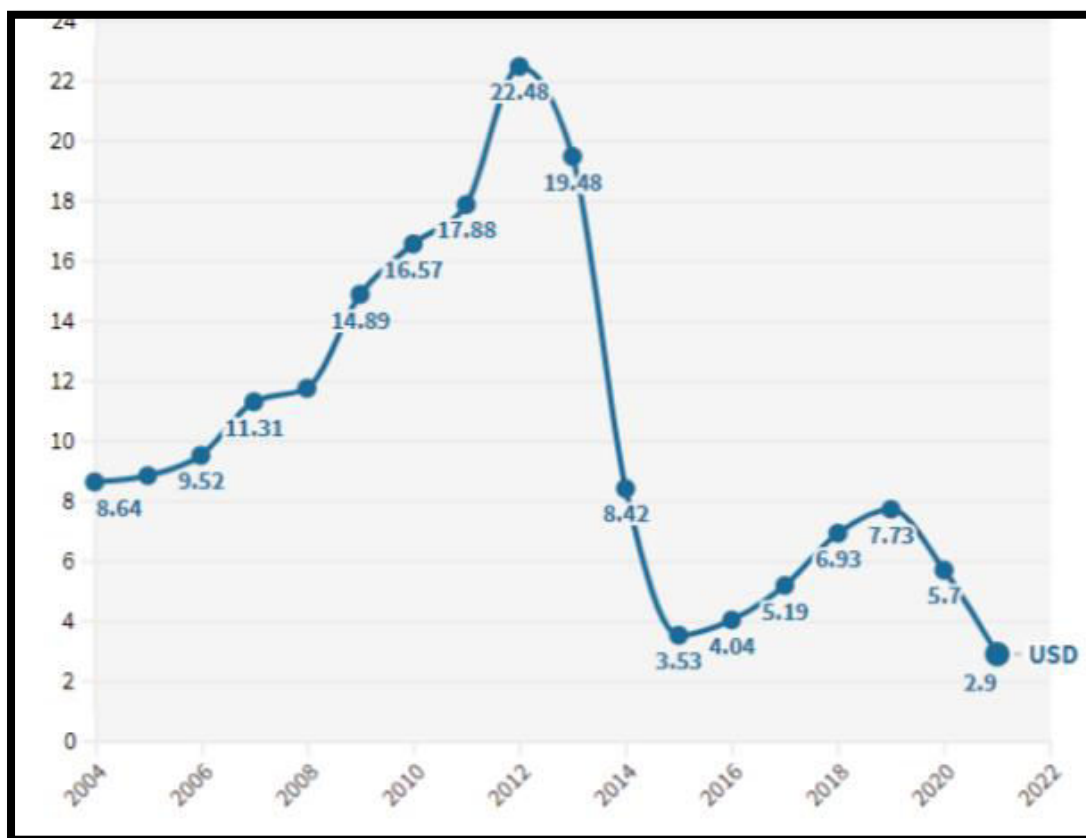


Figure 1.4: Syria's general budget between 2004 and 2021 in USD

(Source: iMMAP, 2021)

Figure 1.4 gives an idea about the budget of Syria during recent years and it has been around 2.9 US Dollars in 2021, which has reduced gradually as compared to 2019 and 2020 due to the pandemic. Thus, the allocation of fewer resources by the government itself also leads to shortage of resources and it affects the manufacturing industry as well.

Why is it an issue now?

The shortage of resources during the pandemic is an issue because it leads to a halt during the Covid-19 pandemic. 28 % of the retailers claimed that there has been a shortage of resources due to the Covid-19 pandemic (Statista, 2021). Thus, resource shortage has been linked with the decrease in productivity of manufacturing firms.

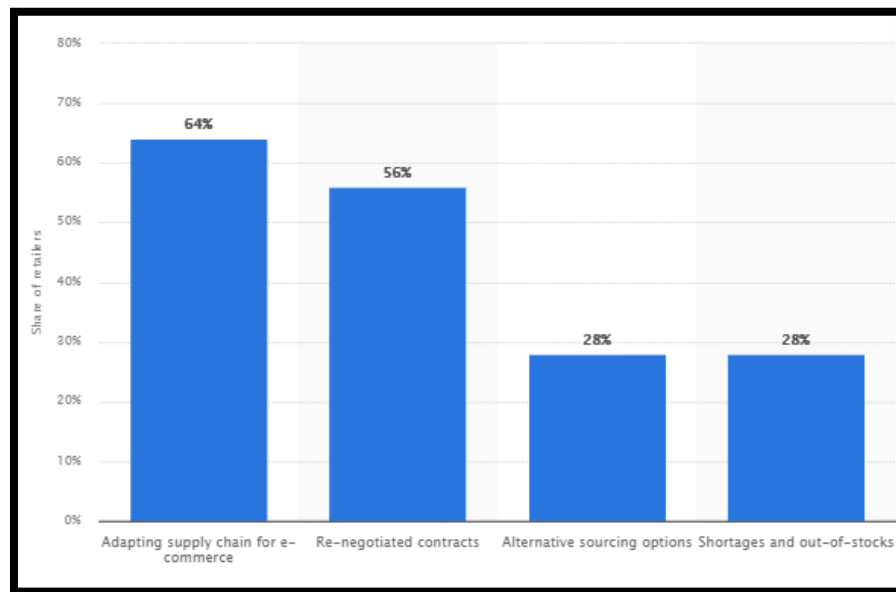


Figure 1.5: Changes in supply chain faced by retailers worldwide due to COVID-19

(Source: Statista, 2021)

As per the above figure, 56 % of the retailers claimed that the contracts have to be renegotiated due to the rise of Covid-19 cases around the world. In addition to this, shortages and reduction of stocks have also been a problem for manufacturing firms during the rise of the pandemic.

1.5 Aim of research

The aim of the research is to study the impacts of Covid-19 on the operations management of manufacturing firms in Syria. Shortage of resources is categorically covered for studying the impacts of Covid-19.

1.6 Research questions

- What are the effects of Covid-19 on the availability of resources used by manufacturing firms in Syria?
- What are the challenges faced by manufacturing firms for the management of their operations during the pandemic?
- How leaders in manufacturing firms can mitigate problems that are related to operations during the Covid-19 pandemic?
- What are the ways to develop an effective supply chain during a time of crisis?

1.7 Research objectives

- To evaluate the effect of resource unavailability and labour shortages on manufacturing firms
- To find the challenges faced by manufacturing firms in their operations during the pandemic
- To find ways in which manufacturing firms can operate to avoid crisis situations like a pandemic
- Finding effective supply chain practices that need to develop during a crisis

1.8 Limitation of research

The limitation of the research is the collection of data from interviews during the Covid-19 pandemic. Since Syria is a war-prone zone taking direct interviews of managers from the country's manufacturing units is risky difficult. It is also difficult to learn about the operations within the firm and the steps taken by them to reduce the effect of Covid-19 in the supply chain.

1.9 Dissertation structure

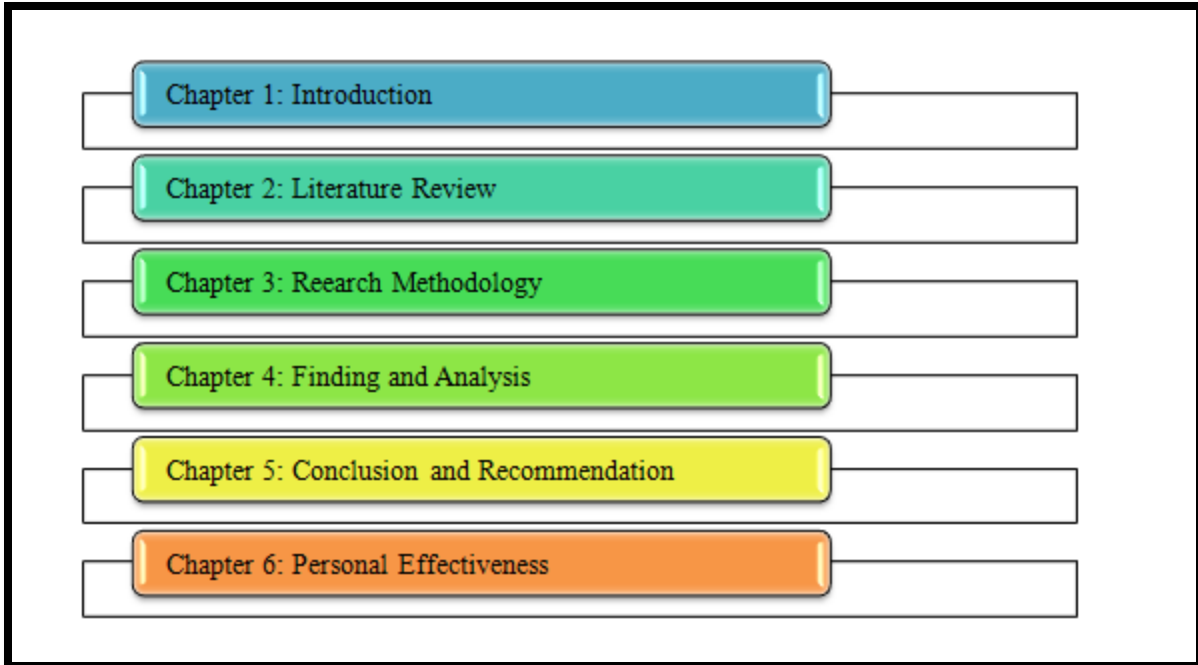


Figure 1.9: Dissertation Structure

(Source: Self Developed)

1.10 Summary

This chapter summarises core aspects of the manufacturing sector in Syria where the Manour Plast is one of the plastic manufacturing companies of this country. Here, this company's condition after the pandemic time shown within this sector has been closed due to the lockdown. Moreover, it determines the significance of taking measures during this time of covid-19 where these plastic manufacturing companies are surviving in this market even after this pandemic. Research objective and aim is identified in terms of structuring the scope of finding out these results. On the other hand, in the next chapter, several aspects and this sector will be analyzed in a more detailed manner by identifying its factors and challenges faced by the company during this time.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The chapter mentions existing operational management strategies that are followed by successful manufacturing companies during the Covid-19 pandemic. The impact of the Covid-19 pandemic on different economies is discussed in this chapter along with the effect on manufacturing companies. The viability of managing operations that are followed by Mansour Plast is also discussed in this chapter. The conceptual model gives a pictorial link between the factors that are already discussed in various researches. The factors that affect operations in manufacturing firms are stated in a chapter that gives an idea about the concept of OM.

