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Supply Chain Resilience and Firm Performance in Turbulent Contexts:

An Example of Jordan and the Arab Spring

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Abstract

Recently, a growing interest in studying supply chain resilience has been observed in the academic literature. However, most of the research studying supply chain resilience has focused on short-term disruptions; the literature which focused on the long-term disruptions is mainly concerned with natural disasters, with just a few studies covering supply chain resilience in relation to man-made disasters such as major geopolitical changes, especially in the context of emerging economies.

This research aims at investigating factors impacting a company's performance in turbulent economic environments due to major geopolitical changes, trying to understand whether supply chain resilience practices can play a mitigating role in helping organisations to manage the unintended consequences of such major disruptions.

For this reason, the first step of this research involves a literature review aimed at identifying previous studies in this field, mainly in the context of emerging economies. The literature review identifies relevant factors impacting a company's performance and allows the development of a conceptual framework aimed at unveiling the relationships between supply chain resilience practices and firm performance practices in contexts characterised by major geopolitical disruptions.

The resulting conceptual framework has been studied in this research by applying it to the case of the Jordan economy in the context of the recent unrest that has characterised Arab countries. A mono-methods approach has mainly been used, based on 29 semi-structured interviews which have been conducted with business owners and top management of manufacturing companies in Jordan. Findings have been analysed according to thematic analysis.

In particular, the study aims at understanding: (i) whether companies have applied supply chain resilience practices throughout the last decade, and what are the most commonly adopted ones; (ii) whether the uptake of such practices has increased as a result of the recent geopolitical challenges; (iii) whether any link exists between the adoption of supply chain resilience practices and firm performance. Findings will be examined through the lens of institutional theory, in order to understand the influence of the broader external and institutional environment on the adoption of supply chain resilience practices.

Contents

Acknowledgements.....	2
Abstract.....	3
Contents	4
List of Tables	9
List of Figures	10
Declaration.....	11
Chapter 1: Introduction.....	12
1.1. An Example of a Major Man-made Disruption: The Arab Spring	14
1.2. Research Gap	17
1.3. Research Questions.....	17
Chapter 2: Literature Review.....	19
2.1. Business operations in turbulent environments.....	19
2.2. Supply Chain Management.....	22
2.3. Risk management and resilience.....	25
2.4. Supply chain resilience	28
2.5. Definition of Supply Chain Resilience and Supply Chain Resilience Criteria	30
2.6. Research Theory	32
2.7. Bibliometric Search	36
2.8. Firm Performance	40
2.8.1. Cost.....	41
2.8.2. Quality.....	41
2.8.3. Time	42
2.8.4. Flexibility.....	42
2.9. Arab Spring.....	42
2.10. Research Context	44
2.10.1. Relationships between Variables	45
2.10.2. Relationship between research variables and the Arab Spring	46

2.11. Conclusion	47
Chapter 3: Methodology	49
3.1. Introduction.....	49
3.2. Research Philosophy	49
3.3. Approach.....	50
3.4. Strategy	50
3.5. Choices for Data Collection.....	51
3.6. Time Horizon.....	51
3.7. Techniques and Procedures.....	51
3.8. Data Collection Method.....	52
3.9. Sample.....	53
3.10. Data Collection and Analysis Plan.....	54
3.10.1. Thematic Analysis.....	54
3.11. Data Collection Protocol.....	61
3.12. Data Collection	62
3.12.1. Semi-structured Interviews	62
3.12.2. Secondary Data	62
3.13. Institutional Theory.....	63
3.14. Research Ethics	64
3.15. Intended Research Contributions	64
Chapter 4: Interviewed Companies.....	65
Chapter 5: Analysis and Findings - Manufacturing Industry.....	128
5.1. Introduction.....	128
5.2. Companies General Information.....	129
5.2.1. Product type	134
5.2.2. Import of Raw Materials	134
5.2.3. Export to Customers.....	135
5.2.4. Company Size	139

5.3. Disruptions	139
5.4. Regulation changes	151
5.5. Supply chain resilience practices	159
5.5.1. SCR Practices Proactive Adoption.....	162
5.5.2. SCR Practices Reactive Adoption.....	167
5.5.3. Did nothing	176
5.5.4. Conclusion	176
5.6. Factors that led to adopting supply chain resilience practices	176
5.7. Performance	187
5.7.1. Profitability	190
5.7.2. Price	190
5.7.3. Sales	190
5.7.4. Cost	190
5.7.5. Revenue turnover	191
5.7.6. Quality.....	191
5.7.7. Production capacity.....	191
5.7.8. Flexibility.....	191
5.7.9. Number of employees	191
5.8. Positive impact.....	192
5.9. Support.....	194
5.10. Conclusion	195
Chapter 6: Discussion	197
6.1. Introduction.....	197
6.2. Supply Chain Resilience Practices.....	197
6.2.1. Cost	198
6.2.2. Marketing.....	198
6.2.3. Supplier/ Customers.....	199
6.2.4. Length and spread of the Supply Chain	199

6.2.5. Product/ Production.....	200
6.2.6. Financial.....	201
6.2.7. Knowledge/ Talent.....	202
6.3. The influence of Arab Spring.....	202
6.3.1. Arab Spring Influence - Influence Base.....	203
6.3.2. Arab Spring Influence - Sector Base.....	204
6.4. Theoretical Lens.....	206
6.4.1. Institutional Theory.....	207
6.5. Conclusion	219
Chapter 7: Conclusion.....	221
7.1. Implications.....	221
7.2. Research Limitations	224
7.3. Research Strengths.....	224
7.4. Future research.....	225
Appendixes	226
Appendix 1. Work Plan	226
Appendix 2. TNA Report	227
Appendix 3. Included papers classification dimensions	231
Appendix 4. Interview Questions	239
Appendix 5. Participation Cover Letter.....	241
Appendix 6. Participant Information Sheet	242
Appendix 7. Participant Consent Form.....	244
Appendix 8. Ethical Approval	245
Appendix 9. Sector Guide.....	246
Appendix 10. List of Abbreviations	249
Appendix 11. Manufacturing Industry – Basic Information.....	250
Appendix 12. Research Examples	252
1. Qualitative Data: Example 1: Food Sector.....	252

2. Qualitative Data: Example 2: Printing and Packaging Sectors.....	273
Reference	298

List of Tables

Table 1 - Main Events of the Arab Spring (Button, Martini and Scotti, 2016, p.533).....	15
Table 2 - Definitions of Supply Chain Resilience	30
Table 3 - Operation Management Theories	34
Table 4 - Search Keywords.....	37
Table 5 - Number of Companies in Jordan by sector (CCD, 2018).....	53
Table 6 - Question-Code Guide	58
Table 7 - Companies' General Information.....	131
Table 8 - Companies Size/ # Employees (OECD & SSC).....	139
Table 9 - Manufacturing Industry - Disruption Events.....	143
Table 10 - Countries' currencies' value in comparison to £ £1 (OANDA, 2023)	146
Table 11 - Manufacturing Industry - Regulation Change	154
Table 12 - Manufacturing Industry - Supply Chain Resilience Practices	161
Table 13 - Manufacturing Industry - Supply Chain Resilience Driver/ Barrier.....	180
Table 14 Manufacturing Industry - Supply Chain Resilience Driver/ Barrier and Practices	182
Table 15 -Manufacturing Industry - Performance	189
Table 16 - Manufacturing Industry - Support	195
Table 17 - Supply Chain Resilience Used Practices	197
Table 18 - Arab Spring Influence - Influence Base	203
Table 19 - Arab Spring Influence - Sector Base	204
Table 20 - Coercive isomorphism.....	209
Table 21 - Mimetic isomorphism	216
Table 22 - Normative isomorphism	218
Table 23 - Manufacturing Industry – Basic Information	250
Table 24 - Food Sector - Company General Information	254
Table 25 - Food Sector - Disruption Events	257
Table 26 - Food Sector - Regulation Change.....	258
Table 27 - Food Sector - Supply Chain Resilience Practices.....	261
Table 28 - Food Sector - Performance.....	265
Table 29 - Food Sector - Supply Chain Resilience Driver/ Barrier	267
Table 30 - Printing and Packaging - Company General Information	275
Table 31 - Printing and Packaging Sector - Disruption Events	278
Table 32 - Printing and Packaging Sector - Regulation Change.....	280
Table 33 - Printing and Packaging Sector - Supply Chain Resilience Practices.....	282
Table 34 - Printing and Packaging Sector - Performance.....	286
Table 35 - Printing and Packaging Sector - Support.....	290
Table 36 - Printing and Packaging Sector - Supply Chain Resilience Driver/ Barrier	291

List of Figures

Figure 1 - MENA Map	15
Figure 2 - Main Arab Spring Countries	16
Figure 3 - Research Framework	18
Figure 4 - Classifications of Supply Chain Risks (Ho et al., 2015, cited in Kumar et al., 2018, p. 463).....	21
Figure 5 - Example of a Supply Chain	24
Figure 6 - Articles on Resilience	36
Figure 7 - Bibliometric Search Keywords	37
Figure 8 - Bibliometric Search Process	38
Figure 9 - The Research Onion (Saunders et al., 2012).....	49
Figure 10 - The Data Collection and Analysis Flow	52
Figure 11 - The Data Collection Method.....	52
Figure 12 - General Comparison of the Interviewed Companies	129
Figure 13 - Import/export to Arab Spring Countries	137
Figure 14 - Manufacturing Industry - Disruption Events	141
Figure 15 - Manufacturing Industry - Regulation Change.....	153
Figure 16 - Manufacturing Industry - Supply Chain Resilience Practices.....	160
Figure 17 - Manufacturing Industry - Supply Chain Resilience Drivers/ Barriers	178
Figure 18 - Manufacturing Industry – Performance	188
Figure 19 - Manufacturing Industry – Support.....	194
Figure 20 - Arab Spring Influence - Influence Base.....	203
Figure 21 - Arab Spring Influence - Sector Base.....	204
Figure 22 - Coercive isomorphism	208
Figure 23 - Mimetic isomorphism	216
Figure 24 - Normative isomorphism.....	218
Figure 25 - Research Timescale	226
Figure 26 - The Number of Establishments Operating in the Food Sector During the Years 2010-2018	252
Figure 27 - Production Volume of the Food Sector - Million JOD	252
Figure 28 - Exports of the Food Sector - 2010-2018 Million JOD	253
Figure 29 - C10 Shipping before Arab Spring.....	256
Figure 30 - C10 Shipping after Arab Spring.....	256
Figure 31 - Food Sector - Supply Chain Resilience Practices	261
Figure 32 - Food Sector - Performance	265
Figure 33 - The Number of Establishments Operating in the Printing & Packaging Sector During the Years 2010-2018.....	273
Figure 34 - Production Volume of the Printing & Packaging Sector - million JOD	273
Figure 35 - Exports of the Printing & Packaging Sector - 2010-2018 million JOD	274
Figure 36 - Printing and Packaging Sector - Supply Chain Resilience Practices	282
Figure 37 - Printing and Packaging Sector – Performance.....	286

Declaration

I, Lubna Al-Zoubi, confirm that the Thesis is my own work. I am aware of the University's Guidance on the Use of Unfair Means (www.sheffield.ac.uk/ssid/unfair-means). This work has not previously been presented for an award at this, or any other, university.

Chapter 1: Introduction

During the Autumn of 2010, turmoil started in the Arab world. A series of riots and demonstrations took place first in Tunisia, before spreading out to other countries in the region; this phenomenon was quickly branded by media as Arab Spring (BBC, 2013). Arab Spring was an upraised wave of strikes that started at the end of 2010 across the Middle East and North African Region (MENA) due to deteriorating living conditions and political repression (Elzarka, 2013).

The implications and consequences of this phenomenon were deep and profound, affecting not just the countries where changes in the regime took place, but also surrounding countries, due to the high cultural integration of the Arab world and the strong commercial and trading links which exist among such countries (Elzarka, 2013; The World Bank, 2016). This had wide supply chain implications such as the closure of the Syria-Jordan border (2015), with business trade between Syria and Jordan declining by 37% in the first year of the turmoil (2011), cessation of business trade between Jordan and other countries passing through Syria, and materials' flow disruptions.

This turmoil can be classified as a political risk (Ianchovichina and Ivanic, 2016; Darendeli et al., 2021). When this risk causes uncertainty and complications for the companies working under it, they consider this risk as coming from a nonmarket environment to which they are exposed and that determines their international business success (Frynas and Mellahi, 2003; John and Lawton, 2017; Darendeli et al., 2021).