2.2 Operational management in the manufacturing company during Covid-19

Operational management deals with the utilisation of resources in goods and services and involves production of goods in the manufacturing sector. As per the views of Kozjek *et al.* (2018), operational management in the manufacturing industry uses complex data. In addition to this, manufacturing execution data is used to support decision making in the manufacturing of products. The manufacturing firms during the Covid-19 pandemics, which have adopted the use of new strategies for increasing product quality, quantity and minimize the effect of supply chain disruptions. Managers in the manufacturing sector use data for making the operations in these companies efficient. On the other hand, Farooq *et al.* (2021) stated that OM minimizes the effects of supply chain disruption and is used to achieve long term and short-term goals. In addition to this, long-term goals are digital readiness and data sharing while short term goals are transport, production and worker movement.

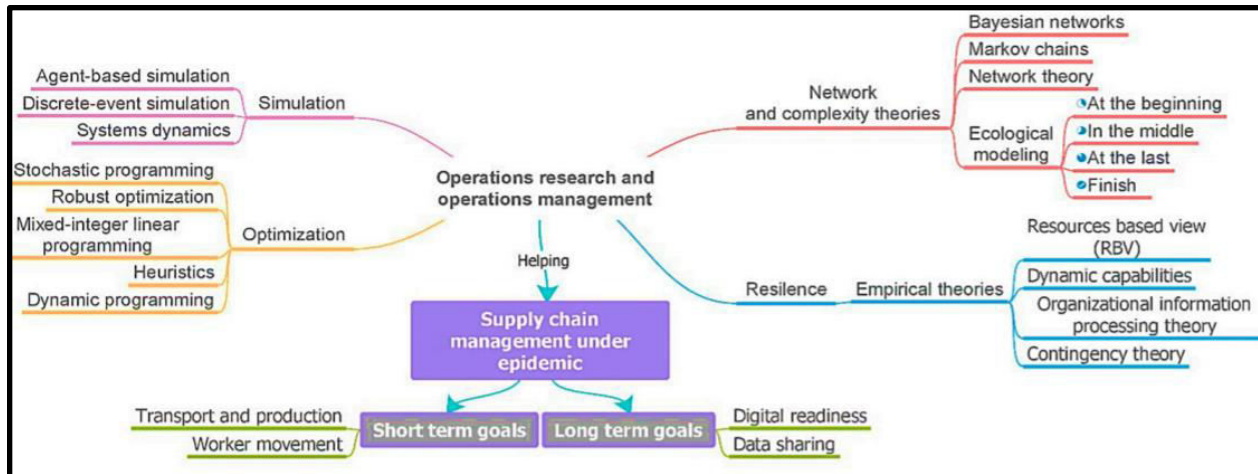


Figure 2.1: Positive effects of operations management during epidemic outbreaks

(Source: Farooq *et al.* 2021)

According to figure 2.1, OM involves the use of complexity and empirical theories that involve contingency and network theory. Thus, the use of such theories is also applicable in the case of a pandemic that has similar effects as an epidemic and halts supply chains. This network theory is essential in understanding the network of the brand with all its consumer and supplier to detect its performance even in this pandemic time.

Operational problems are associated with systems that follow a cost-efficiency structure during the Covid-19 pandemic. As per the opinion of Patrinely *et al.* (2020), flexible systems are required for managing operations during the pandemic as these can quickly adapt to the changing landscape. In addition to this, the global supply chain has to include effective risk mitigation strategies to prevent shortage of essential goods. Thus, effective OM is required for improving productivity of manufacturing firms during the Covid-19 pandemic. Supply chain disruption during the pandemic affects operations thus development of flexible supply chains are required for handling the production of products. As argued by Sarkis (2020), the global supply chain has fallen apart due to the lack of operational flexibility and preparedness. In addition to this, globalisation, offshoring and lean efficiency are used to attain competitive advantage in cost and resources that help to achieve flexibility. The Covid-19 caused a crisis in the supply chain as it caused the unavailability of resources and increasing demands. For example, 36 % of logistic industry professionals reported that business operations have to be changed in certain regions of

the world due to the pandemic (Mazareanu, 2021). Thus, OM in manufacturing companies has to be altered according to the requirements of products in a certain region.

2.3 Impact of Covid-19 on the manufacturing sector

The impact of Covid-19 on the manufacturing sector has disrupted the supply chain and led to the unavailability of resources. As opined by Belhadi *et al.* (2021), complexity and vulnerability of supply chain lead to the spread of the pandemic's effect in areas outside hotspots. In addition to this, manufacturing industry has the opportunity to redefine business during the pandemic to attain sustainable, agile and resilient manufacturing. This can be achieved by improving collaboration and coordination among stakeholders in the supply chain by the use of digital technologies. Thus, supply chains in the manufacturing companies are affected during the pandemic due to the lack of collaboration among stakeholders. On the other hand, Sahoo and Ashwani (2020) stated that the slowdown in the manufacturing sector is due to a slowdown of the global economy and a decrease in exports. In addition to this, the industries that are labour intense are also affected by the Covid-19 pandemic due to skill shortage. Since the plastic manufacturing sector is associated with intense labour it is affected negatively during the Covid-19 pandemic. For example, plastic production decreased by 0.3 % during the Covid-19 pandemic with China being one of the top manufacturers of plastic in the world (Tiseo, 2021).

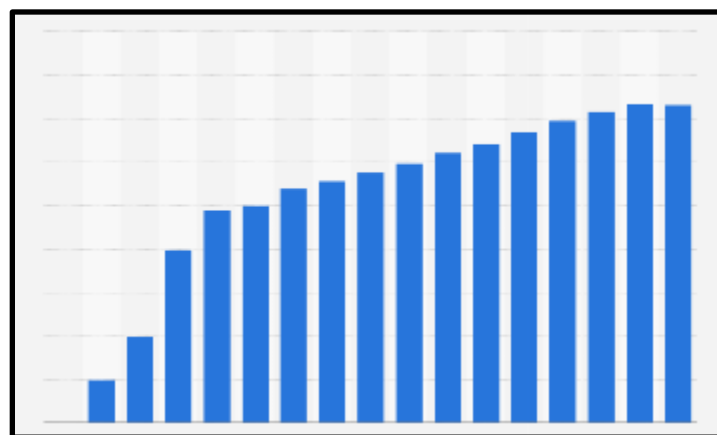


Figure 2.2: Plastic manufacturing between years 1950 and 2020

(Source: Tiseo, 2021)

Figure 2.2 show that the Covid-19 pandemic has affected manufacturing industries due to disruptions in the supply chain. Thus, it can be said that the pandemic has impacted the manufacturing sector in a negative way and it is due to lockdowns and social distancing measures taken by countries around the world.

The pandemic has created an obstacle in the travel of people between cities and around the world and this has halted the exchange of resources. As per the views of Rapaccini *et al.* (2020), due to the pandemic, phases of order in the Covid-19 pandemic have changed and companies take more time for such processes. In addition to this, phases of order include bidding, execution collection take more time than usual during the pandemic. This causes delays in supply chains and productivity of manufacturing firms decreases. On the other hand, Shokrani *et al.* (2020) stated that high production rates of goods require time to establish after lockdown and manufacturing firms are not able to fulfill demands during this phase. Thus, the Covid-19 pandemic has increase time consumption of manufacturing firms due to a decrease in efficiency in the supply chain. For example, during the pandemic manufacturing growth in China has reduced to a value of 35.7 % (Richter, 2021). Thus, it can be seen manufacturing industry in one of the leading producers of plastic have reduced during the pandemic which also affected other plastic producing countries in the world.

2.4 Explaining procedures of managing operation in Mansour Plast

The procedures of managing operations in manufacturing firms like Mansour Plast are based on requirements of the supply chain. As per the views of Paul *et al.* (2019), efficient management of supply chains requires planning and control of operations related to supply chains. In addition to this, complex supply chains that consist of disturbances and disruption from supplier's end are difficult to handle. Mansour Plast is a plastics manufacturing firm that relies on a daily supply of resources and relies on the supply chain. Managing operations in plastic manufacturing involve a regular supply of good quality chemical products. As argued by Sahoo and Yadav (2018), managing operations involve management leadership, strategic planning and empowering employees. In addition to this, quality education and training of employees are also required for the production of good quality products. Mansour Plast manages plastic production by retaining the quality of products during the Covid-19 pandemic. It can be seen that unavailability of

resources during the Covid-19 pandemic has affected the number of plastic products that are produced by Mansour Plast. This is caused due to the stiffness of the supply chain management practices that are being followed by the firm.

OM in the manufacturing industry follows particular procedures that increase the efficiency of production channels. As per the views of Leng *et al.* (2020), manufacturers need to manage data that are related to the supply chain and it requires an integration of product, service and infrastructure. In addition to this, integration of such services is based on the requirements of customers in the industry. In the case of Mansour Plast, the availability of an integrated supply chain is limited and it affects the operations of the firm in a negative way. Thus, development of effective supply chain after the Covid-19 pandemic increases the stability and availability of resources during demanding situations. On the other hand, Paul *et al.* (2019) stated that supply chain disturbances are associated with increase in the cost of production. In addition to this, reduction in employment is also an effect of the supply chain disturbances that manufacturing firms have to manage. Mansour Plast creates a variety of products such as chairs, tables, plastic bags and garbage bags that require the supply of different resources. Thus, management of the supply chain is crucial in this company so that it can fulfill the needs of customers.

2.5 Factors affecting manufacturing companies

The factor that affects the manufacturing of companies is related to labour costs, raw material, tooling, volume and precision. As per the views of Malgouyres and Mayer (2018), changes in labour costs also influence export patterns of products. In addition to this, the probability of participating in export markets is also affected by labour costs. Thus, manufacturing companies have to ensure that cost of labour is kept optimized at a particular level depending upon the market standards. This ensures that workers in these manufacturing firms are satisfied and retains their productivity at work. On the other hand, Gong *et al.* (2020) stated that emerging economies face the challenge of an increase in labour costs that weakens the competitiveness of products in a particular country. In addition to this, emerging economies should not fall into the trap of “low wage and low productivity” that rely on benefits on labour costs. Thus, manufacturing firms depends on labour cost and it affects the cost of products in the manufacturing sector.

The availability of raw materials in the manufacturing industry is crucial for the production of goods within the correct time. As per the opinion of Mehrjerdi and Shafiee (2021), multiple sourcing of products is essential for countering the negative effects of supply chain disturbance. In addition to this, multiple sourcing provides better services as compared to single sourcing. Thus, sourcing strategies that involving multiple sources is necessary for manufacturing companies to retain their productivity and deliver products within time. On the other hand, Freeman *et al.* (2018) stated that demands are realised after the production of products. In addition to this, the supply of raw materials is essential for the proper functioning of manufacturing companies. Thus, manufacturing companies are affected by the demand for products in the market and it determines the number of products that have to be produced.

The production quantity of goods is determined by the demand for particular products and recent orders. As per the views of Al-Salamah (2019), economic production quantity optimal preventive maintenance is required for imperfect manufacturing processes. Thus, the production of goods requires maintenance processes when manufacturing is imperfect. In addition to this, the demand for products also increases production rate and thus frequent maintenance is required. On the other hand, Chen (2018) stated that optimal manufacturing quantity of products is based on minimization of the expected cost of product per unit time. In addition to this, expected cost of product is dependent on setup cost, holding and production cost. Thus, quantity of goods in manufacturing firms depends on the demand for products and it can be optimized by setting up setup cost, holding and producing cost accurately.

2.6 Challenges faced by the manufacturing companies during pandemic

The challenge faced by manufacturing firms during the pandemic involves shortage of labour, resources, retention of employees, new implementation costs. As per the views of Dias *et al.* (2020), labour shortages during the pandemic are handled by facilitating transitions during the pandemic. In addition to this, labour shortages are also caused due to lockdowns and social distancing measures. Thus, many workers have fear of contracting the virus and remained indoors which led to labour shortages. Shortage of employees in manufacturing firms reduces productivity and rate of production of products. On the other hand, Abrams *et al.* (2020) stated that Covid-19 has led to the shortage of resources in countries around the world. This halted

manufacturing firms from producing the desired quantity of products to meet the demands of customers. In addition to this, manufacturing firms are also affected by the spread of the virus in supply chain thus leading to disruptions.

The retention of employees is also a challenging task during the Covid-19 pandemic and it depends on the success of the business and the demand for products during the pandemic. As opined by Al Fannah *et al.* (2020), employee engagement along with retention affects productivity and creativity of employees. In addition to this, employee engagement is also associated with the manufacturing of products by employees. Thus, retention of employees during the pandemic is crucial for improving productivity of manufacturing firms. On the other hand, Ativetin (2021) stated that reduction of benefits and wages have to be avoided by companies for retaining employees. In addition to this, lean resource management can be used by employees for attracting future employees and create performance stability.

Implementation of new regulations due to the pandemic, increases cost of firms. As stated by Jin *et al.* (2021), costs that are associated with individuals managing the pandemic depend on their behaviours. In addition to this, the implementation of cost is dependent on the age of people. Thus, the adoption of a cost structure for developing hygiene during the pandemic affects employees of different ages within companies. On the other hand, Lutfi *et al.* (2020) stated that social distancing causes economic gaps by causing social-economic burdens. In addition to this, extra costs are imposed on manufacturing companies due to the stoppage of economic activities during the Covid-19 pandemic. Thus, manufacturing companies face a challenge for making a profit after paying the costs related to stoppage of exports by countries.

2.7 Conceptual model

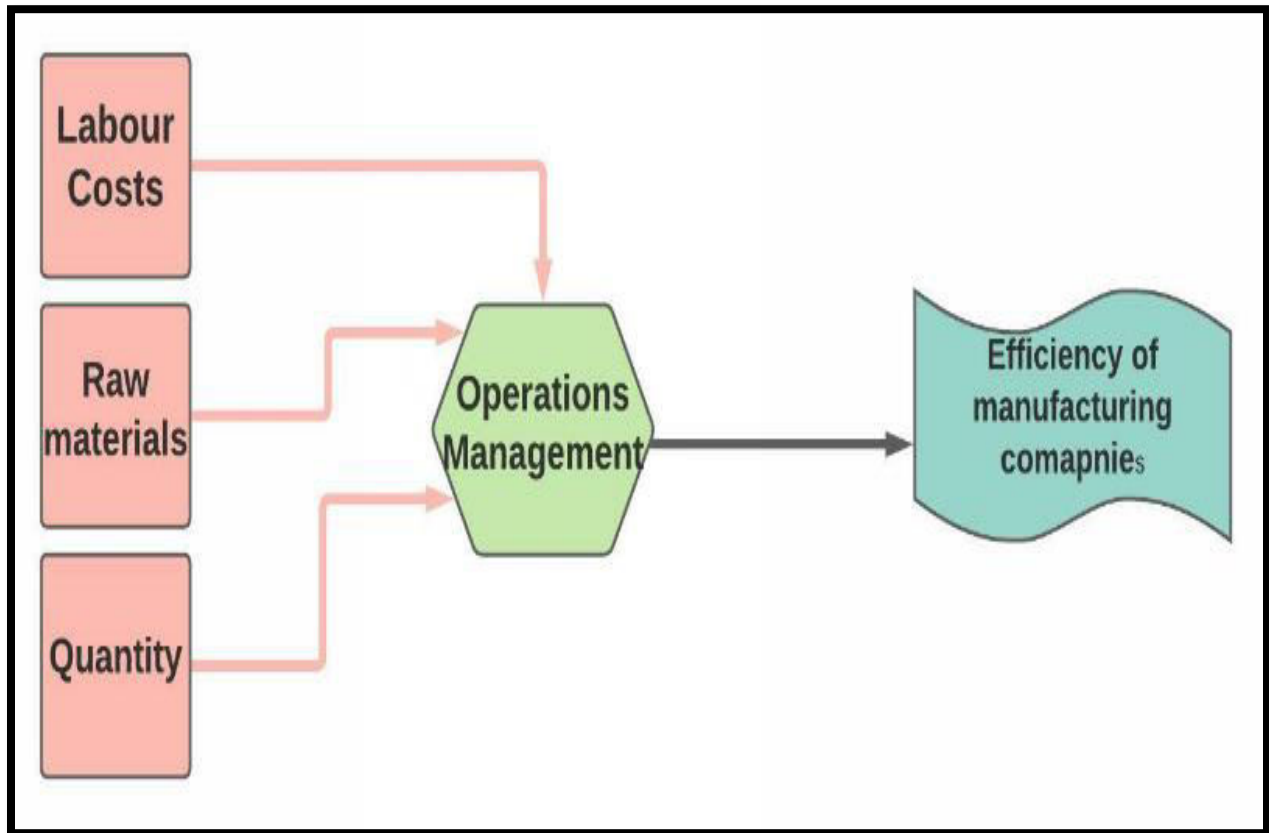


Figure 2.7: Conceptual model

(Source: Self Developed)

2.8 Literature gap

Operations management in the manufacturing company during the Covid-19 pandemic is seen to mention simulation, optimization and resilience along with flexible systems. None of the research has covered the effects of these factors on maintaining the flexibility of operations during Covid-19. Impact on the manufacturing firms have considered either slowdown of resources or disruption of supply chain but research is yet to be conducted over both of these factors for mitigating research gap. Factors affecting manufacturing companies have involved labour costs, raw material or quantity. Further research is required for addressing all these factors that affect manufacturing companies around the world.

2.9 Summary

The chapter has addressed the factors that affect OM of manufacturing firms and lists the challenges that are shortage of labour, retention of employees, and implementation of new costs. The pandemic has affected the employee numbers in manufacturing firms and it is seen that social distancing measures have increased costs that are involved with maintaining hygiene at these firms. On the other hand, it is seen that shortage of resources has disrupted the operations of manufacturing firms and it is related to disruptions in the supply chain. The retention of employees during the pandemic is also a difficult task due to the cut of wages and benefits. The demand for products also affect operations in manufacturing firms and an increase in demand ensures that firms are retaining operations in their production lines.

CHAPTER 3: METHODOLOGY

3.1 Research purpose

The purpose of the research is to get an idea about the challenges that manufacturing companies are facing during the Covid-19 pandemic. The pandemic has affected major economies and countries face social, health and economic challenges (Gautam and Hens, 2020). Positivism philosophy, descriptive design and deductive approach are used to fulfil this purpose of research. Covid-19 has also created a crisis on small and medium manufacturing companies and especially conflict countries like Syria, Libya and Yemen are prone to infectious diseases like the Covid-19 (Daw, 2020). The manufacturing sector is one on which the economy of a country depends. Thus, studies have to be conducted for analysing the effects of the pandemic on the manufacturing sector. The research also revolves around the effect of the pandemic on operations of manufacturing firms. The research particularly focuses on Syria as it is one of those countries that are affected economically by the Covid-19 pandemic. A medium-sized company like Mansour Plast is chosen because these are the companies that are affected the most during the Covid-19 pandemic. The interview with the management is more beneficial as it gives an idea about the strategies adopted by the company. Information about operations management (OM) is also collected from interviewing managers and the chief executive officer of the firm.