Within this context, supply chains were severely affected by instability and uncertainty (Eqtsad.net, 2014; Barq-rs, 2016). It can be said, then, that the Arab Spring represents a typical example of a long-term disruption, which can have deep implications for supply chains that operate within the region, especially in the manufacturing industry (Barq-rs, 2016). As such, supply chain resilience can represent a crucial set of practices that can help companies within affected supply chains cope with difficult and uncertain times without experiencing a dramatic worsening in their performance (Barq-rs, 2016).

Indeed, supply chain resilience is a relatively new topic that has gradually emerged from supply chain risk management literature. Supply chain risks' ramifications on companies' performance have drawn the attention of both researchers and industry practitioners in the supply chain management field (Sreedevi and Saranga, 2017).

Recently, the supply chain has become a topic of great interest not only in academia but also for practitioners, especially since nowadays companies are facing a lot of pressure from their varied stakeholders and have to deal with community activists, government regulation, non-governmental organisations, and competition on a global level; hence, companies have had to adopt supply chain sustainability practices (Hassini et al., 2012). Therefore, they have started to study and implement supply chain resilience as it might play a mitigating role in managing the effects of disruptions in the often-turbulent economic environments in which these organisations operate.

Meanwhile, supply chain sustainability practices can be defined as the organisation's ability to run its operation while maintaining the environment, the society and the economy as a long-term goal (Hassini et al., 2012). Having a sustainable supply chain has hence become the focus of companies all over the world (Gunasekaran et al., 2014).

Adopting supply chain sustainability drives to attention the multiple conflicts that the companies might face while trying to gain profit, run their operation, care for society, maintain the environment, and satisfy their stakeholders (Gunasekaran et al., 2014; Robertson et al., 2013; Hassini et al., 2012; Holweg and Pil, 2008). Therefore, companies must work on managing their supply chain in order to keep the balance of all those aspects so they can have a sustainable supply chain. Keeping this balance and working on managing the supply chain is the responsibility of the decision-makers in the companies

who are supply chain managers who should be working on determining to whom to allocate available resources and what to do with them in order to reach supply chain resilience (Brusset et al., 2017). Knowing that those managers should keep in mind that such decisions vary from one sector to another (Hassini et al., 2012).

Supply chain managers are responsible to manage the whole supply chain throughout its three phases which are supply, manufacturing, and distribution (Gunasekaran et al., 2014). This has an effect on increasing product complexity which arises from customer needs and required component parts that have a major role in global supply chain capabilities building (Gunasekaran et al., 2014). Product complexity could arise from upstream, internal manufacturing, or downstream complexity which could have a negative influence if the company does not manage it in an effective way (Bozarth et al., 2009). Manufacturing companies are forced to effectively manage their supply chain when working in a highly uncertain and complex business environment so as to improve their reactivity and efficiency (Thun and Hoenig, 2011). Therefore, companies are facing a big challenge in order to manage the complexity of their products (Gunasekaran et al., 2014).

Managing the complexity of the supply chain demand can be done by integrating global uncertainty sources and how they can affect the supply chain, in order to find appropriate solutions (Gunasekaran et al., 2014). This can be done by finding the right strategy to implement (Hitt, 2011). Or in other words, managing the risk of the supply chain. This can be defined as finding possible risk sources and adaptation of appropriate strategies throughout the whole supply chain in order to reduce its vulnerability (Jüttner et al., 2003). However, about 60% of managers are not satisfied with their company's risk management practices or have not worked on any supply chain risk management practices (Kamalahmadi and Parast, 2016; Sáenz and Revilla, 2014). This could be because risk management practice is being developed according to risk statistics and identification; however, some of the risks are hard to predict or even unpredictable and companies cannot find out about them as there is no related information (Kamalahmadi and Parast, 2016; Fiksel et al., 2015) regarding risks such as man-made disruptions.

Managing the supply chain is one of the managerial challenges that companies face that has an influence on their performance (Altay and Ramirez, 2010). Therefore, managers should work on its efficiency in order to increase the resilience of the supply chain and potentially overcome the economic disruption that it faces. These disruptions, which could be natural or man-made, will have an influence on the performance and therefore companies' profitability (Brusset et al., 2017; The Economist, 2009). Some examples of disruptions, according to Thun and Hoenig (2011), have different levels of influence on companies, including losing a supplier or a customer, quality issues, or catastrophes such as Tsunami, Hurricane Katrina, the 9/11 attacks, Arab Spring, the latter being the case study of this research.

While the literature on the topic can be considered abundant, there is a specific need for detailed studies dealing with supply chain resilience in the context of major man-made disruptive events such as terrorist attacks, outbreaks, and regime changes (Elzarka, 2013). Considering the enduring political risks in some of the countries in the MENA region (Elzarka, 2013), such a need becomes even more relevant for this specific geographical area. Also, there are only a few articles focusing on the influence of such political disruptions on companies' performance (Cumming et al., 2016; Lau and Lo 2015; Ünlü and Alshebami, 2022). The research attempts to address this research gap.

This study also stems from some practical needs. Indeed, by investigating the impact of supply chain resilience practices on firm performance, the research will highlight what companies should do in order to become more flexible, competitive, and thrive in turbulent times; as such, the study is also relevant to governments and trade bodies in the Arab regions, which could better understand how to support companies through appropriate measures when big geopolitical risks are foreseen.

The first step of this research involves a literature review aimed at identifying previous studies in this field, mainly in the context of emerging economies. The literature review identifies relevant factors impacting a company's performance and allows the development of a conceptual framework aimed at

unveiling the relationships between supply chain resilience practices and firm performance practices in contexts characterised by major geopolitical disruptions.

The resulting conceptual framework has been tested in the next phase of the research, by applying it to the case of the Jordanian economy in the context of the recent unrest that has characterised Arab countries. Even if Jordan can be considered a relatively stable country which was not directly affected by the Arab Spring events, given the strong trade and supply chain links it had with other countries in the region (notably, Syria and Iraq), it provides an ideal scenario for testing the impact of supply chain resilience on firm performance in the context of major man-made disruptions which are related to geopolitical changes.

A mixed-method approach (composed of financial statements and semi-structured interviews) has been employed; findings have been analysed according to performance ratios (for data collected through the financial statements) and thematic analysis (for data collected through semi-structured interviews).

The idea for this research came from the empirical field. The researcher decided to study this turmoil when her uncle, who is a Syrian manufacturer, was no longer able to enter Jordan to present his products and sign contracts with companies in Jordan due to the closure in 2015 of the Syrian borders and the restrictions that the Jordanian government subsequently placed on any Syrian trying to enter the country even if they held a manufacturer's licence. This has led to the researcher becoming the connecting point between the manufacturer in Syria (her uncle) and the companies in Jordan, which has helped her to make a close examination of the struggles that this supply chain has faced, how those parties have reacted to them, and how this has eventually led to the stopping of dealing with the Syrian manufacturers and starting to deal with other manufacturers inside or outside Jordan.

This document will be organised as follows. The following Chapter 2: Literature Review will focus on an analysis of the previous literature on supply chain resilience, highlighting research gaps and identifying some related research questions. Then, the Chapter 3: Methodology will provide details about the research approaches which have been employed in order to address these research questions. This will be followed by Chapter 1:Chapter 4: Interviewed Companies will provide information about the interviewed companies. Then Chapter 5: Analysis and Findings - Manufacturing Industry that will present the research findings. Chapter 6: Discussion which will include the research's limitations and strengths, and finally 0

Conclusion to this study.

1.1. An Example of a Major Man-made Disruption: The Arab Spring

At the end of 2010, an upraised wave of strikes started across the Middle East and North African Region (MENA), due to deteriorating living conditions and political repression (Elzarka, 2013). The Arab Spring is considered a political upheaval whereby citizens of a few Arab countries struck against the regimes in their countries to fight for dignity, democracy, fair governance, and human rights (Beissinger et al. 2012, Roy, 2012, Veninga and Ihle, 2018). The transformations that followed shook the foundations of a variety of Middle Eastern regimes and are broadly grouped under the term Arab Spring (Rózsa, 2012). With regard to the impacts on companies' operations, Arab Spring has been defined as follows: *“General chaos during the political instabilities suddenly caused high uncertainty for consumers and traders, and temporarily rendered institutions dysfunctional. This eventually might have led to a negative market shock, impeding economic activity in general and, in particular, trade”* (Veninga and Ihle, 2018, p. 183).

The Arab Spring began in Tunisia on 18th December 2010. It subsequently spread to other Arab countries (Egypt, Algeria, Bahrain, and Libya, among others), where major political changes happened.

The Arab Spring spread from one country to another due to the fact that they are neighbouring countries that share much in terms of living conditions and ties (see Figure 1). Although most of those countries have to some extent faced the Arab Spring, as shown in Table 1, a few countries have suffered more severe consequences than the others. Figure 2 points out the main countries that have faced the Arab Spring and their locations in comparison to Jordan (The current research example).

Figure 1 - MENA Map

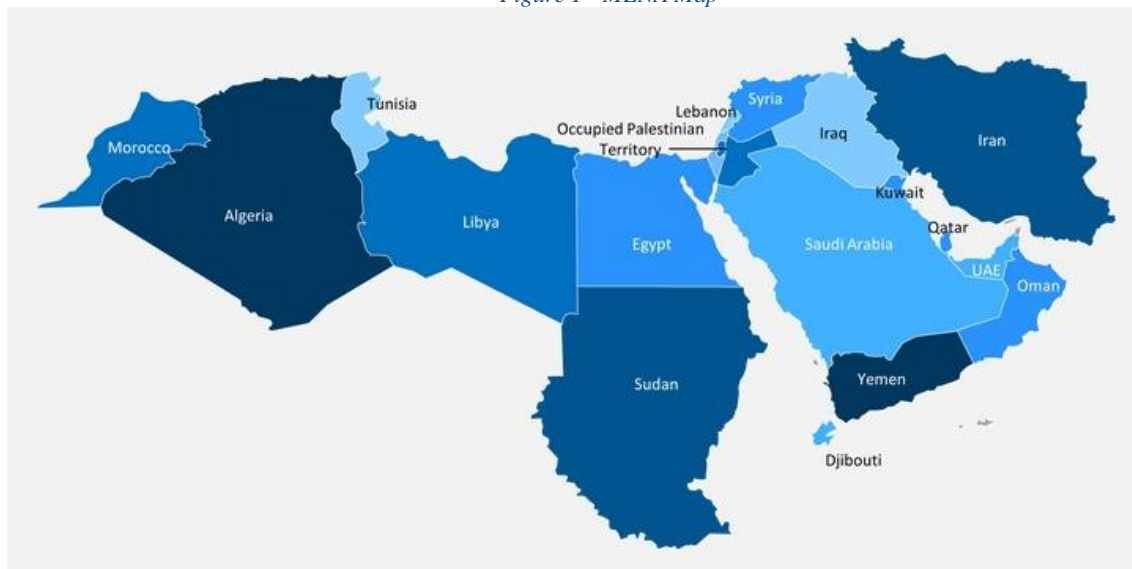
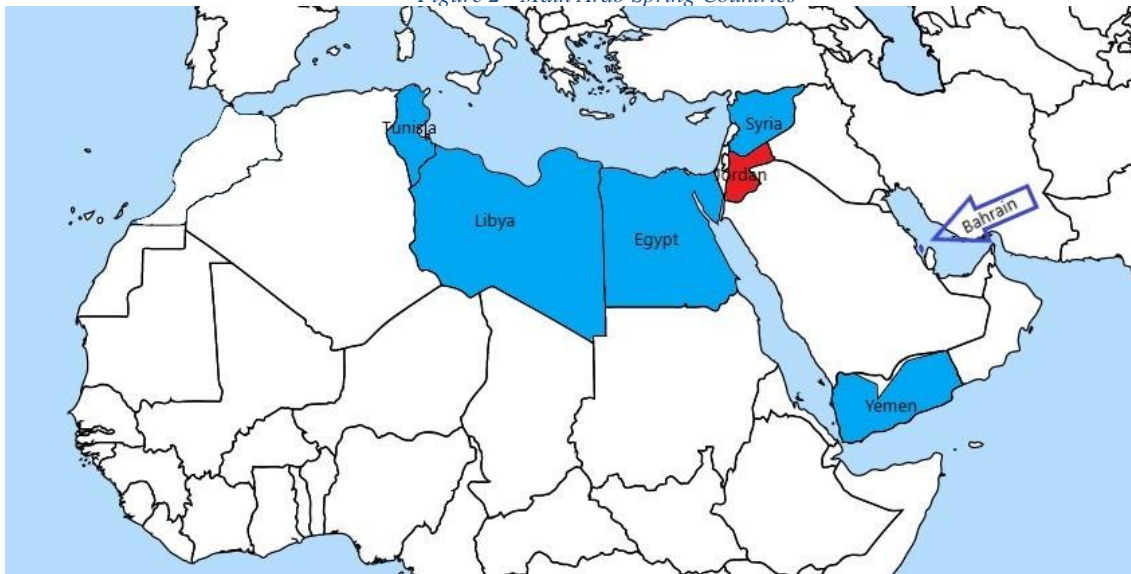


Table 1 shows which countries faced the Arab Spring and when it started in those countries.

Table 1 - Main Events of the Arab Spring (Button, Martini and Scotti, 2016, p.533)

Country	Starting date	Notes
Tunisia	18 December 2010	Government overthrown, 14 January 2011
Algeria	29 December 2010	Ended, January 2012
Jordan	14 January 2011	Ended
Oman	17 January 2011	Ended, May 2011
Egypt	25 January 2011	Governments overthrown February 2011 & July 2013. Ongoing civil war
Yemen	27 January 2011	Governments overthrown February 2012 & January 2015. Ongoing civil war
Djibouti	28 January 2011	Ended, March 2011
Somalia	28 January 2011	Ended
Sudan	30 January 2011	Ongoing
Iraq	12 February 2011	Ended January 2014
Bahrain	14 February 2011	Ongoing
Libya	17 February 2011	Government overthrown, 23 August 2011
Kuwait	19 February 2011	Ended, December 2012
Morocco	20 February 2011	Ended, March/April 2012
Mauritania	25 February 2011	Ended
Lebanon	27 February 2011	Ended, December 2011
Saudi Arabia	11 March 2011	Ended
Syria	26 January 2011	Ongoing
Iranian Khuzestan	15 April 2011	Ended, 18 April 2011

Figure 2 - Main Arab Spring Countries



Main Arab Spring Countries (The National, 2011; Britannica, 2013; Thoughtco, 2019; National Geographic, 2019; Council on Foreign Relations, 2020; Aljazeera, 2020; The Guardian, 2021):

Tunisia: Tunisia was the first country to experience the Arab Spring, in late 2010. It started after the death of a street vendor. It resulted in President Zine al-Abidine Ben Ali stepping down and fleeing the country.

Egypt: Egypt's turmoil got its inspiration from Tunisia in early 2011. This turmoil has been driven and organised through social media. The turning point for this turmoil was when the Army joined the protesters, leading to the removal of Hosni Mubarak.

Yemen: Yemen's turmoil started in early 2011 as well. The situation escalated when the protesters were joined by the country's most powerful tribal and military leaders in demanding for Ali Abdullah Saleh to step down. This led to clashes between fighters (supporters versus protesters), resulting in Salah leaving the country to receive medical treatment for injuries from a bomb attack. The protesters started

to make the transfer during his leave, which led to his unexpected return to stop this transfer. Two months later he signed an internationally mediated agreement to transfer the power to the vice president at that time, who stepped up right away but was not able to improve conditions or maintain stability, which led in 2014 to armed confrontation and rebellion that devolved into a civil war.

Bahrain: Bahrain's turmoil started in early 2011 when protesters demanded political and economic reforms. However, Bahrain relied on its security forces in addition to the Gulf Cooperation Council security forces to violently suppress the protesters, leading to the conviction of the protesters' leaders, the suspension of the protesters' supporters, and the demolishing of mosques related to those protesters (Shi'i). Later that year, an independent investigation found that the government had used excessive force and torture against protesters. While the government followed some recommendations from the investigating commission, they carried on with the excessive force and torture against protesters in the following years.

Libya: Libya's turmoil also started in early 2011, with demands for Muammar Al-Qaddafi to step down; however, this turmoil rapidly escalated to become an armed revolt. A month later NATO launched a campaign of air strikes targeting Qaddafi's forces in favour of the rebel force. A few months later Al-Qaddafi fell from power, and two months later the rebel forces killed him. The Transitional National Council took power in the country later, but they were not able to exert authority, leading to a civil war in 2014.

Syria: in the first quarter of 2011 protesters started to demand the resignation of Bashar al-Assad. His regime's crackdown on the protesters was so brutal that it drew condemnation of the Syrian government from human rights groups and international leaders. However, Al-Assad managed to stay in power by relying on critical military units from his minority tribal group (Alawites); also, there was little possibility of international military intervention due to the divisions in the international community. This has led to a continued escalation in violence, resulting in civil war, a massive refugee crisis, and the rise of the Islamic State of Iraq and Syria (ISIS).

Just before the Arab Spring, six countries in the great Levant (Turkey, Lebanon, Syria, Jordan, Iraq, and Egypt) were reforming agreements to deepen their business trades, create jobs, increase diversification, and accelerate their economic growth (Ianchovichina and Ivanic, 2016). Four out of those six countries had already signed an agreement in July 2010 which is called the "*Close Neighbors Economic and Trade Association Council (CNETAC)*" (Ianchovichina and Ivanic, 2016).

Such man-made disruptions had a wide impact on industrial and trading systems; even though this disruption is itself considered a political one, it has had large consequences for companies in respective affected countries as well as beyond. This turmoil in the MENA countries had a high influence and increased the risk to business not only for the directly affected nations but also for businesses in other countries that are part of the wider supply chain (Elzarka, 2013). Supply chains have been impacted in various ways since the turmoil. This high and sudden uncertainty caused by this turmoil came from multiple factors, such as doubts over receiving payments for materials or products, ability to receive the products, and delays through the supply chain, all of which have led to an increase in prices (Veninga and Ihle, 2018). For instance, the delivery of raw materials has been delayed or extra tax has been levied due to enforced changes in the route for shipping them from their source to the final destination; raw materials have been plundered as a result of a lack of security; materials have been of lower quality or even unavailable because of the delay in receiving the components or not receiving them at all, while the firms want to keep to their deadlines and continue selling their products. Increased competition also had an impact of forcing companies to innovate and be more creative to attract clients.

This research will focus specifically on the impact on companies in Jordan's manufacturing industries which have survived the turmoil period (in business since before 2011), as the unit of analysis for this research.

1.2. Research Gap

This research targeted the gap in research with regard to supply chain resilience practices and how they influence the company's performance and existence, with a focus on studying the influence of disruptions on companies. Some researchers have already studied this topic, but they have done it largely from the perspective of natural disasters, with few researchers looking into man-made disruptions. Also, the case study company for this research is based in one of the Middle East countries (Jordan) where there has been a lack of research on this topic and such research is hard to conduct.

1.3. Research Questions

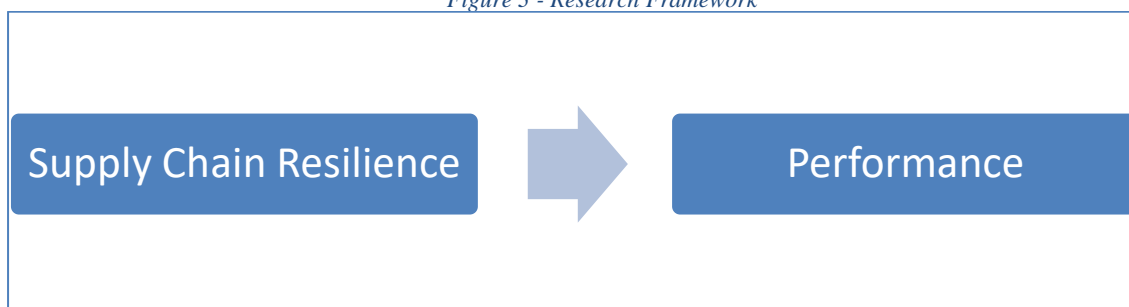
The research gap shows that there is a lack of research studying the impact of supply chain resilience on firm performance, particularly research with an explicit emphasis on the consideration of a context characterised by high instability due to man-made disasters. Also, there is a lack of studies considering such issues within emerging economies, especially in the Arab world. As such, the research question can be formulated as follows:

How does supply chain resilience influence a firm's performance within a turbulent economic environment?

The main research hypothesis, which has been tested through the following empirical study, based on the previous literature review (see Figure 3), is that there is a direct relationship between the supply chain resilience capabilities of a firm and its performance. However, this research has tested this relationship when companies are facing a long-term disruption to see if the strength of this relationship could be affected by this disruptive event.

In order to address the gaps, the research question has been addressed with an empirical study focused on a turbulent economic environment resulting from man-made disasters resulting from geopolitical changes (the Arab Spring) in an emerging country context (Jordan); the setting of the study and the unit of analysis will be described, in detail, in the Chapter 3: Methodology.

Figure 3 - Research Framework



This research question has been inspired by institutional theory; it can be thought, indeed, that the institutional environment can strongly influence the adoption of resilient supply chain practices by firms in order to survive in the market, especially under unexpected circumstances such as those experienced in the case of turbulent economic conditions caused by man-made disruptions. In addition, focal firms could influence suppliers to adopt resilient practices throughout the supply chain, based on an isomorphism process (Ketchen and Giunipero, 2004).

Chapter 2: Literature Review

This chapter provides the needed literature background for the development of this research project. This chapter consists of 11 sub-sections; it starts by providing an overview of business operations in turbulent environments, then provides an introduction to the concept of supply chain risk management, then supply chain resilience, theories that research can rely on to study its variables, followed by a discussion of how supply chain resilience can affect companies' performance in turbulent environments, and then looks at one of the geo-political disruptive events that might influence the relationship between supply chain resilience and firm performance. The chapter also outlines the conceptual framework which will serve as the basis for the research project and the related empirical study.

2.1. Business operations in turbulent environments

Supply chains have witnessed major changes over the past decades due to increased globalisation and innovation. This resulted in a higher level of interconnectedness throughout the supply chain which increased its complexity (Kamalahmadi and Parast, 2016), with interdependency and integration in the supply chain, therefore, increasing the chance of it being affected by disruption events (Thun and Hoenig, 2011).

Nowadays firms are not only operating in a very competitive global environment but are also increasingly facing a wide range of risks. These may constitute environmental risks, including natural disasters, or so-called man-made risks, such as wars, terrorist attacks, and political and social disorders. Firms are particularly vulnerable to risks that are deemed uncontrollable or difficult to predict (Longo and Ören, 2008), as these risks may cause particularly severe disruptions to businesses' operations and the wider economic environment.

In today's competitive environment, most companies work in supply chains. This is a difficult environment in which to operate as companies have to deal with significant uncertainty coming from all the environments that their supply chain is working within, upstream and downstream, in addition to the environmental uncertainty due to the interconnectedness of those chains (Sreedevi and Saranga, 2017). Therefore, companies and supply chains need to keep communicating, exchanging information, and having the required level of collaboration so they can strengthen and empower their business to find better external parties and compete in the global market (Cutting-Decelle et al., 2007). Therefore, companies are always searching for new and improved ways to become more competitive throughout their supply chain, thereby increasing profitability by improving quality, increasing productivity and reducing costs (Sakka and Genoulaz, 2009). Consequently, the organisation must implement actions to build a solid business in order to continue operating in the market regardless of the issues they are facing. They can do this by evaluating the external factors that could harm their organisation by damaging it, shutting it down or even putting it out of business (Landgraf, 2012) to reduce the complexity and the uncertainty of its environment. For instance, Huawei phone company suffered damage when the US government stopped its permission for Huawei to continue using google applications. Huawei continued using Android OS without those applications and started to develop its own operating system, it also launched a website to address its customers' concerns regarding its relationship with Android (BBC, 2022). Sony Ericsson's handset shipments significantly fell due to their poor marketing strategy and failure to provide more developed mobile phones while their competitors were continuously doing so. This has led Sony to acquire Sony Ericsson and Ericsson to focus on its core wireless equipment business (CBC, 2022). As for Nokia, it used to be the market dominator until it failed to anticipate that iPhone and Samsung would replace it in the market due to having a wider vision and changing the way of using mobile phones, which led to Nokia being sold off to Microsoft (BBC, 2022).