3.2 Research design

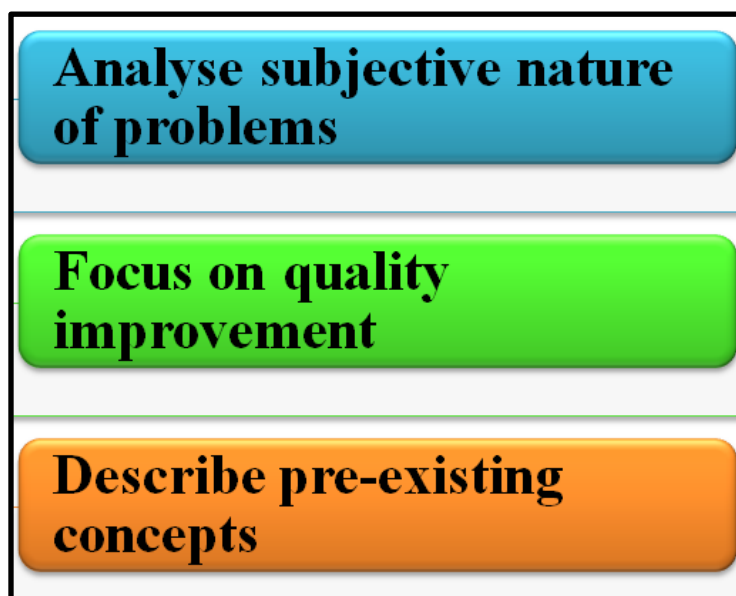


Figure 3.2: Features of descriptive research design

(Source: Influenced from Doyle *et al.* 2020)

Descriptive research design is utilised for research as a particular concept of operations management is being described here. According to Doyle *et al.* (2020), descriptive design is more appropriate as it analyses the subjective nature of problems involved in research. In addition to this, qualitative descriptive research is an efficient method to address clinical issues, which focuses on quality improvement instead of theoretical understanding. This research is based on finding the challenges that manufacturing firms are facing due to the Covid-19 pandemic. The concepts of supply chain and OM are described in this research and thus descriptive design is used here. Exploratory research is not used because it is not precise and uses open-ended data sources. As argued by Novara *et al.* (2018), exploratory research is based on analysing complex situations where the context itself is a variable factor for the collection of data. Thus, exploratory design is not applicable for the research that is based on existing facts and issues.

Descriptive research fulfils the purpose of concluding the research aim with the help of primary and secondary data. As opined by Pawar (2020), descriptive research consists of behaviour observations and are categorised into a survey, case study and observational method. Along with this, the case study method is dependent on the analysis of events and the study is conducted based on inquiry of the subject instance. This research involves inquiry of crisis in the manufacturing industry due to the Covid-19 pandemic, and due to this reason, descriptive design is used. This research is also based on the case study of Mansour Plast from which inference about the manufacturing industry is drawn. On the other hand, Causal design is not used here as it is based on hypothetical situations and involves the formation of hypotheses. This research is based on research quotations and not on hypotheses, thus the descriptive design is used in case of causal or explanatory research.

3.3 Research philosophy

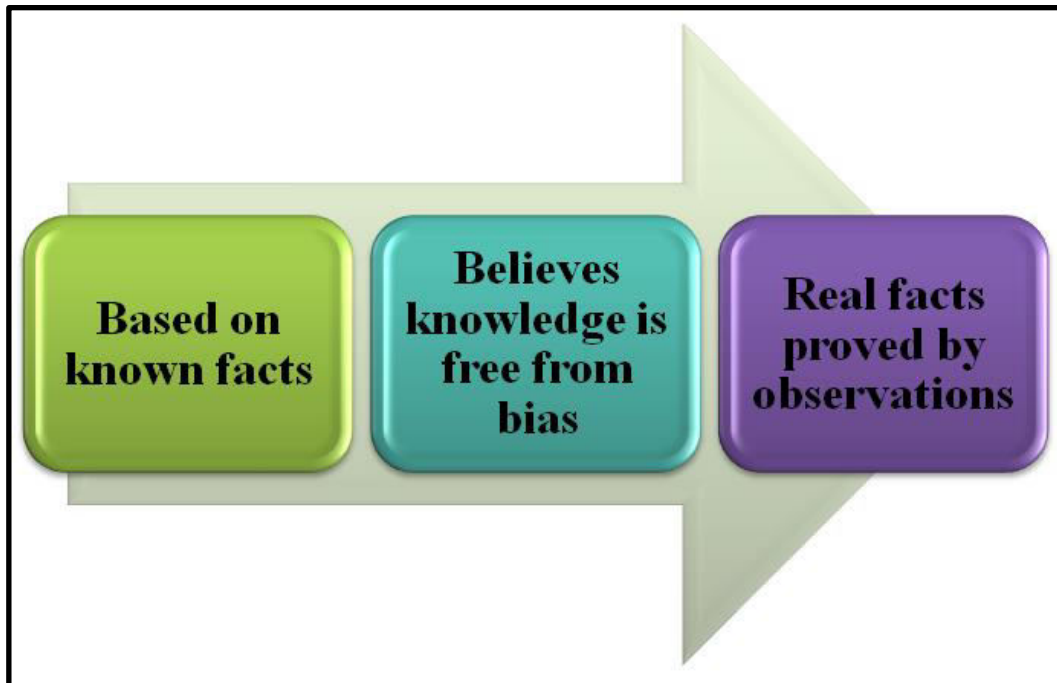


Figure 3.3: Features of positivism

(Source: Inspired from Ryan, 2018)

The research is conducted by using positivism philosophy as knowledge related to known facts such as operations management are collected during this research. As per the views of Pham (2018), positivism is a part of “objectivism epistemology”, where methods of natural sciences are used to study social sciences. Positivist researchers use this paradigm to understand concepts through empirical tests, questionnaires and group discussion. This research involves the collection of primary data through direct interviews and thus positivism research philosophy is used. The research does not use interpretivism as it focuses on specific and unique things while positivism focuses on general research. As argued by Rapley (2018), interpretivism is subjective and is judged by trustworthiness and transferability. This research is only based on positivism because it deals with specific aspects of OM and is not vague. The interpretivism philosophy is also subjective and the reliability of primary data collected is undermined in this type of research.

Positivism philosophy is also based on real facts and involves research of general phenomena. As per the opinion of Ryan (2018), positivism is a form of “empiricism” that believes that

knowledge has to be free from any bias and objective in nature. In addition to this, positivists believe that facts have to be proven with the help of observation and measurements. This research is aiming at analysing the crisis due to the Covid-19 pandemic on manufacturing firms. Thus, the crisis among manufacturing firms is a fact that has to be proved using relevant data collected from both primary and secondary sources. On the other hand, realism is not used as it is dependent on the independence of reality and realists believe that a world exists outside the scope of study of the researcher (Ryan, 2018). Since this research is based on certain facts related to the real world, positivism philosophy is used instead of realism.

3.4 Research Approach

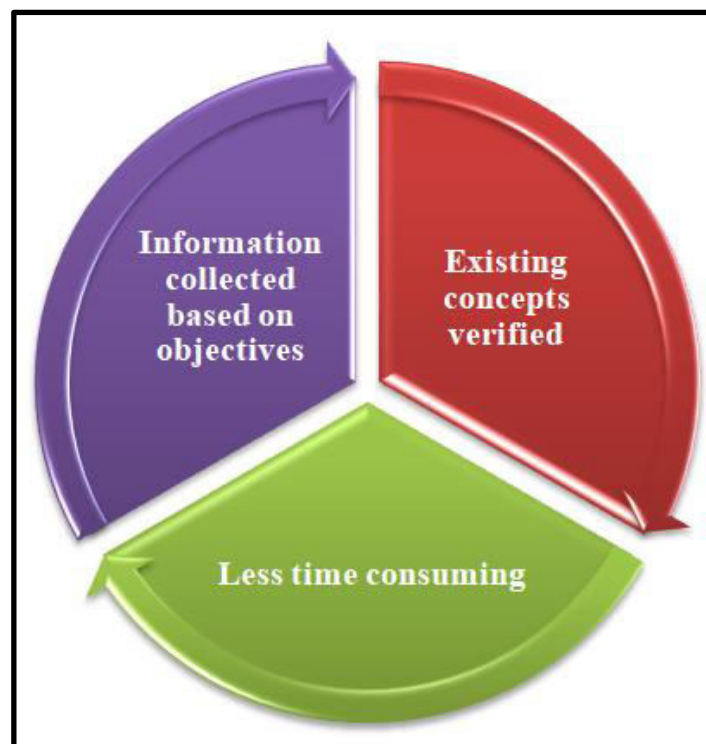


Figure 3.4: Features of deductive approach

(Source: Inspired by Azungah, 2018)

A deductive approach is used in this research as existing concepts of operations management are analysed by using relevant information. As stated by Gultom and Syahputra (2017), deductive approach depends on presenting the rule and then giving specific information for establishing the

rule. In this research, deductive approach is suitable as pre-existing concepts are being verified with the help of relevant information and data. In addition to this, the deductive approach is preferred as the time available for doing the research is less and it is also helpful for avoiding risks that arise from the selection of incorrect data. On the other hand, Azungah (2018) stated that deductive approaches consist of analysis, which is based on pre-existing theories. The theories of OM are already discussed in existing studies and these theories are used for analysis in this research. The theories related to supply chain management are also used to analyse the data collected in this research.

The deductive approach consists of deducting concepts related to a particular theory for analysing the result of the study. As stated by Azungah (2018), in deductive approach, codes are initially chosen from existing literature related to a particular topic and information is collected based on research objectives. This research is based on existing literature that discusses OM and the negative impacts of Covid-19 on it, thus concepts are deduced from studies that are already done over Covid-19. Due to this, deductive research is applied in the case of other research approaches. An inductive approach is not chosen for carrying out this research as it is based on the development of explanations. As argued by Woiceshyn and Daellenbach (2018), inductive research draws inferences from the work of authors and reviewers. In addition to this, induction of information involves moving from particular to general research while making empirical observations. This research involves moving from the general situation of crisis management to a particular setting of supply chain management and thus deductive research is used.