Globalisation and practices such as outsourcing, offshoring, just-in-time delivery, and lean supply chain management, whilst aimed at gaining greater competitive advantage, also increase the supply chain complexity (Thun and Hoenig, 2011) and companies' dependencies, making companies more vulnerable to risks and disruptions. This also increases the risk of supply interruptions, and manufacturing and delivery delay that affect the company's reputation and sales and eventually lead to poor financial performance (Sreedevi and Saranga, 2017). Such interdependence of companies within the supply chain allows the rapid spread of disruption through that chain (Abe and Ye, 2013). In addition, with companies being located in different geographical locations, disasters can cause substantial disruptions beyond the geographical boundaries of their place of origin. This can be illustrated by the 2008 financial crisis, which started in the United States but quickly became an international economic crisis, severely damaging financial institutions and businesses globally (Erkens et al., 2012).

Disruption was defined by Ruiz-Benítez et al. (2018) as unanticipated events that negatively affect companies' activities, the flow of products, raw materials, and components through the supply chain. This kind of event is considered uncertain and can happen due to different reasons, whether physical, personal, information crisis, environmental, terrorism, or political instability. Disruption can also be short-term or long-term (Namdar et al., 2017). Long-term disruption can expand the geographical boundaries of its starting place through the supply chain (Abe and Ye, 2013). Managers try to become resilient to minimise the negative impact of such events (Ruiz-Benítez et al., 2018; Brusset and Teller, 2017). Those disruptive events are considered different-level risks that companies are facing.

Sreedevi and Saranga (2017) define supply chain risk as the company's deviation from its initial objectives that has an impact on its value, which can occur through disruption or operational risk. According to Kamalahmadi and Parast (2016), companies go through three phases when looking at risks which are: anticipation, resistance, and recovery. In addition, supply chain managers work on predicting disruptions that might happen in the future with all the possibilities (high or low) which will make it easier for the company to be resilient when such disruption happens and to recover from it in a faster and more efficient way and might also give the company a competitive advantage.

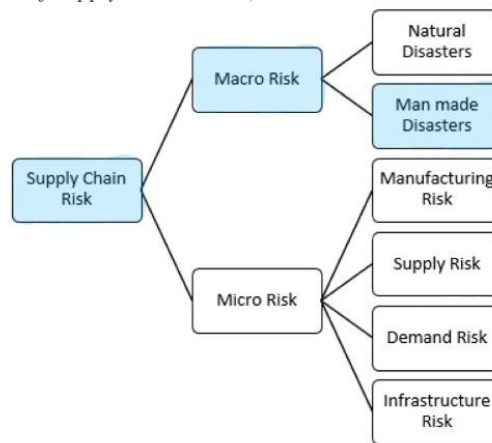
Interest in studying supply chain disruptions has increased due to events such as Hurricane Katrina and 9/11. Although such events could have a positive impact on companies if used to give them a competitive advantage, companies should be aware of the potential consequences (Schmitt and Singh, 2012). For instance, although the 9/11 attack had a negative economic impact on most American companies, companies like Walmart that sell flags have benefitted as there was a significant increase in demand for them which directly impacted their profits. Supply chain disruption could affect companies' performance and cause financial losses, harm their reputation or create a negative image which could cause a reduction in the demand level (Thun and Hoenig, 2011).

Researchers have classified disruptions in multiple ways; for instance, researchers like Sheffi (2005) classify disruptions faced by companies into three types, i.e. international, such as terrorist attacks, accidents like the Chernobyl disaster, or random, such as earthquakes (Sheffi, 2005). While Ho et al. (2015) and Kumar et al. (2018) classify them under two categories: macro risks such as natural and man-made disruptions and micro risks such as infrastructure, supply, demand, or manufacturing disruptions, as shown below in Figure 4. While other researchers, including El Baz and Ruel (2021), Xu et al. (2020), Namdar et al. (2017), and Thun and Hoenig (2011) propose two categories of disruptions. First of all, short-term disruptions, which are operational disruptions caused by risks from within the supply chain, may relate to poor coordination between the level of supply and demand, demand fluctuations, failure of a machine, quality of the goods, delivery bottlenecks, high inventories, lead-time, or inefficient capacity utilisation. As these short-term risks arise from within the company, they can be managed to a certain extent; the company can fix a broken machine, it can enhance the quality of the goods and so on (Namdar et al., 2017; Thun and Hoenig, 2011). Therefore, short-term or operational risks are also often considered low-impact high-frequency risks (LIHF) (Namdar et al., 2017; Pettit, 2019). On the other hand, long-term disruptions are disruptions that are caused by risks outside of the company and the wider supply chain. These disruptions have long-term social and

economic impacts on the business and the economic environment in which they operate and concern risks such as the natural or man-made disasters mentioned above. Considering the difficulty of assessing their probability and impact (Namdar et al., 2017; Thun and Hoenig, 2011), they are also referred to as high impact low-frequency risk (HILF) (Namdar et al., 2017; Pettit, 2019). Long-term disruptions are considered particularly difficult to avoid and indeed if they materialise, they are hard to recover from.

Those different ways of classifying disruptions do not mean that those are different disruptions; it only means that those researchers are looking at it from a different angle. Some researchers classify it based on the cause of disruption (international, accidents, or random), others classify it based on the level of impact (macro-risk or micro-risk), while another researcher may classify it based on the duration of the impact (short-term or long-term).

Figure 4 - Classifications of Supply Chain Risks (Ho et al., 2015, cited in Kumar et al., 2018, p. 463)



While there have been some studies on the impact of short-term operational disruptions on companies in the Arabian region, few studies have addressed the impact of long-term disruptions (Elzarka, 2013).

Long-term disruptions may affect firms directly when they are located in the country facing the disaster, resulting in high domestic losses due to infrastructure damage, a decline of small and medium enterprises, or increasing levels of unemployment among other effects (Abe and Ye, 2013). There may also be an indirect effect, when the disaster disrupts firms located outside of the country facing the disaster, for example, on firms that are part of the supply chain. This may cause production losses, price swinging and concerns regarding (the level and amount of) new investments (Abe and Ye, 2013). Often these indirect effects influence the wider regional economic area, as was the case with the disasters in Japan and Thailand which caused large disruptions nationally as well to the Asia-Pacific region at large (Abe and Ye, 2013).

Due to the high impact and low-frequency character of long-term disasters, it is challenging for firms to select an appropriate response. In general, firms may adopt an ex-ante or ex-post response, a response before or after the disaster occurs, respectively. With an ex-ante response, the firm adopts strategies to reduce the effect of the disaster, and this is often seen as more effective than ex-post responses. Moreover, Abe and Ye (2013) argue that ex-post response policies may lead to welfare loss and interferences with the firm’s operational continuity due to problems with the flow of financial resources and information through the supply chain.

As an example of an ex-ante strategy, companies could assess their level of risk exposure within the supply chain and evaluate the level of tolerance for the risk (Schmitt and Singh, 2012), that is, whether they will be able to recover from the disruption. For example, Tang (2006) showed that companies aim to adopt a widespread supply chain, engaging with companies in different regions. Similarly, Todo et al. (2015) find that having a higher number of suppliers and clients outside of the affected areas of the disruptive events helps companies reduce the time necessary to recover from disasters. While it might only have a weak effect on the medium-term growth of sales, it allows companies to keep operating.

In a sense, ex-ante responses are aimed to make the firm and wider supply chain more resilient to the impact of the disaster. The following section will discuss the key characteristics of supply chain resilience as a key success factor for companies that operate in a turbulent environment.

Researchers and practitioners are giving supply chain resilience priority in their research as the global supply chains are very sensitive to disruptive events which are considered hard for them to manage in relation to their businesses as there is a lack of research based on a validated measures model that practitioners can rely on to help them figure out how they should manage their businesses (Brusset and Teller, 2017). Meanwhile, a supply chain design is needed that is considered to be both efficient and resilient to disruptions (Kamalahmadi and Parast, 2016). This has raised the interest of researchers in the influence of disruption on the supply chain resilience and disruption's impact on the company's competitive advantage (Pettit, 2019).

The level of influence on a company due to disruptive events can vary not only according to companies' supply chain resilience but also can be influenced by industry characteristics, company size, company location, and type of products (Gunasekaran et al., 2014). Firms can have different levels of resilience when reacting to the same disruption events (Sheffi, 2005; Longo and Ören, 2008) since the influence of disruption depends on both the incident itself and the design of the supply chain from suppliers to a company and to customers (Thun and Hoenig, 2011). Additionally, disruption has a higher impact on cultures with a low tolerance for uncertainty (Abdelzaher et al., 2017).

2.2. Supply Chain Management

The supply chain management concept was first introduced in the 1980s by consultants and then started to attract enormous attention (Chen and Paulraj, 2004; Cooper et al., 1997). Traditional supply chain management that used to be known as materials and distribution management became a broader strategic approach for purchasing and logistics functions (Tan, 2001; Cooper et al., 1997).

The importance of supply chain management increased in the 1990s among both researchers and practitioners as a result of globalisation and the trend of companies to transfer from manufacturing to retailing (Zhou and Benton, 2007; Min et al., 2019).

Globalisation has increased the need for managing the supply chain and has been a source of risks; however, it has also provided plenty of development opportunities for companies (Dubey et al., 2021). Due to the increase in competition between companies, customers have started to expect higher product value and more customised products to satisfy their special needs and requirements (Tan, 2001; Min et al., 2019, Wijethilake & Lama, 2019; Centobelli et al., 2019).

As a result, a supply chain is no longer considered a relationship on a one-to-one or business-to-business basis, but it has become more like an interconnected complex network of multiple relationships (Ali, 2008; Wijethilake & Lama, 2019; Centobelli et al., 2019). This is considered a change to the management of modern businesses that are now competing as supply chains (suppliers, brand, and store) rather than solo entities (Chen and Paulraj, 2004; Ali, 2008; Dubey et al., 2021). Therefore, supply chain management helps to manage and moderate this complicated relationship from the beginning to the end: planning, designing, developing, sourcing, manufacturing, fabricating, assembly, transportation, warehousing, distributing, and after-sale support (Tan, 2001; Ali, 2008).

The level of management varies from one part of the supply chain to the other; this variety can come from a number of factors such as raw material availability, number of suppliers, number of customers, product complexity, and the length of the supply chain (Ali, 2008).

Looking at definitions since researchers first began to define supply chain management, it can be seen that there is an agreement on the meaning and definition of supply chain management which means that

those definitions could be considered to have some level of unity among them. For instance, Cooper et al. (1997) have defined it as the conjunction of the main supply chain processes of the business. While Ali (2008) defined it as multiple relationship management across the supply chain, extending from the suppliers to the end customers, by providing information, products, and services that play a key role in increasing stakeholders' value. Ayers (2001) defines it as the coordination of business operations within the company and throughout its supply chain in order to improve its performance in each part and as a whole. And Min et al. (2019) define it as companies' operations strategically coordinated inside the company and through its supply chain for it to enhance the performance of those parties.

The definition of supply chain management with which the researchers agree highlights the importance of relationships within the supply chain. Therefore, companies tend to have strong ties and commitment with parties in their supply chain, in order to maintain these relationships for as long a period of time as possible. Such strong relationships have a better chance of continuity during disruption (Korbi et al., 2021), which again helps the company to operate in a more efficient way.

An efficient operating company means that this company has a competitive capability resulting in a competitive advantage over its competitors (Singh and Singh, 2019). This means if a company's management has the ability to integrate their complex supply chain, they could benefit from the competitive environment that they are in and achieve great success (Ali, 2008).

Competition and the quality of the raw materials are not the only aspects that should be managed through the supply chain. There are other risks that the companies might face and need to keep an eye on. Companies need to know whether or not they can trust their suppliers and what is the possibility of those suppliers passing sensitive information about their business trades to the competitors or even for those suppliers to move forward on the supply chain and become competitors for the company (Tan, 2001).

Companies, therefore, try to cope with this globalisation and competition by increasing their level of customisation to follow end customers' requirements for production, additional product features with no extra charges, and/ or producing under a private label for their customers (Min et al., 2019). Companies can rely on a number of sources to figure out how to increase the customisation of their products. For instance, they can rely on coordination between the company's departments, they can rely on the marketing and sales departments' inputs, their research and development department, their production department, or even other parties from across their supply chain (Min et al., 2019). As successful supply chain management requirements for all the processes and operations within the supply chain to work simultaneously (Ali, 2008).

Singh and Singh believe that it is quite important for a supply chain to work simultaneously, as the working environment for the companies cannot be controlled, since this environment could cause different risks and disruptions (2019). However, working in the supply chain itself could be considered as a cause for more risks, as every part within the chain comes with its own risks that might cause unexpected disruptions to the whole chain and the probability of facing disruption is increasing (Dubey et al., 2021). The source of disruption could be due to natural risks or man-made risks (Centobelli et al., 2019, Singh and Singh, 2019, Dubey et al., 2021). Therefore, the key to mitigating those risks is to be able to manage the whole supply chain (Dubey et al., 2019; Dubey et al. 2021).