3.5 Qualitative approach

The research is conducted using a qualitative approach that involves the use of non-numerical data. As per the views of Greggs *et al.* (2019), a qualitative approach is used to compare data and analyse these to reach a conclusion. This research is based on collecting information about the condition of the manufacturing industry during the Covid-19 pandemic. A qualitative approach is used to analyse data that are not numerical in nature but rather in the form of theories and concepts. The qualitative approach also includes the formation of codes and themes from both secondary and primary data sources. Since the research is conducted because of both secondary and primary data, it makes the research more concrete and helps to fulfil the objectives of the

research. The data that is collected from primary and secondary sources are analysed with the help of a qualitative approach. Information that is collected from direct interviews is analysed by the formation of codes from the answers given by the participants. Secondary data is analysed in a similar way that uses a qualitative approach and analyses information collected from authentic journals and articles. In the case of secondary data also, themes are generated from codes that are chosen from the repetition of keywords present in articles and journals.

3.6 Data collection

Data collection can be carried out from both secondary and primary sources and this research involves both. The analysis of data from primary and secondary sources is carried out qualitatively. These methods are much effective for this research as the topic is focused on the manufacturing sector where quantifiable data cannot be possibly obtained regarding this company. It is because most of the consumers are not aware of this company associated in Syria.

	Primary Data	Secondary Data
Data collection is done by	Collected by the researcher	Already available
Source of data	Interview, questionnaire, Survey etc.	Books, journals, census etc.
Accuracy	More accurate	Less accurate
Cost	More costly	Less costly
Scientific Method	Follows scientific method, hypothesis is before collecting the data.	Since the data is already collected no need to formulate hypothesis.
Time requirement	Longer time required	Less time to collect data
Reliability	More reliable	Less reliable

Figure 3.6: Difference between secondary and primary data

(Source: Raj, 2020)

3.6.1 Primary

The research is based on collecting primary data through direct interviews so that correct and accurate information is collected on the manufacturing industry in Syria. Since the research is

related to a case study over a Syrian company Mansour Plast, direct interviews of 2 managers and the CEO of the company is conducted. As per the opinion of Raj (2020), primary data can be collected through observation, interview, questionnaire, schedule and projective techniques. In addition to this, interview method can be structure or unstructured, with a set of predetermined questions chosen for a structured interview. This research is conducted using structure and personal interview and collects data and information related to the impacts of Covid-19 on operations of Mansour Plast. Answers that are collected from personal interviews are analysed by using qualitative data analysis, which includes generation of themes from keywords. As argued by Mazhar *et al.* (2021), the method of data collection is chosen according to the aim of research and its suitability for that particular type of research. In this research, primary data collection is required as it is based on finding information precisely on the manufacturing industry in Syria.

3.6.2 Secondary

Secondary sources are also used for the collection of data as it supports the primary data and improves reliability of the research. As per the views of Raj (2020), secondary data can be collected from both internal sources that include Sales, financial, storage and transport data. The external sources are government publications, mass media, commercial services, trade associations and earlier research. This research involves the collection of data from both external and internal sources that gives information about manufacturing operations after the Covid-19 pandemic. Qualitative approach is also utilised for analysing the secondary data collected from secondary sources. Secondary data collected is also analysed with the formation of themes from codes or repetitive words used in existing research.

3.7 Data analysis

Data that are collected for this research are in the form of both primary and secondary data and these data are analysed by using qualitative data analysis. As opined by Lester *et al.* (2020), qualitative data analysis brings meaning to the set of data that are collected for research. It involves affixing codes from observations and interviews by sorting information that is related to a particular concept. This research is carried out by collecting data from both secondary and primary sources and then analysing these sources by selecting codes related to a set of

information. Quantitative data analysis is not carried out, as the collection of accurate statistical data from a conflict-prone country is difficult and requires more cost and time. Thus, reliability of data is not very high and it requires allocation of more funds. On the other hand, thematic analysis among qualitative methods is a more appropriate and innovative approach. The advantage of using qualitative analysis is that it is fundamentally flexible and follows transparent set of processes for both researcher and readers.

Thematic analysis of data involves the formation of themes from a particular dataset and follows a six steps process. As per the views of Kiger and Varpio (2020), thematic analysis is generally carried out in a six-step process and involves gathering knowledge about data, generation of codes, finding themes, reviewing, defining themes, and producing information related to these themes. In addition to this, thematic analysis also follows repetitive patterns on a set of data and is appropriate for understanding a set of experiences and behaviours related to it. This research also follows thematic analysis with both primary and secondary data for analysing the concepts related to supply chains of manufacturing firms in the Syrian context. On the other hand, thematic analysis is also simple to learn and can address the personal behaviours of people concerning social contexts. This research analyses the information collected from personal interviews and thematic analysis is suitable for analysis of both primary and secondary data.

3.8 Reliability and Validity

The methods that are being used in this research are reliable as these are bound to give consistent results for different scenarios. Research reliability is categorised into three subsections that are test-retest reliability, parallel form reliability and inter-rater reliability. As per the opinion of Sileyew (2019), reliability specifies whether a method is consistent over time and gives accurate results across different situations. Since this research use qualitative data analysis it can be considered to be more reliable for maintaining accuracy while collecting information from different sources. The set of questions that are chosen for managers and the CEO of Mansour Plast are kept same for obtaining similar information related to supply chain of the company. On the other hand, validity is an indicator of “subjective judgement” which is a measure of variables related to relevance of the study. Validity in the case of this research can be considered high as collection of information is carried out through multiple methods. Thus if inaccurate information

is collected from primary method it is contradicted by secondary data and vice-versa. Thus, validity of the research is retained by the use of multiple data techniques.

3.9 Ethical consideration

The research consists of primary data collection through personal interviews and it is monitored as such that not participants are inflicted harm. Priority is given for maintaining the dignity of the participants and interview is conducted only after taking their consent. The participants are also given the freedom to leave interview if they feel disrespect or hurt in any means. The anonymity of the participants is also restored in this research and their identity is not revealed through this research. Interview questions are chosen carefully so that it does not hurt the participants emotionally. While collecting secondary data it is ensured that data is collected from authentic sources after taking the permission of the supervisor and librarian. The information collected through primary research is also kept unbiased and no misleading information is included in this research.

3.10 Gantt Chart

Serial number	Description	Timeframe
1	Plan of research	April 2021
2	Literature Chapter	May 2021
3	Development and evaluation of interview questions	June 2021
4	Data collection	July 2021
5	Data entry and analysis	August 2021
6	Report writing and presentation	September 2021

Table 3.10: Time frame

(Source: Self Developed)

CHAPTER 4: FINDINGS AND ANALYSIS

4.1 Introduction

This chapter consists of the data and information collected from both primary and secondary sources related to operations of plastic manufacturing companies in Syria. The data collected from primary and secondary are analysed using qualitative analysis. Primary data is collected from personal interviews and secondary data is collected from peer-reviewed articles and journals related to the manufacturing industry. The theme for qualitative data analysis is formed from answers collected through interviews. Keywords or codes are collected from secondary data in the form of journals and articles. The information collected from interviews is collected and analysed using qualitative data analysis. The data, which is collected from secondary data, are analysed by forming keywords and then generating themes from these keywords or codes.

4.2 Primary Qualitative

Findings of first respondent

The manager of Mansour Plast said that due to the unavailability of materials, the company is not able to supply goods to their customers. The Covid-19 has affected the business of the firm by restricting travel through Jordan which is the only route for acquiring resources for Mansour Plast at a cheap rate. The manager also said that costlier resourcing has been the only option for sustaining their business during the pandemic. The costlier mode includes air and sea routes that increased the product price and the company incurred loss during this time. The manager claimed that it has been difficult for the management to adapt to the new ways of acquiring resources. In spite of this, the management ensured that the company continues to maintain their production rate. The company has also taken care of their employees during the pandemic and paid hospital bills of employees that are suffering from the disease. According to the manager, the salaries of the employees are also continued during their treatment. Interviews with the manager also disclosed that the company faced problems due to both political conflict and Covid. The company had a huge shortage of resources during the pandemic and the management has not been able to tackle this situation. The management did their best to keep the production

line open and running during the pandemic and still, the firm has to be shut for some days due to lack of resources.

Findings of second respondent

The CEO of the company Mansour Plast, Ala Mansour mentioned that the supply of products to all customers has been a difficult task due to shortages of resources like GEC materials. The company's supply chain is related to land transport and follows a route through the Jordan border. Since the Jordan border has been closed due to the Covid-19, the company has to opt for other means of costlier transport through the sea routes and air routes. The company Mansour Plast chose alternative resourcing of raw materials during the Covid-19 pandemic and this has been costlier than previous resourcing. The company's CEO mentioned that from the board of directors meeting it has been decided that operations in the company are maintained through the use of a costlier mode of transport. Air and sea routes of transport are chosen by the directors for meeting the supply-demand during the Covid-19 pandemic. The operations manager said that the company has to adapt to the crisis and keep on producing products with minimal amounts of resources. The CEO and managers of Mansour Plast mentioned that they took the initiative for making face masks mandatory in the firm during the Covid-19 pandemic. The managers mentioned that polymerase chain reaction (PCR) tests are conducted for employees that are not vaccinated and these expenses are done by the firm itself. The CEO also mentioned that sanitisation of their workplace is also done during the pandemic and it ensured that the employees are safe in times of crisis.

Findings of third respondent

Operations manager Eyad Mansour said the company suffered this problem for 2 months and also closed their factories for some days. The employees of the company tried their best to continue operations every day. Sanitisation is carried out every day in the company while PCR tests are conducted on a weekly basis. Eyad mentioned that Syria as a country is lagging behind in terms of supply of vaccines. Despite this, the company is trying to vaccinate as many employees as possible by cooperating with the Syrian government. According to Eyad, the company has been successful in vaccinating 40 % of its employees. Eyad said that authoritarian leadership is followed by him for managing employees of the firm. According to him, the reason

for using such a leadership policy is related to less-educated workers in the plastic manufacturing industry. According to Eyad, the company stopped the supply of raw materials and only focused on the production of plastic goods. The company used all the raw materials for the manufacturing process and ensured that their customers are retained in this sector. The management of the company did everything for shortages of resources.

4.3 Secondary Analysis

Theme1: Covid-19 affecting operations management and availability of resources

The Covid-19 has forced lockdowns and supply chain disruption in different parts of the world. The pandemic shocked business sectors and increased trade battles by signifying that countries lack self-sufficiency for needed products (Barbieri *et al.* 2020). The shortage of resources that are related to industrial supply chains negatively affected the GDP of advanced economies. Shortage of resources in key sectors such as the plastic manufacturing industry inflicted damage in other sectors that are related to it. Business activities in micro, small and medium enterprises were affected the most during Covid-19 and lacked monetary and managerial resources (Yu *et al.* 2021). In addition to this, material shortage, availability of labour and stagnant production affected these firms during the pandemic.

Theme2: Financial effect on small and medium enterprises during the pandemic

Lockdowns during the pandemic have forced companies to shut down their units and it has given a shock to industries that are related to the manufacturing sector. Suppression of consumer spending is one of the causes for reduction of earnings by firms (Mazur *et al.* 2021). In addition to this, lack of corporate governance is another cause for the reduction of profits during the pandemic. Finances of small and medium firms are mostly affected during the pandemic due to the lack of proper corporate governance and business structure in these firms. Firms faced a lack of liquidity and an increase in debt as a result of the economic losses during the pandemic (Dörr *et al.* 2021). In addition to this, government law change during the pandemic causes smaller firms to find loopholes and sustain their business during the pandemic.

Theme3: Effective management of manufacturing firms during pandemic leads to profitability

Management of manufacturing firms is essential for handling operations and improving resilience during the Covid-19 pandemic. The managers are the ones that are responsible for sustaining business in firms. Flexibility in management for adopting new business models during crises is essential for building resilience and recovery from the pandemic (Priyono *et al.* 2020). Resilience includes reinstating normal functions during the time of crisis and disruptions. In addition to this, firms can use more than one business model and follow different organisational structures for obtaining resources. This allows these firms to improve innovation in the business ecosystem and these do not rely upon internal resources that already exist.

Theme4: Supply chain management during Covid-19 pandemic in manufacturing firms

Supply chain management is crucial for increasing productivity of manufacturing firms and it involves using an omnichannel. The flow of products, financial resources and business information are a part of the omnichannel that entrepreneurs utilize (Ketchen and Craighead, 2020). In addition to this, the firms that have been able to shift distribution channels due to the pandemic retained their business proceedings better as compared to firms with single channels. Supply chain risks can be mitigated by using flexibility and diversification in the supply chain (McMaster *et al.* 2020). “Supply chain resilience management” is an effective response strategy for decreasing the effect of the pandemic by making real-time changes in the supply chain.

4.4 Discussion

4.4.1 Primary

Interview1

The interviews with the CEO and managers of the firm Mansour Plast resembles that Covid-19 has been a factor in reducing the profit of manufacturing companies. The unavailability of plastic materials such as GEC in Syria has been a problem for the production of goods that customers require. The company has to bear excess amounts for resourcing materials as these cannot be resourced through Jordan. The closure of borders in Jordan forced the company to resource materials from other foreign countries through sea and air routes. These supply chains prove to be costlier and the company has to make losses for running their business. Thus, it can be said that the Covid-19 has negatively affected supply chains and due to resource shortages plastic

companies can manufacture products in the right quantity. As per the views of Mahajan and Tomar (2021), supply chain disruptions lead to income loss and products that travel long distances have a fragile supply chain during the Covid-19 pandemic. The availability of products also fell during the pandemic and it is due to lockdowns and closed borders. The company Mansour Plast also faced the same problem and it could not supply an adequate amount of goods to its customers.

The manager of Mansour Plast mentioned that the company's business is affected by conflict and the pandemic. Due to these emergencies, availability of vaccines is also less in Syria and thus the company is facing difficulty in vaccinating their employees. As per the views of Watson *et al.* (2021), a higher rate of infection among healthcare workers decreases the effectiveness of treating Covid-19 patients. In addition to this, 70 % of the health workers have left or been killed during the conflict. Thus, healthcare system in the country as a whole is crippled and it has also inflicted economic losses to the country. Due to this, employees of Mansour Plast face the problem of not getting adequate treatment and vaccines during the pandemic. On the other hand, Almhawish *et al.* (2021) stated that healthcare workers faced problems of inadequate PPE, poor infection prevention and understaffing. This leads to the spread of infections among citizens and health workers of Syria. The employees of companies such as Mansour Plast also faced the problem of having inadequate vaccines. The rising number of cases forced the Syrian government to enforce lockdowns. This leads to unavailability of resources in the manufacturing sector which in turn affected the economic condition of Syria.

Interview2

Mansour Plast has tried to continue making plastic products for their customers even during the pandemic by choosing alternative means of resourcing that involves air and sea transport. As opined by Ali *et al.* (2018), disruptions caused by natural disasters negatively affect the working of supply chains. In addition to this, the price of goods also increases during shortages of resources and it leads to demand disruption. Due to this reason, the company opted to continue with their operations for retaining existing customers. The company has to bear extra expenses for resourcing GEC materials during shortages. The use of alternative resources during the pandemic ensures that manufacturing companies continue with their operations to sustain

employees. The salary of employees of Mansour Plast has been paid during this crisis and this is due to efficient decisions taken by the managers for resourcing raw materials from alternative sources. Expensive transport in alternative resourcing affects running costs of manufacturing businesses during the pandemic. Since the manufacturing sector is dependent mostly on resources, disruption of the supply chain affects businesses in this sector. Mansour Plast has to adapt to changes in the transport of raw materials through air and sea routes for continuing their operations during the Covid-19 crisis.

The CEO of Mansour Plast admitted that the management of the company has been helpless for continuing with business operations and their manufacturing dropped during the pandemic. The management of the company has also used alternative sources for meeting their resource demands. The management of the company has also used alternative sources for meeting their resource demands. As per the views of Obrenovic *et al.* (2020), firms are not able to prevent the loss that occurs due to crisis and can lower the risks by applying detection strategies such as “enterprise risk management”. In addition to this, the businesses that have freedom become organised and reliant upon their own business structure to adapt to the rapid changes that occur due to sudden crises. Mansour Plast has not been able to rely upon its own business structure due to the fact that Syria is a war-prone zone. On the other hand, Papadopoulos *et al.* (2020) stated that use of digital technologies enabled continuity in SME businesses during the Coronavirus pandemic. Digital technology also leads to continuation of staff interactions and backup of data. Mr Mansour mentioned that their company used the sea and air routes for resourcing raw materials. The use of risk management and digital technologies can improve the business of the firm and enable them to become flexible.

Interview3

The prevention of Covid-19 in the workplace is necessary as it ensures that manufacturing in the firm is restored even during a crisis. Since the workers of the firm are the backbone of manufacturing, ensuring their good health is necessary to continue operations. As per the opinion of Aradul *et al.* (2020), preventive measures during Covid-19 include personal hygiene, hand sanitisers, face masks and immune boosters. Thus, use of immune boosters has to be also used by the management to improve the health of employees. Employees are essential for maintaining

operations within the company so that production of plastic goods is resumed. Due to this prevention of Covid-19 in the workplace is crucial for continuing production of goods. If employees of the firm are affected by Covid-19 then the company has to bear the expenses and it also reduces the overall productivity. As argued by Al-Fadly (2020), Covid-19 affected staff morale and led to mental strain as this situation is faced by them for the first time. In addition to this, reduction in the salary of employees affects their morale and reduces their productivity. Thus, Mansour Plast did not stop the salaries of its employees and ensured that they are getting treatment while infected with the disease. Authoritarian leadership (AL) is used by Eyad Mansour due to the incapability of workers for becoming independent in handling a particular situation. Thus, specific and accurate orders have to be given to employees so that a task is completed by them properly and within the specified time. As per the views of Gu *et al.* (2018), AL requires employees to be obedient and it hampers their creativity. In addition to this, AL also affects creativity at group level and its success depends on the culture of the employees. Thus, the use of AL in Mansour Plast can also bring mental stress among workers and it can lead to labour shortages during the pandemic. As argued by Bolton (2020), a small portion of citizens finds jobs in a war economy such as Syria and these jobs have low salaries and are labour intensive. Due to this, productivity in Syrian manufacturing firms is quite less as employees are stressed due to job pressure.

4.4.2 Secondary

Theme1

The Covid-19 pandemic is seen to affect the supply chain of manufacturing firms and this has affected the economies that are dependent on small, medium and large enterprises. Among the enterprises, small and medium firms are mostly affected by labour shortages and shortage of raw materials for the production of goods for customers. The customers are mainly affected by the lack of essential goods such as face masks, PPE suits that are manufactured by plastic producing industries. The Covid-19 has also exposed the self-sufficiency criteria of emerging economies in case of having storage of raw materials. Since emerging economies are not self-sufficient in supplying the raw materials needed for manufacturing firms, these firms are suffering from the availability of products. In addition to this, countries such as Syria are affected by conflicts and thus healthcare systems in these countries are not able to stop the spread of the virus. This leads

to the rise of Covid-19 cases and as a result, shortages of labourers are visible in small and medium firms. Due to this, OM in firms became more difficult and retention of employees is negatively affected by work pressures and salary cuts.

Mansour Plast has been affected with difficulties in managing operations and this is mainly due to the shortage of raw materials of plastic. Linking to the interview with the CEO, the company have to obtain resources by costlier means and this made OM difficult. The firm is also facing difficulties in taking preventive measures for the virus as it is situated in Syria that is a conflict zone. The unavailability of Covid-19 vaccines in Syria also leads to the spread of the virus in the country. The workers infected with the virus have to be provided with financial and medical support during the pandemic. This affected profit of Mansour Plast as the company has to deal with additional expenses.