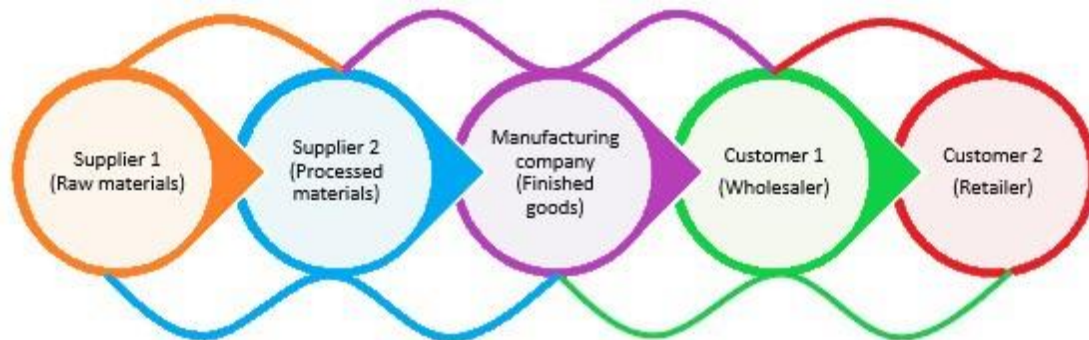
There are a variety of natural risks or man-made risks that any company might face. Some examples of those risks could be floods, earthquakes, hurricanes, explosions, strikes, terrorism attacks, or political crises (Singh and Singh, 2019; Dubey et al., 2021). This indicates that the companies are no longer only facing the traditional disasters such as operational disruption, therefore, the management needs to put more effort into the development of its management strategy (Singh and Singh, 2019).

The various types of disruptions that face any company require a better understanding from the management of that company for them to determine which part of the supply chain might face the disruption and the right way to respond to it in order to mitigate the influence of those risks (Ali, 2008;

Singh and Singh, 2019; Dubey et al., 2019). The top management of any company needs to decide on the right management style that would work for it when faced with any risk in a way that would help in improving the company's performance (Chen and Paulraj, 2004). Therefore, managing any company cannot be left to chance (Ali, 2008), and the management of their supply chain should assess what types of risk they might face.

Disruptive events have an influence on what decisions the managers should take, they usually also have an influence on the future decisions when facing another disruption (Singh and Singh, 2019). Not only that, but managers should also work on how to manage all the parts and layers of the supply chain. Every company needs to manage its suppliers and customers, and those suppliers need to manage their suppliers and their customers, including the company. This indicates that every part of the supply chain will manage previous and following supply chain tiers until reaching a point where all the parts of the chain, from the first raw material suppliers to the end customer, are all managed through the whole chain (Min et al., 2019). For instance, in a company consists of five tiers, as shown in Figure 5 below, the lines and colours represent what risk each company's management should be managing in each tier. However, supplier 1 management should look into risks from their own company and supplier 2, while supplier 2 should look into risks from supplier 1, their own company, manufacturing company, and so forth.

Figure 5 - Example of a Supply Chain



Supply chain management helps in managing those chains and captures the synergy from within the company and its supply chain (Ali, 2008). Information technology as well has helped in managing those tiers and making the supply chain more integrated and more able to achieve better performance (Zhou and Benton, 2007). Being able to manage all of this has a role in the company's ability to manage its resources and reconfigure them with the working environment in a way to influence the company's survival and financial performance (Singh and Singh, 2019).

Performance improvement is one of the main targets for any company. Supply chain managers who seek to improve their performance do so by relying on a more coordinated supply chain by having better internal and external capabilities (Tan, 2001; Chen and Paulraj, 2004). A company's performance these days not only relies on the company's performance itself, but it also relies on the performance of its parties of suppliers and customers (Chen and Paulraj, 2004). Companies' performance might also be impacted by their competitors. For instance, during the COVID-19 pandemic, US manufacturing companies have lost out a lot to Chinese manufacturing companies due to the latter's manufacturing capacity, including medicine active ingredients, antibiotics, painkillers, along with personal protective equipment (Sodhi and Tang, 2021)

One of the ways to improve the performance is by integrating upstream and downstream in the chain in terms of their information, services, products, value, and finance (Chen and Paulraj, 2004; Ali, 2008, Min et al., 2019; Pakurár et al., 2019). Where companies' lack of predicting parties' actions throughout their supply chain will result in supply chain risk that would impact their performance (Jajja, et al., 2018). As companies work in a rapidly changing environment due to globalisation, competition, and continuous change in such as demand expectations, practices and strategies from traditional management are no longer considered effective or sufficient to operate in today's markets (Pakurár et

al., 2019). Companies, therefore, tend to do so by focusing on their supply chain management (Chen and Paulraj, 2004).

However, in order to do this, all the parties in the supply chain need to fully commit to this with all its consequences and requirements (Tan, 2001).

The integration of the supply chain should include all the supply chain elements. Those elements are the supply chain network structure, the supply chain business processes, and the supply chain management components (Ali, 2008).

“Today, and especially in the emergent market, the company's success is directly linked to its capacity to deal with the highly changing environment, and how much its supply chain is flexible regarding these changes” (Morad and Houssam, 2019, p. 86).

2.3. Risk management and resilience

Usually, it is hard to tell specifically when a company recognises that a disruption has occurred; details accumulate to a level where the company knows that something is happening, and they need to take action accordingly. This is related to the two principal functions of the control system, which are first to determine that the company is facing disruption and second to speedily take actions to correct the situation (Sheffi and Rice Jr., 2005). Korbi et al. (2021) think that companies sometimes seem to ignore this control system as they tend to ignore what is happening till they reach a point where they are no longer able to cope with the disruption or make the right decision, while not being able to cope or determine what to do will cause fear and panic to the decision-makers. This increases the vulnerability of the company and could affect its structure, continuity, and its coordination ability (Korbi et al., 2021). However, it is even more difficult for companies to overcome or adjust to changes when they are faced with unexpected events such as natural disasters, wars, major geopolitical changes, or terrorist attacks, especially in the case of international disruptions (Sodhi and Tang, 2021; Nikoogar, et al., 2021). The occurrence of these events is harder to estimate because there is not enough historical data relating to them. Additionally, the impact of these events is influenced by the company's reactions to them (Sheffi and Rice Jr., 2005).

The disruptive event usually impacts one or more parts of the supply chain, which are supply, demand, technology, and manufacturing (Sreedevi and Saranga, 2017). The main motivations for firms to build resilience capabilities are the possibility of these disruptive events occurring and the extent to which they can affect the firm (Sheffi, 2005). Nevertheless, many companies fail to build their resilience capabilities as they consider it too costly and they do not understand its direct implementation or impact of it (Sreedevi and Saranga, 2017).

The path of building supply chain resilience can be divided into four stages: planning for the disruption event; reacting to it; recovering from it; getting a competitive advantage from the situation (Tukamuhabwa et al., 2017). Keep in mind that a company needs to pass all those stages within the shortest possible time and with the lowest possible cost. The adaptation ability of the company helps in passing through those stages. Adaptation means the implicit ability of the supply chain to figure out a solution to overcome the risk faced. This indicates that even if there is a change in the elements of the risk, a company still can react to it without relating to a pre-existing set of responses (Tukamuhabwa et al., 2017). This means that the decisions made by those managers after facing the disruptive event have multiple influences on their companies by reducing the risk, increasing the efficiency of the operations, and building resilience (Singh and Singh, 2019).

Facing these risks when a company has not prepared for them will most probably cause disruption of the supply chain that will result in losses to the company's productivity, share in the market and profitability. Especially, the increased dependence on global outsourcing of parts from the supply chain

leads to an increase in the level of disruptive risk that the company might face and extra care is required for its supply chain to avoid those risks. Additionally, a company could lower its supply chain risks by balancing its reliance on global markets with local and nearshore markets, or relying on multiple suppliers (Remko, 2020). Also, the increase in the competition level and uncertainty in the market require companies to work on building flexible contracts and collaborative relationships with their suppliers (Sreedevi and Saranga, 2017).

Major disruptions can affect the performance of the company in different ways; the performance changes resulting from changes in sales, production level, profits, customer service, or other measures (Sheffi and Rice Jr., 2005). However, the effect of disruptions can vary according to the company's resilience and the strength of its supply chain relationships (Sreedevi and Saranga, 2017, Kumar et al., 2018, Morad and Houssam, 2019).

The company should be very careful about its relationship with its suppliers; if a company decides to work with one supplier, for example, it should keep a deep relationship with this supplier in order not to jeopardise its position in the marketplace (Sheffi and Rice Jr., 2005). Relying also on outsourcing to reduce the inventory level, by ordering materials only when needed or based on the demand level, will increase the vulnerability of the supply chain as it will increase the company's dependence, in addition to increasing the complexity of the relationships in its supply chain (Thun and Hoenig, 2011). Systemic purchasing can be used by companies to reduce this risk (Kumar et al., 2018). Systemic purchasing means the ability to efficiently and effectively buy potentially diverse services and products.

Companies' relationships with their suppliers can be of help in recovering from disasters. This benefit could be of a physical, psychological, or financial nature regarding their suppliers and clients (Todo et al., 2015). Losing supply or demand from a damaged part of their supply chain can also be overcome by finding a new partner and taking advantage or benefitting from their supply chain by spreading information about it through the supply chain (Todo et al., 2015). Additionally, these relationships help the companies to recover from disasters, as sharing information about what happened will help in overcoming them (Todo et al., 2015). While those companies are looking at sustainable supply chain management, they should also look for quantitative methods to evaluate their performance (Wu and Liao, 2016).

Any supply chain disruption can have a material effect on the company's value. However, its effects can vary considerably, and countermeasures can be costly. Therefore, it is important for managers and investors to recognise the disruption types and the organisational factors that can lead to the worst outcomes (Schmidt and Raman, 2012), which might vary from one company to another. Having a supply chain outside the affected areas will be of help in the short-term recovery, while a supply chain within the affected areas will be of help in the medium-term recovery, which means that having a diversified supply chain will help the company in increasing its resilience against the effects coming from risks or disasters (Todo et al., 2015).

Resilience and recovery from disasters could be affected by supply chain networks for several reasons. When a company depends on another company to produce parts, components or materials for its production, if the other company faces any type of disruption to its production, that company will be influenced as well, and this might stop its production, which might increase the complexity of recovery as the number of parties involved in it has increased, which means for a company to recover, this other company in its supply chain has also to recover from it. Additionally, this influence is not limited to only the companies which are directly involved in the supply chain but also includes those which are indirectly related to it. Engaging in relationships with upstream suppliers or downstream clients through supply chains might lead to a reduction or stopping of production, which also increases the complexity for the company in terms of focusing not only on its suppliers and clients but also on its suppliers' suppliers and its clients' clients, which increases the likelihood of the company facing disruption (Todo, et al., 2015).

A sufficient level of proactive (ex-ante) and reactive (ex-post) resilience of the supply chain will determine the efficient use of resilience and its continuity. Proactive resilience is the system's capability to keep operating despite the disruption, whether it is internal or external, while reactive resilience is the system's capability to speedily adapt to the changes in a market within a competitive and uncertain environment (Cheng and Lu, 2017).

Meanwhile, the company's resilience is influenced by two variables: the competitiveness of the company and the supply chain responsiveness. For instance, if a company operates in goods that have a considerably low switching cost and if its response is fast, it will be able to keep its market share, and if it is faster than the other companies in the same sector, most probably it will attain a competitive position and become the market leader (Sheffi and Rice Jr., 2005). From the company's point of view, the competitive advantage could come as a result of the company's capability to overcome disruptions and manage risks (Singh and Singh, 2019)

Companies' fast recovery from disruption can be achieved by improving their supply chain through redundancy and flexibility or, in other words, increasing the resilience of the supply chain (Scholten et al., 2020; Sheffi and Rice Jr., 2005). Redundancy means having extra resources in order to use them in case of disruption (Sheffi and Rice Jr., 2005). Having an inventory will give the company time to plan what they will do after disruption, but this method is considered expensive and might influence the quality. Flexibility means structuring facilities that can sense risk and react to it speedily, which will benefit the operations on a day to day basis and also measure how the company reacts to its manufacturing facilities in terms of its usual activities within its different locations (Sheffi and Rice Jr., 2005).