Theme2

The pandemic has affected the economies of emerging countries and it has given a shock to industries. Since economies of emerging countries are dependent on small and medium firms, new policies are adopted by these governments for helping these grassroots level businesses sustain and evade extra expenses that arise due to taxes. The decrease in consumer spending has also negatively affected cash flows among firms. The consumers are the basic unit for sustaining businesses and due to lockdowns; consumers are only reliant upon essential goods. Small and medium enterprises (SMEs) that are associated with the business of non-essential goods are affected more than those associated with essential ones. On the other hand, lack of corporate governance is also a factor that affects the business of SMEs during the pandemic. Since large companies follow a proper business structure and have a backup for resourcing of the raw materials, these are affected less than SMEs. The governments that took the initiative of changing the financial laws helped SMEs in sustaining their business during the pandemic. These laws include a change of tax quota that lead to the reduction of taxes for firms affected by the pandemic.

The increase of debt in case of Mansour Plast is evident due to the increase in expenditures and reduction of incomes. This can be linked to interviews with managers and the CEO of Mansour Plast. All of them complained about resource shortages and it can be estimated that expenses of the company increased due to the additional cost of air and sea transport. The managers also mentioned that their production decreased during the pandemic and the management have to pay

the salaries of employees. The calculations associated with these factors results in an increase in debt for the firm. Thus, effective OM in the firm is difficult to achieve and managers are not able to take the necessary steps for increasing productivity due to a shortage of resources. The debt of small firms in Syria is also not handled properly due to a lack of governmental policies for boosting the economy of the country.

Theme3

The effective management of manufacturing firms involves an increase in flexibility among managers. Since the managers are the ones that handle businesses of manufacturing firms, it is essential for them to adopt new business models that incorporate innovation. This ensures that the firms are not dependent on only the internal resources such as labour and employees for the production of goods. The utilization of innovative business models helps manufacturing firms to increase their profitability during the pandemic. It is also found out that flexibility in the management of firms increase the resilience of these firms and make them handle crises like the pandemic. The use of new business practices also increases the stability of businesses as firms are not reliant on a single resource for the development of the products. In addition to this, firms can also judge the price of raw materials that are available from different resources. The management of resources in case of plastic manufacturing firms such as Mansour Plast is also similar. The company is suffering from the unavailability of resources due to a travel ban at their borders and not alternative resourcing is available. Thus, the management needs to be prepared for crises and keep multiple resourcing options available.

Theme4

The supply chain during the pandemic is affected negatively and this enables management to make changes in the operations of firms. Information about products, financial resources and is part of the omnichannel supply chain helps to reduce the effect of the pandemic on business operations. Flexibility in the supply chain and management include using different distribution channels and having diversification in the supply of materials. Firms that follow a single distribution channel are affected the most due to the pandemic while flexibility is not maintained in these types of firms. On the other hand, firms have to be competent enough for making real-time changes in their supply chain. This ensures that firms retain productivity by maintaining availability of resources. Mansour Plast has also been affected by the use of single-channel and this has forced them to choose costlier transporting measures during the time of crisis. The

adoption of resilience management also ensures that firms improve their flexibility and become stable in terms of resourcing raw materials from different sources. The use of omnichannel resourcing in the case of Mansour Plast can improve their productivity and make them sustain their business in handling crises that arise from conflict and pandemics in Syria.

Summary

This chapter mentioned the key points taken from the interview with the CEO and managers of Mansour Plast. The key points obtained from interviews are linked with the secondary data collected from authentic journals. Findings from the interview resemble that the company management has tried to sustain its business during the pandemic; still it lacked essential OM strategies like crisis management. The debt of the company is estimated to have increased during the pandemic for having a rigid supply chain. Thus, following a flexible supply chain is necessary to adapt to the sudden changes that occurred during the pandemic.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The unavailability of resources and labour shortages in Syria has caused problems for running businesses in the country. Small and medium enterprises are affected more as compared to the large companies and it leads to the loss of the economy of the country. The lack of resources is due to the shutdown of the Jordan border which stopped the transfer of resources to Syria through land. Plastic manufacturing companies have to obtain their resources through land and sea routes and this increased the costs of management of these firms. This, it can be concluded that running manufacturing businesses in the country has been difficult and requires support from the government of the country. Since Syria is a country with conflicts, it has not been able to frame policies to help firms reduce their overall costs during the pandemic. It can be concluded that the firms that rely more upon external strategies for running their business suffered the most. Thus, the development of internal strategies is key for improving the business of firms and it leads to resilience in the business structure of the firm. Primary data collected from interviews resemble that Mansour Plast is dependent more on external sources for running their business. This affected the firm more during the pandemic and led to disruption in the supply chain. As a result, the cost of running the business increased during the pandemic and it led to an increase in debt. An increase in debt of small and medium business firms makes it even harder for managers to handle internal operations in the firm.

The information collected from secondary sources stated that flexibility in the supply chain is crucial for increasing the resilience of business firms and it gives stability. The answers from the interview participants denote that the plastic manufacturing industry in Syria is dependent on resources that come through Jordan. Thus, their supply chain can be considered rigid and this decreases their resilience which helps in adopting changes during a crisis. Manufacturing companies in Syria have to be shut down due to this and affect the economy of the country as well. On the other hand, the health care system of Syria is also found to be lacking proper resources for handling the pandemic which has an effect on the availability of labour in the country. The secondary sources cite that shortage of labour negatively affected business operations especially in the manufacturing sector. Employees are also affected due to the

unavailability of vaccines and proper treatment during the pandemic. The company has to compensate for the labourers that are affected by the Covid-19 disease and bear the expenses of treatment. This leads to labour shortages in manufacturing firms and the cost of running the firm also increases. Large companies are dependent internally upon their management and business structure and have resilience in their business. Thus, these companies can adapt to sudden issues and make changes quickly for improving their business. On the other hand, small companies do not have adequate infrastructure to make their own resources and thus have to depend on external sources. Thus, Mansour Plast has suffered during the pandemic due to a lack of resilience and flexibility in their business structure.

Manufacturing firms are the ones that suffered due to unavailability of resources and labour. In the case of Mansour Plast, the company has to pay extra for fetching resources during the pandemic and it leads to a loss in their business. The management of the company has been focused on resuming their business during the pandemic but due to the pandemic, it has not been possible for them. This shows that small firms do not focus on having flexibility and rely upon a single source for getting resources. The availability of multiple sources for fetching raw materials ensures that the firm has enough options during the pandemic. Since Syria is a war-prone zone setting up multiple supply chains is comparatively difficult than other countries that are not having conflict. Thus, political situation of the area also matters for developing businesses in manufacturing firms. Political instability in countries negatively affect the business structure and make the firms incompetent to take the necessary measures for business transformation.

5.2 Recommendation

The company Mansour Plast is suffering from a shortage of resources and thus, it is recommended to have multiple supply chains. As per the views of Liu and Lee (2019), adoption of multiple supply chains (MSC) helps to counteract uncertainty that may occur due to changes in the external environment. In addition to this, improvement in the supply chain can also reduce the effect due to behavioural uncertainty. Behavioural uncertainty leads to a loss in business due to self-interests of members present in the supply chain. Thus, MSCs have to be analysed by managers of firms to make them reliant on the stable supply chain. Managers of the Mansour

Plast have to find other supply chains for supporting their business and have to prepare for future crisis situations. Since Syria is a conflict zone, small and medium firms have to stockpile resources for meeting their supply demands during wars in the country. As argued by Todman (2020), one of the ways to mitigate the impact of cross-border access in Syria is by stockpiling resources. It is recommended for Mansour Plast to be prepared for crisis situations such as wars and natural calamities by stockpiling enough resources for running the firm during border closure. Thus, firms have to rely on themselves and not on external sources for running their business. This enables Mansour Plast to retain continuity in their business and supply their customers with manufactured products. The firm has to find other means to obtain resources and collaborate with similar plastic manufacturing companies to sustain their business during the pandemic.

Mansour Plast is also seen to be affected by the political situation of the countries it is operating. Thus, it is recommended for the firm to expand its business to other countries with stable economies. As per the opinion of Kim (2017), sharing economies have consumers and suppliers to collaborate and the government have to set some rules for supporting the stable growth of sharing economies. Sharing economy involves interaction between consumers and suppliers through the use of advanced platforms that are based on “information and communication technologies (ICT)”. Thus, it is necessary for Mansour Plast to make use of ICT for interacting with suppliers in other countries. The movement of business from conflict zone to other countries ensures that the firm can run its business properly. It can also move a part of its production facility to stable countries so that they can get run their business in times of crisis situations. On the other hand, Frenkel (2017) stated that cross-national movement of firms’ practices includes hiring, promotion and evaluation. Thus, maintaining different firm practices in host and home countries is difficult and requires effective cross-cultural management. Thus, Mansour Plast has to first train its managers to adapt to the culture of the host country and follow rules and regulations in that country.

The firm Mansour Plast is seen to spending on sanitisations, face masks and PCR tests for preventing Covid-19 in their workplace. This is increasing the expense of the firm for buying face masks and sanitisers. The company also have to pay expenses for treating their workers infected by the disease and their salaries have to be paid also. Since the workers in the company

are not that educated, it is recommended to spread awareness about the prevention of the disease. As per the views of Labrague and Santos (2021), awareness related to workplace protocols can be achieved by conducting campaigns that provided information about Covid-19. Thus, Mansour Plast has to make its employees aware of the disease and its effects. The company should also arrange campaigns for making people of the locality educated about the prevention of the disease. This can make their workers cautious and it can convince them to follow proper hygiene and preventive measures. Adoption of social distancing in the workplace also ensures that the virus is not spread among employees. Maintaining these changes in the workplace and taking initiative can reduce the percentage of employees infected during the pandemic which can reduce medical expenses of the firm.