On the other hand, if the firm increases its flexibility, this will help it in overcoming not only low frequency and high impact disruptions but also the impact of fluctuations of the market on the day-to-day operation (Sheffi, 2005).

Firms might use redundancy in order to moderate the risk of disruption. However, resilience is more important for firms than redundancy. This is because if the supply chain is resilient, it will be able to anticipate disruptive events, carry on with its operation, overcome the effect of disruption, and always benefit from the situation to gain a competitive advantage instead of relying on overproduction (redundancy) to avoid disruption risk which might be increased if there is a change in demand (Namdar et al., 2017). Additionally, the best solution to overcome the disruption will depend on the type of disruption, risk aversion level and type of material sourcing within the supply chain (Namdar et al., 2017). However, firms that collaborate with their trading partners have a higher chance of faster access to the market and quicker recovery time (Sheffi, 2005), as firms that have a good relationship with their partners have more resilience and need less time to recover since they have quicker access to the production parts.

Finished goods inventory is one of the methods that some companies use to reduce their vulnerability as it helps in meeting the demand for that product. This helps in the short run, on the one hand. On the other hand, this is a very costly method. Finished goods have the highest maintenance costs as the firms need to consider several factors such as the ease of reachability of those goods for the customers, which adds other costs related to storing them in an inconvenient place, and the uncertainty of demand or demand level which makes having a finished goods inventory not necessarily the best choice.

Therefore, it is better to have a reasonable amount of inventory to cover the number of goods needed with regard to the demand response time and the probability of disruptions (Schmitt and Singh, 2012). This solution, in theory, is considered to be an easy solution but is not always applicable in real life as this will obey the rule of trade-offs: what the company will lose for having this level of unnecessary inventory; having a higher level of needed inventory, or uncertainty of the market; sudden changes to customer demands.

One of the most critical decisions for companies is whether or not to keep inventory by following the just-in-time (JIT) method, which means producing the product or ordering the parts when requested in order to reduce the storing costs. If they decide to keep this inventory, then they need to decide in what form they should keep it (raw materials, work in process or finished goods), the required level of inventory, where to store it, and the required circumstances. This is important, especially in Jordan, because of the lack of land and of places to keep inventory. Moreover, this approach incurs high rental costs (Tang, 2006).

Information and communication technology, trade and investment liberalisation reduce the costs of coordination throughout the supply chain, reduce the effect of the geographical separation in manufacturing driven by scale economies, and competitive advantage will become more viable (Humphrey, 2003; Baldwin, 2011; and Leckcivilize, 2012). However, this supply chain growth can make price and output more vulnerable. This can jeopardise not only the companies within the same country but also other companies all over the world (Leckcivilize, 2012), in attempting to achieve the best results.

The multinational supply chains could face lower levels of supply chain resilience because they could experience disruptions from multiple locations. However, they can overcome this by enhancing their capabilities and flexibility in non-location-bound ways, as this enhancement will help to strengthen their resilience, increasing strategy options by lowering the commitment to their entry choices, improving the due diligence, contingency planning, and assets management of the supply path (Darendeli et al., 2021)

Companies need to strengthen and consolidate their mechanisms of coordination, such as information exchange, supply chain practices and collaboration in the intra-organisation. Furthermore, companies aim to improve their performance in their industry by making some changes to their costs, adaptability, traceability, variety, and lead time (Sakka and Genoulaz, 2009).

2.4. Supply chain resilience

Supply chain resilience has developed from supply chain risk management. Pettit et al. (2019) consider supply chain resilience a continuity or enhancement of risk management, not a replacement for it. Similarly, Fiksel et al. (2015) believe that it is an important capability that is a sequel process of risk management, while Melnyk et al. (2014) believe that supply chain resilience is the core of supply chain management.

The supply chain resilience idea has been receiving increased attention in the past years, not only from researchers but also from practitioners (Dubey et al., 2021). Where this increased interest is driven by globalisation, uncertainty, and vulnerability and everything related to these (Ali et al., 2017; Pettit et al., 2019; Scholten et al., 2019; Dolgui et al., 2020; El Baz and Ruel, 2021). Fiksel et al. (2015) believe that it is an important capability that is a sequel process of risk management, while Melnyk et al. (2014) believe that supply chain resilience is the core of supply chain management. Supply chain resilience has therefore been studied by a number of researchers who have pointed out its importance. Whereas some researchers have considered supply chain resilience as a proactive approach, others have considered it a reactive approach (Kamalahmadi and Parast, 2016).

Ali and Gölgeci (2019, p. 793) acknowledge the “*exponential growth in the literature on supply chain resilience over the last decade*”; however, they believe “*there is still a gap for empirical research on numerous drivers, barriers, theories, moderators, mediators and research methods intertwined in building supply chain resilience*”. Datta (2017) and Dubey et al. (2021) agree that the literature on supply chain resilience has grown exponentially, and specifically point to a need for studies on how companies can develop/ build their resilience capabilities. Therefore, supply chain resilience could be considered one of the main research domains nowadays (Ali and Gölgeci, 2019).

Business environments are considered to be highly complex and uncertain; therefore, companies need to monitor their supply chains in an effective way to be more efficient and flexible (Thun and Hoenig, 2011). Moreover, it is becoming an especially critical challenge for companies to establish sustainable businesses (Wu and Liao, 2016). This is even harder when the company is working in emerging markets as those markets are considered to be volatile ones and highly influenced by any change (Morad and Houssam, 2019; Sreedevi and Saranga, 2017). This is because companies working in high uncertainty environments are facing higher risks when it comes to disruptions and eventually performance (Sreedevi and Saranga, 2017).

Recently, there has been a dramatic increase in the uncertainty of the business environment due to reasons such as companies' awareness of the importance of meeting the customers' expectations in order to stay in the market: expectations that are not fixed and might change following their mood or the market trend. Further reasons include increased competition as a consequence of globalisation, supply chains becoming longer and more complex and an increase in the number of goods with short life cycles (Sashi, 2012; Sheffi and Rice Jr., 2005), which will lead to other types of risk. This increases the necessity for them to have some level of flexibility in their supply chain to mitigate the external influence on it (Sreedevi and Saranga, 2017; Morad and Houssam, 2019).

Supply chain resilience depends on the top management's capability to learn and build knowledge based on previous events that they have witnessed. This knowledge and experience would help them manage uncertainty and risks when faced with disruptions in the future, especially when it comes to political disruption, as this type of disruption requires a deep understanding of the particular event and how it will impact the company (Singh and Singh, 2019; Darendeli et al., 2021).

Therefore, resilience adopted by companies not only helps them to overcome disruptions (Conz and Magnani, 2020; Ramezani and Camarinha-Matos, 2020; Korbi et al., 2021), it also helps them to become less vulnerable and more able to deal with sudden events in an unpredictable environment (Dubey et al., 2021)

Kleindorfer and Saad (2005) state that there are two categories of risk affecting supply chain design and management; these include the risks arising from the problems of coordinating supply and demand and the risks arising from disruptions to normal activities. They also state that there are two key dimensions that are fundamental in guiding management practice around disruption of risk in supply chains. The first dimension consists of strategies and actions that aim to reduce the frequency and severity of risks encountered at both the firm level and across the supply chain. The second element focuses on increasing the capacity of supply chain participants to sustain more risk, without serious negative impacts, or major operational disruptions. Governments can play a role here to balance this risk.

Governments have a key role in organising and mainstreaming strategies for risk reduction to achieve better supply chain resilience against disasters in the long term (Abe and Ye, 2013). Governments have a responsibility, in the long run, to reduce or moderate the bad impact of disasters through the planning of criteria for risk reduction (Sodhi and Tang, 2021). This might be by rational logical urban structuring, the best use of energy sources, or stricter building codes (Abe and Ye, 2013).

Governments should give more attention to predicting disasters when making their development plan, in addition to some corrective action after the disaster to recover from it, reduce its effects, and enhance competitiveness in the long run. They can to some extent use cooperation between the public and private sectors to manage the arising risk from the national disasters by introducing effective insurance schemes, strengthening physical assets, issuing extreme weather warnings and sharing information on disaster risks and risk-reduction strategies (Abe and Ye, 2013).

2.5. Definition of Supply Chain Resilience and Supply Chain Resilience Criteria

A number of researchers have provided definitions of supply chain resilience. Table 2 summarises a number of those definitions.

Table 2 - Definitions of Supply Chain Resilience

Researcher	Definitions of supply chain resilience
Sheffi (2005)	The ability and the speed of this firm to return to its normal level of production and services after facing a disruptive event with low probability and high influence
Longo and Ören (2008)	The ability of the system to reach its equilibrium point after facing a disruptive event, whether it was from inside the firm, inside the supply chain or outside the supply chain
Ponomarov and Holcomb (2009, p. 131)	“The adaptive capability of the supply chain to prepare for unexpected events, respond to disruptions and recover from them by maintaining continuity of operations at the desired level of connectedness and control over structure and function”
Kamalahmadi and Parast (2016, p.121)	“The adaptive capability of a supply chain to reduce the probability of facing sudden disturbances, resist the spread of disturbances by maintaining control over structures and functions, and recover and respond by immediate and effective reactive plans to transcend the disturbance and restore the supply chain to a robust state of operations”
Cheng and Lu (2017)	The efficiency of the system to get back to how it was by finding an adaptive approach to revive it from interruptions or sudden changes and how to recover from them within an appropriate time span, knowing that they cannot stop all the changes
Singh and Singh (2019)	The company's ability to adapt to changes when dealing with sudden events while returning to the previous position
Morad and Houssam (2019).	The company's ability to react to short-term changes caused by external disruptions or structural changes in the market
Dubey et al. (2021).	The company's ability to respond to any changes in a turbulent environment while maintaining its original position
Darendeli et al. (2021)	The company's ability to effectively respond to work discontinuity from the sudden event and reverse it
Korbi et al. (2021)	The company's ability to manage the threat of external events that it faces which are considered as being unexpected and unanticipated.

Resilience in the supply chain is considered a significant strategic issue for the supply chain as it modifies the operation of the company and affects its competitiveness (Cheng and Lu, 2017; Sheffi and Rice Jr., 2005). Even though some researchers, such as Sheffi (2005), have looked at the concept of supply chain resilience over the past years, this concept was first developed in 2009 by Ponomariov and Holcomb.

Table 2 above has shown that those researchers believe that supply chain resilience indicates a company's ability to return to its operational level after facing a disruptive or sudden event in the shortest possible time, even if that company did not plan for that event. Supply chain resilience definitions indicate that: supply chain resilience is mainly about the continuity and longevity of the company's operations where when it is faced with a sudden or disruptive event that obstructs or stale its routine operations (Conz and Magnani, 2020; Korbi et al., 2021).

Researchers have not only studied the definition of supply chain resilience, but a number of researchers have studied criteria/ measures of supply chain resilience. According to El Baz and Ruel (2021), for companies to improve their resilience they need to monitor their supply chain resilience practices. For instance, Morad and Houssam (2019) claimed that it can be studied based on three criteria: 1) Adaptability where companies work on having an adaptable design to respond to changes in market structure and strategies changes; 2) Alignment by creating an incentive through the supply chain in order to reach a better performance; 3) Agility to respond promptly to short-term changes and outside disruptions. Dubey et al. (2021) believe that the main way to build resilience is by increasing the collaboration throughout the supply chain, using the following criteria: 1) increasing communications; 2) improving trust; 3) sharing information and decisions sources; 4) improving response time; 5) and building opportunities for new businesses.

However, this research relied on the criteria studied by Soni et al. (2014) as they were considered more comprehensive. These researchers looked into the literature to determine what other researchers had considered as criteria for supply chain resilience and selected 14 variables after testing their reliability. A survey was developed and randomly distributed to private and public sector organisations, to

managerial positions in logistics and supply chain management, executives and owners, and academic institutions, to engineering and business professors with a special interest in supply chain management. Those respondents were asked to rate each criterion under a five-point Likert scale to determine which criteria have the most impact on supply chain resilience. The response value of the criteria resulted in 9 of those criteria reflecting 90% of the cumulative response: (1) agility, (2) collaboration, (3) visibility, (4) risk management culture, (5) adaptive capability, (6) risk and revenue sharing, (7) trust among players, (8) information sharing, and (9) sustainability. Soni et al. (2014) believe that the results that they reached are also supported by the literature; therefore, they added a tenth criterion which is (10) supply chain structure, and this criterion was given preference over the remaining four criteria (of the remaining five variables of the 14 studied ones) as its relevance with respect to supply chain resilience is more strongly advocated in the literature. Therefore, it can be said that Soni et al. (2014) provided a comprehensive overview of key supply chain resilience measures as they are based on the combined knowledge received from the literature:

- Agility is the firm's ability to implement an efficient and competitive event in an unpredicted environment and be able to respond to demand at the right time even with disruption events.
- Collaboration relates to the willingness of the companies to share information about risks even if this information is sensitive as this will help in keeping the supply chain in operation and strengthening it; in addition, it will help to overcome the disruption even if the company was not fully prepared for it.
- Information sharing is about achieving coordination within the supply chain at all times, which has a high influence on mitigating and reducing the supply chain risk, decreasing the vulnerability, and reducing the effect of having a weak chain within the full supply chain.
- Sustainability is the ability to hold on to dynamic capabilities and keep up the link between them and sustainable competitive advantage; keeping in mind as well the ability to be prepared for any ethical or environmental issue that one could face.
- Risk and revenue sharing is critical for the supply chain in the long term, as having an aligned supply chain with shared risks, costs, and rewards will help strengthen the supply chain and increase its competitive advantage.
- Trust is believing that your business partners will use any shared information only for the benefit of the business and not try to take advantage on their own; trust is also very important for sharing risk information between the parties and is a major element of cooperation under uncertainty.
- Visibility is the ability to see from one end of the supply chain to another which will help the supply chain to better understand what is happening and how to react at the right time and help to avoid panic actions and unnecessary interventions, which will lead to reducing the overall risk in the chain.
- A risk management culture is the ability of the company to predict what types of risks could happen to its supply chain and how to overcome them, including those which could happen beyond its boundaries; having such a risk management culture is becoming an essential element of survival for the companies.
- Adaptive capability is the dynamic ability of the company to temporarily recover after being disrupted and to find the proper action to solve what has happened by overcoming it or seeking a more desirable status.
- The structure is one of the important indicators of the supply chain resilience as having a vulnerable part will affect the whole structure of the supply chain, while having a complex structure will also increase the chance of being affected by a disruption; therefore, the better the company understands the structure the higher the probability of overcoming the risk. (Soni et al., 2014).

Recent literature added to this classification. For example, Dubey et al. (2021) believe that the main way to build resilience is by increasing the collaboration throughout the supply chain by 1) increasing

the communications; 2) improving trust; 3) sharing information and decisions sources; 4) improving response time; 5) and building opportunities for new businesses.

Moreover, Morad and Houssam (2019) argued supply chain resilience can be studied based on three criteria: 1) Adaptability, where companies work on having an adaptable design to respond to changes in market structure and strategies changes; 2) Alignment, by creating an incentive through the supply chain in order to reach a better performance; 3) Agility to respond promptly to short-term changes and outside disruptions.

2.6. Research Theory

Previous sections have shown the conceptual framework for this research, the conceptual framework in any research being responsible for showing what the previous studies have done concerning the variables related to the research question (Collins and Stockton, 2018). Even though in some cases, for instance, in exploratory research the nature of the study out-benefits the conceptual framework, the existence of research theory is still quite important as there is no theory-free research (Collins and Stockton, 2018). Despite its high importance to the research, Çankaya et al. (2022) believe that research theories have not been the main focus or the sole focus of researchers, since in most cases they are briefly discussed in their findings.

Generally, the nature of the research plays a main role in deciding whether it is quantitative, qualitative, or both; this research is considered qualitative, inductive, and descriptive research (The next chapter will go through this). Mngadi (2018) believes that this type of research goes through the following steps: the researcher begins with data collection of relevant information about the research variables, then analyses those data and tries to find patterns, and finally develops the theory based on the analysed data. The researcher could rely on one of the existing theories for explaining the results found, or if none of the existing theories reflect the research, the researcher might use the gathered and analysed data to develop a new theory. Those theories will represent a reference frame that helps in finding the meaning of the research observation as it enhances the ability to find the links between what seem to be random events (Kummer et al., 2020).

Qualitative research seeks to understand the research question by interoperating and investigating the phenomena (Mngadi, 2018), with theories coming in handy in explaining those phenomena in a meaningful and logical way (Collins and Stockton, 2018). Such theory can be defined as constructed statements that have to be identified and the relationships between those constructed statements to be specified and then to be tested (Niederman and March, 2019). It also can be defined as idea formation to explain a phenomenon through explaining why things happen or do not happen; it also helps in creating a framework on which to base future actions (Mngadi, 2018; Sacred Heart University, 2006). Theory can also be defined as a number of assumptions that work together to point out the expected outcome of a certain phenomenon by linking it to previous outcomes (Ketchen et al., 2011).

Collins and Stockton (2018) argue that researchers have different views when it comes to incorporating theory in qualitative research. Meanwhile, Mngadi (2018) seems to believe that there are different levels and types of theories and those different levels and types focus on understanding knowledge and social research from different aspects. According to Halldorsson et al. (2007) and Hitt et al. (2016), the researcher should choose one dominant theory for their research and then if needed to complement it with other theories (one or more) as there is no unified theory for all research.

Qualitative research helps in shaping and modifying the existing theory as theoretical orientation concepts are responsible for the interpretation and analysis of the data and existing knowledge is used to discuss the study findings and how it adds to the existing knowledge (Merriam and Tisdell, 2016).

The benefits of using theory on a practical level could include gaining a critical perspective, label convenience, a broader perspective for modest scope studies, reaching a bigger set of data to help with generalisation, and negative case disproving (Collins and Stockton, 2018). As theory helps in knowledge organisation, highlighting knowledge gaps, understanding research observations and why they have happened, filtering relevant data, and research direction, and builds a framework to develop ideologies (Çankaya et al., 2022; Mngadi, 2018)

Theory can be used in research to explain social events and conditions by considering and agreeing with thoughts that have developed over the years (Mngadi, 2018). Hence, theory is looked at as an ongoing debate that helps in knowledge production (Collins and Stockton, 2018). Theory in qualitative research is usually used for epistemological dispositions clarification, research guidance, methodological choice rationale, and theory building based on research findings (Collins and Stockton, 2018). Niederman and March (2019), Ketchen, et al. (2011), and Sacred Heart University (2006) claim that theory in qualitative research is usually used to describe the collected data, explain them, and predict relationships between main research concepts. Even though the use of theory in research is considered essential, Mngadi (2018) states that the role that theory plays in any research varies depending on the methodologies and methods of the research itself.

The theory is held or supported by the theoretical framework, which is insidious or describes the theory that explains the existence of the research problem (Northcentral University Library, 2022; Collins and Stockton, 2018). It (the theoretical framework) is an effective way to show the importance of theory use in research; it also provides a lens to examine the research topic (Northcentral University Library, 2022). Those lenses could be of a psychological, social, organisational, or economic nature and are used for concept definition and phenomena explanation (Northcentral University Library, 2022)

The theoretical framework focuses mainly on the research variables that need to be analysed, which helps in limiting the scope of data collected (Sacred Heart University, 2006). Collins and Stockton (2018) state that in order to identify the theoretical framework for the research the researcher has to examine what is the desired disciplinary orientation, then the researcher should start to gather relevant literature.

A theoretical framework is a necessity for any qualitative research (Zsidisin et al., 2005). Such a framework provides insight into the research by organising the research and improving its focus, providing an abstract meaning for the research, linking the research with existing knowledge, and identifying the strengths and weaknesses of the research (Collins and Stockton, 2018).

For the theoretical framework to play its part in research it needs to be linked to at least one theory. A number of researchers have pointed out the main theories used in operation management research; despite some differences among researchers, there are a few theories that have been mentioned by all or most of those researchers. Table 3 lists some of those researchers along with what they believe to be the most used theories in operation management research. It is worth mentioning that there are other theories that are being used in operation management research which can also help in explaining research phenomena (Ketchen and Hult, 2007).

Çankaya et al. (2022) conducted a systematic literature review of articles from 1998 to 2020 to find a total of 34 theories that have been used by researchers who relied on theories in their research. Those theories are information processing theory, transaction cost economics theory, agency theory, resource-based view theory, contingency theory, institutional theory, resource dependence theory, complementarity theory, normal accident theory, high-reliability theory, strategic choice theory, social exchange theory, interdependence theory, power dependence theory, expectation confirmation theory, knowledge-based view theory, network theory, chaos theory, strength theory of relationship, manufacturing strategy theory, alignment theory, reliability theory, risk compensation theory, cluster theory, stakeholder theory, real options theory, enactment theory, systems theory, structural contingency theory, dynamic capabilities view theory, corporate finance theory, prospect theory, expected utility theory, and risky decision-making theory (Çankaya et al., 2022).

Table 3 - Operation Management Theories

Çankaya et al. (2022)	<ul style="list-style-type: none"> • Contingency theory • Information theory • Resource-based view theory • Transaction cost theory
Kummer et al. (2020)	<ul style="list-style-type: none"> • Agency theory • Information theory • Institutional theory • Network theory • Resource-based view theory • Transaction cost theory
Sahu and Rao (2020)	<ul style="list-style-type: none"> • Institutional theory • Resource-based view theory • Stakeholder theory
Akhter et al. (2018)	<ul style="list-style-type: none"> • Institutional theory • Resource dependence theory • Resource-based view theory • Stakeholder theory • Transaction cost theory
Hitt et al. (2016)	<ul style="list-style-type: none"> • Dynamic capabilities theory • Knowledge-based view theory • Network theory • Organizational theory • Resource dependence theory • Resource-based theory • Systems theory • Transaction cost theory
Halldórsson et al. (2015)	<ul style="list-style-type: none"> • Agent theory • Network theory • Resource-based view theory • Transaction cost analysis theory
Ketchen and Hult (2007)	<ul style="list-style-type: none"> • Agency theory • Game theory • Institutional theory • Knowledge-based view theory • Network theory • Resource dependence theory • Resource-based view theory • Social capital theory • Strategic choice theory • Transaction cost economics theory
Halldorsson et al. (2007)	<ul style="list-style-type: none"> • Agent theory • Network theory • Resource-based view theory • Transaction cost analysis theory
Zsidisin et al. (2005)	<ul style="list-style-type: none"> • Contingency theory • Institutional theory • Resource-based view theory • Systems theory • Transaction cost analysis theory
Ketchen and Giunipero, 2004	<ul style="list-style-type: none"> • Agency theory • Economic theory • Institutional theory • Knowledge-based view theory • Resource-based view theory • Strategic choice theory

The previous Table 3 has shown the most used research theories in operation management according to a number of researchers. However, for a researcher to know which theory best fits their operation management research this researcher needs to understand the difference between those theories. i.e. agency theory looks into relationships that arise between the principal delegating authority and the agent and how this agent would act in a way that would benefit him/her instead of benefitting the principal (Kummer et al., 2020; Halldórsson et al., 2015; Ketchen and Hult, 2007; Halldorsson et al., 2007). This theory looks into various situations in which the agent could use this relationship when representing the principal (Kummer et al., 2020; Business Creation, 2018). While contingency theory states that no

company can be effective in all situations; for a company to be effective it needs to be structured to be compatible with all conditions (Çankaya et al., 2022). While dynamic capabilities theory looks at how companies can achieve superior performance and a sustainable competitive advantage through their resources and strategies in a rapidly changing environment (Bleady et al., 2018; Hitt et al., 2016). This theory started as an alternative to the resource-based view theory that sought to overcome its weaknesses (Bleady et al., 2018).

Game theory relies on building scenarios through the use of hypotheses and maths that will help in predicting actions and decisions. Some researchers look at this theory as being mechanistic, while others argue that it can provide the research with remarkable insights and conclusions (Ketchen and Hult, 2007). Compared to information theory focuses on the fact that companies rely on information and are considered information processing systems, and for those companies to reduce the risk of the supply chain they need to improve the ability to gather, transmit, process, extract, utilise, and react to information from their environment (Çankaya et al., 2022; Kummer et al., 2020). However, institutional theory looks into the influence of environmental pressure on a company's activities which over time leads to the homogeneity of companies due to the isomorphism function (Kummer et al., 2020; Akhter, et al., 2018; Sahu and Rao, 2020; Ketchen and Hult, 2007). Companies tend to participate in supply chain relationships to overcome this kind of pressure and to be able to pursue their goals (Kummer et al., 2020; Akhter et al., 2018).