5.3 Linking with Objectives

Resource unavailability in the firm is a problem that can be mitigated by the use of alternative resourcing strategies. The use of multiple supply chains links with the objective which signifies negative effects of resource and labour shortages in the manufacturing sector. In addition to this, special stress is given to the geographical location of Syria which makes it a conflict zone. The recommendation to relocate production units of Mansour Plast is an ideal solution for reducing the effect of conflict in Syria. Since the company is only dependent on decisions taken by the government of the country, it is essential to develop alternative options that might make the company resilient.

The challenges faced by manufacturing firms for maintaining their operations include increase in cost for obtaining resources. Since the company is reliant on a single supply chain that is rigid, it is suffering from disruption in this supply chain. Thus, recommendations are provided for making the firm adopt advanced strategies such as crisis management and also collaborate with other plastic manufacturing firms to improve the business of the industry as a whole. The use of ICT is also mentioned in relation to this objective as it helps in collaborating with suppliers from other countries.

The ways in which manufacturing firms can avoid crisis situations are also mentioned as links to the objective of the research. It is seen from secondary data that adopting resilience is essential for minimising the effects of changes in the external environment of the firm. Mansour Plast has

to rely on internal strategies more than external ones for increasing resilience in its business structure. Thus, it is also recommended to make the supply chain flexible for handling difficult situations during the pandemic. Mansour Plast is seen to choose alternative means of fetching resources and these are costlier.

Effective supply chain practices have been found out which involves using an omnichannel. The omnichannel is seen to be an integration of products, finances and information related to the business. Diversification is another option for developing a flexible supply chain and it involves the use of different information. Resilience management of the supply chain helps firms to analyse the stability of resource availability. This also helps to incorporate real-time changes for decreasing the effect of the pandemic.

5.4 limitations of research

Research limitations include failure to interview baseline workers of the company of Mansour Plast. Due to the pandemic, interviewing many workers has not been possible and it could have taken more time. Thus, only deducing information from the management makes the research limited and it is difficult to judge the effect of the management practices at a grassroots level. The research also needs to explore the benefits of omnichannel marketing which is essential for improving the business of manufacturing firms. The research also lacks a study of advanced technologies for improving operations management in manufacturing firms. Since employees of Mansour Plast were not very educated no information can be collected on this issue.

5.5 Future areas for research

Future research is required for the development of better supply chain practices through the use of ICT. Since ICT is a comparatively new concept in the manufacturing sector, further research is required in this aspect. The strategies that are associated with crisis management is also a topic for further research and it requires to be integrated with supply chains. Resilience among manufacturing firms is a new concept addressed by other researchers while its implementation is still yet to be studied. Extensive geographical studies have to be carried out over Syrian supply chain and the effect of wars on supply chains have to be studied.

CHAPTER 6: PERSONAL REFLECTION

The things that I have learned from this study include management of supply chains and the advanced steps that manufacturing companies can take for increasing stability of their business. I have learnt that during the time of crisis, small and medium firms are affected the most. The case of Mansour Plast has made me realised that maintaining a single supply chain affects the business of the firm in a time of crisis that occurs due to natural and man-made disasters. I have found out that firms that are independent and depend on their internal strategies are more stable. Small firms are affected more than large firms and I have seen that small manufacturing firms such as Mansour Plast have a rigid supply chain. I have also learnt about omnichannel supply chain and its use in improving flexibility and diversification. I have found out that healthcare system of a particular region also affects supply chains as these are dependent on the health of workers.

The case of Mansour Plast has made me realize, that even during the pandemic, firms try to sustain their business and retain their employees. The interview with the managers helped me understand that it is important for management of firms to follow ethics and help employees with financial assistance during a crisis. I have also learnt that political instability in a country negatively affects manufacturing firms and further cripple the economy of a country. Syria is also suffering from such issues and the government has to take necessary steps to reduce the effect of conflict. On the other hand, I have also learnt from the study that management of companies has to take necessary steps to improve their business and reduce the effect of the pandemic. These steps include organising health campaigns for spreading the awareness of preventing the virus and collaborate with other manufacturing firms for finding solutions to reduce resource shortages.

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Appendices

Appendix 1: Interview Questionnaire

Question 1: What are the challenges you are facing while dealing with resource shortages in manufacturing plastic?

Question 2: Do you follow any methods to cope up with supply shortages? If so, please mention the methods you follow.

Question 3: What methods do you follow in the workplace to prevent the spread of Covid-19?

Question 4: Do you get enough resources for manufacturing plastic products during the Covid-19 pandemic? If not, what are backup plans you have in case of a shortage of resources?

Question 5: How do you treat your workers when they cannot perform well due to the lack of resources? How many workers in your manufacturing plant are vaccinated and are there an initiative by the firm to get its workers vaccinated?

Question 6: Do you have any relief packages for workers affected by Covid-19? If yes, what are the things provided by your company? If No, what is the reason for which you do not provide relief packages?

Question 7: What leadership style do you prefer to manage your employees? Does this leadership style work? If yes, how do you know that it is improving the productivity of your firm?

Appendix 2: Interview Transcript

<p>Question 1:</p> <p>What are the challenges you are facing while dealing with resource shortages in manufacturing plastic?</p>	<p>Manager 1</p> <p>We have faced many challenges some of them are we couldn't supply all the costumers with the needed products due to recourse shortages. As we get our supply from the gcc (plastic materials) through land. The Jordanian borders closed for over two months due to covid so we needed to find a solution to ship the resources, even though it cost us way more as we had to ship through airlines and ships but we as a company did not want to close in covid.</p> <p>CEO</p> <p>We have faced many challenges some of them are we couldn't supply all the costumers with the needed products due to recourse shortages. As we get our supply from the gcc (plastic materials) through land. The Jordanian borders closed for over two months due to covid so we needed to find a solution to ship the resources, even though it cost us way more as we had to ship through airlines and ships but we as a company did not want to close in covid.</p> <p>Manager 2</p> <p>Both sales growth as well as business value has been reduced in the pandemic situation.</p>
<p>Question 2:</p> <p>Do you follow any methods to cope up with supply shortages? If so, please mention the</p>	<p>Manager 1</p> <p>We had to start shipping through airline and sea shipment, it was harder and more</p>

methods you follow.	<p>expensive for the company but we had to cope with the situation and decided not to close our factories</p> <p>CEO</p> <p>We had to start shipping through airline and sea shipment, it was harder and more expensive for the company but we had to cope with the situation and decided not to close our factories</p> <p>Manager 2</p> <p>Both sales growth as well as business value has been reduced in the pandemic situation.</p>
<p>Question 3:</p> <p>What methods do you follow in the workplace to prevent the spread of Covid-19?</p>	<p>Manager 1</p> <p>Face masks, sanitization, pcr tests every week</p> <p>CEO</p> <p>Face masks, sanitization, pcr tests every week</p> <p>Manager 2</p> <p>Both sales growth as well as business value has been reduced in the pandemic situation.</p>
<p>Question 4:</p> <p>Do you get enough resources for manufacturing plastic products during the Covid-19 pandemic? If not, what are backup plans you have in case of a shortage of resources?</p>	<p>Manager 1</p> <p>no we had a huge shortage in the supply but there was nothing that could be done, we did our best to stay open even though our manufacturing dropped dramatically during covid</p> <p>CEO</p> <p>no we had a huge shortage in the supply but there was nothing that could be done, we did our best to stay open even though our</p>

	<p>manufacturing dropped dramatically during covid</p> <p>Manager 2</p> <p>Both sales growth as well as business value has been reduced in the pandemic situation.</p>
<p>Question 5:</p> <p>How do you treat your workers when they cannot perform well due to the lack of resources? How many workers in your manufacturing plant are vaccinated and are there an initiative by the firm to get its workers vaccinated?</p>	<p>Manager 1</p> <p>As there are so many problems in Syria political wise and covid wise, we do not have enough vaccines in Syria but we did try our best to vaccinate the outmost amount of workers and managers, ofc working and cooperating with the syrian government to provide us with the vaccines</p> <p>CEO</p> <p>As there are so many problems in Syria political wise and covid wise, we do not have enough vaccines in Syria but we did try our best to vaccinate the outmost amount of workers and managers, ofc working and cooperating with the syrian government to provide us with the vaccines</p> <p>Manager 2</p> <p>Both sales growth as well as business value has been reduced in the pandemic situation.</p>
<p>Question 6:</p> <p>Do you have any relief packages for workers affected by Covid-19? If yes, what are the things provided by your company? If No, what is the reason for which you do not provide relief packages?</p>	<p>Manager 1</p> <p>Yes, whoever got infected with covid, we as a company provided him with private hospital and payed for all the bills, also we kept his payment roll going</p> <p>CEO</p> <p>Yes, whoever got infected with covid, we as</p>

	<p>a company provided him with private hospital and payed for all the bills, also we kept his payment roll going</p> <p>Manager 2</p> <p>Both sales growth as well as business value has been reduced in the pandemic situation.</p>
<p>Question 7:</p> <p>What leadership style do you prefer to manage your employees? Does this leadership style work? If yes, how do you know that it is improving the productivity of your firm?</p>	<p>Manager 1</p> <p>personally as i mostly manage the labor men I choose to use the authoritarian leadership style as i believe it is the most effective since most of the labour men didn't go to universities they achieve best we they take direct and specific orders to complete. But of course bouneses are given out to high achievers and hard workers</p> <p>CEO</p> <p>I as a CEO and owner of MansourPlast use transactional leadership as i believe it is the best way to both manage my employees and get the best outcome. yes i do believe my leadership style works as throughout the years it very clear to me that the productivity of my managers have increased in a very noticeable way. When my sales manager knows that he will receive a bonus when achieving the sales goal we will do his utmost best to achieve that goal.</p> <p>Manager 2</p> <p>personally as i mostly manage the labor men I choose to use the authoritarian leadership style as i believe it is the most effective</p>

	since most of the labour men didn't go to universities they achieve best we they take direct and specific orders to complete. But of course bouneses are given out to high achievers and hard workers
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