Knowledge-based view theory looks at the research intellectual capital and organisational learning in which knowledge represents a unique, intangible, and dynamic strategic resource (Curado and Bontis, 2006; Hitt et al., 2016; Ketchen and Hult, 2007). This theory is considered an extension of the resource-based view theory (Curado and Bontis, 2006). Whereas network theory predicts, describes, and explains the established links among the entire supply chain and whether they are strong or weak ties, as strong ties represent greater reliability while weak ties represent better flexibility (Kummer et al., 2020; Hitt et al., 2016; Halldórsson et al., 2015; Ketchen and Hult, 2007; Halldorsson et al., 2007). While organizational theory looks into a company's functions, design, and structure, its purpose being to help in maximising the efficiency of its production, solve practical problems, and enhance the company's functions (Hitt et al., 2016; Halldórsson et al., 2015; Zhao and Zhang, 2013).

Resource dependence theory looks at how companies rely on other companies for needed resources, with companies needing to closely monitor these dependences and relationships to reduce the uncertainty coming from them (Akhter et al., 2018; Hitt et al., 2016; Halldórsson et al., 2015; Ketchen and Hult, 2007). Some researchers view resource dependence theory and resource-based view theory as complements of each other because the companies' representatives try to find which resources from what they require are considered inimitable so they can try to exploit them (Akhter et al., 2018). On the other hand, resource-based view theory looks at how specific resources act as a base in creating companies' competitive advantage and performance enhancer, by looking at those resources as a bundle and as heterogeneous among companies (Çankaya et al., 2022; Kummer et al., 2020; Sahu and Rao, 2020; Akhter et al., 2018; Business Creation, 2018; Ketchen and Hult, 2007; Halldorsson et al. 2007). Family businesses are seen as having a better chance of achieving this competitive advantage (Kummer et al., 2020; Business Creation, 2018). However, Çankaya et al. (2022), Kummer et al. (2020), and Hitt et al. (2016) argue that any company could achieve this by relying on rare resources from within its company or throughout its entire supply chain. Those resources can be categorised into four groups (Çankaya et al., 2022; Business Creation, 2018): 1) organisational resources such as technology, policies, and culture, 2) human resources such as knowledge, training, skills, relationships, 3) physical resources such as factory, materials, capital, and 4) process resources such as leadership, communications, teams.

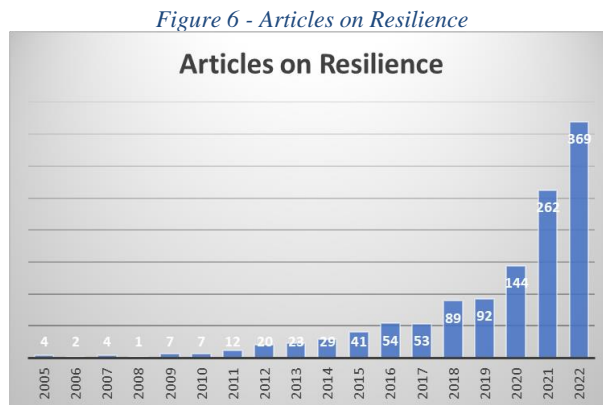
Social capital theory look at the company and its supply chains as composed of people, to consider the softer side of the company's activities, with those people shaping the outcomes and activities of their supply chains through their relationships, skills, credits, trust, etc. (Ketchen and Hult, 2007). While stakeholder theory looks at the rationale of formation envisioned by a company and how this might affect each of its stakeholders and states that the interests of all its stakeholders should be kept in mind

when making any decision, not only those of the shareholders. Stakeholders are any parties that can be influenced by or influence the company, such as investors, employees, suppliers, customers, competitors, (Sahu and Rao, 2020; Akhter et al., 2018). In the meantime strategic choice theory is considered an internal focus approach that highlights the tremendous role of the company manager's strategic decisions and choices in the company's success or failure (Ketchen and Hult, 2007). This theory relies on strategy repositioning and renewal that enables companies to shape and enact their environment. Some researchers believe that this theory contradicts theories with an external focus approach, such as institution theory (Ketchen and Hult, 2007).

Systems theory looks at the universal principles implemented in systems to run companies which represent the basis for structuring those systems, which, in general, will lead to companies' isomorphism (Hitt et al., 2016; Halldórsson et al., 2015; Rousseau, 2015). This theory not only looks at how those companies process their systems and operations but also at the processes of how companies influence each other (Rousseau, 2015). Lastly, transaction cost theory looks into the manufacturing cost that a company bears if it decides to produce within its confines or boundaries, which plays a role in its decision to make the product or buy it (Çankaya et al., 2022; Kummer et al., 2020; Akhter et al., 2018; Hitt et al., 2016, Halldórsson et al., 2015; Ketchen and Hult, 2007; Halldorsson et al., 2007). This theory is considered as convenient for supply chain management as it looks into the decision on the make or buy, and it also aims at reducing costs to improve performance (Çankaya et al., 2022; Ketchen and Hult, 2007). The costs that are looked at in this theory are not only the production costs but also costs related to the level of production, location, trade secrets and patents, reputation, certificate, management, and monitoring (Kummer et al., 2020; Akhter et al., 2018).

2.7. Bibliometric Search

This research will discuss the topic of supply chain resilience's impact on firms' performance in the aftermath of the Arab Spring. This is an important issue in Middle Eastern countries and there is a lack of supply chain resilience studies regarding the Arab Spring. Supply chain resilience is not only of importance in the Middle East, but it has been noticed that the interest in studying supply chain resilience started to increase in 2014, as Figure 6 shows.



To look into this important issue, first, keywords related to the topic of the study were used in order to identify the related studies. However, since the research topic is relatively new and this study focuses on some of the developing countries, the related studies found were not sufficient at all as this search only resulted in one study focusing on the supply chain implications of the Arab Spring on the Egyptian turmoil (Elzarka, 2013). Another two studies were found when the second stage of updating the literature was undertaken. One study looked into the Egyptian turmoil (Veninga and Ihle, 2018), the other one looked at the Moroccan turmoil (Morad and Houssam, 2019). Therefore, during the two stages, the next step was using more general keywords in order to find more related studies and enable

the phenomena to be studied based on dividing the topic of the study into subsections, studying each section, and finding the connections between those sections as this would help in addressing the research gap and finding a way to answer the emerged research question. Figure 7 shows the keywords used to conduct the literature review. Every keyword has been used by itself as well as in alignment with the other keywords. From all the used keywords the combined ones in Table 4 resulted in studies that could potentially be used in this research. Afterwards, the found articles were looked at in order to select the related ones and exclude the others, as shown in Figure 8 below.

Figure 7 - Bibliometric Search Keywords

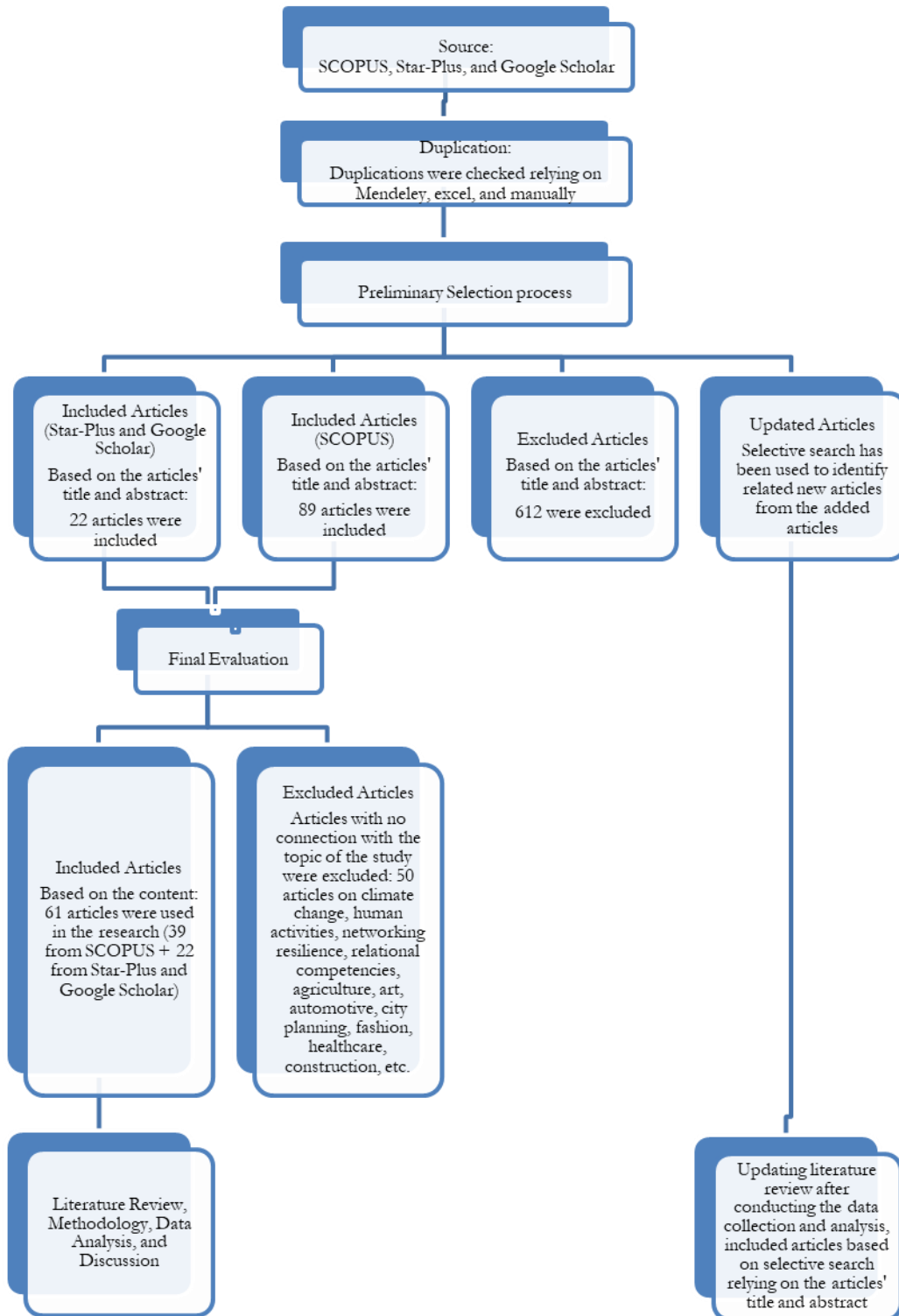


This review has been performed through SCOPUS, Star-Plus, and Google Scholar. Keywords mentioned in Table 4, such as supply chain resilience and disruption, have identified relevant articles related to resilience studies in the supply chain field.

Table 4 - Search Keywords

Keywords		
“Supply chain”	AND	“Arab Spring”
“Supply chain”	AND	“Disruption”
“Supply chain resilience”	AND	“Disruption”
“Arab Spring”	AND	“Economic impact”
“Arab Spring”	AND	“Performance”
“Supply chain resilience”	AND	“Political disruption”
“Supply chain flexibility”	AND	“Performance”
“Institutional theory”	AND	“Supply chain”

Figure 8 - Bibliometric Search Process



The initial search for the research variables (2017-2018) based on the above-mentioned keywords resulted in 701 relevant peer-reviewed studies which were retrieved from the initial body of literature. Afterwards, an additional selective search for literature, also relying on the same keywords but more focused on more recent research or more variables focused, was conducted during the period 2021-2022 to update the literature review, methodology, and discussion.

From this initial body of knowledge, through the exclusion criteria mentioned in Figure 8, in the first stage in 2017-2018, 61 articles, 17 related news, 7 reports, and 8 books were identified as relevant, relying on the previous systematic search and an ad-hoc selective search in order to find more related and in-depth information about the topic; notwithstanding, the number of articles is relatively low. This review analyses the literature mainly under the dimensions of the considered trigger event (terrorist attacks, disruptions, financial crises, natural disasters), methods used (literature review, case study, surveys), location (U.S., Europe, MENA, Asia), industry (Manufacturing, Financial, Tourism, Banking) and theoretical perspective used (e.g. resource-based view). The full classification of articles is shown in Appendix 3.

Classification dimensions (as shown in the appendix 3) were used together in order to determine whether to include or exclude articles. For instance, with regard to the industry, there were two studies in the oil and gas industry, one of which was included, while the other was excluded. The reason for this can be explained by the second dimension, in this case the trigger event. For the included article this concerned security threats, while for the excluded article this concerned stability of profit in light of changes in the energy environment.

This literature review is used to discover trends and approaches used by supply chain resilience researchers, which will help in defining and characterising this topic further. In addition, the review will help with identifying the relevant research gaps with regard to man-made disruption, an underexplored research area.

After the preliminary selection, a second selection took place to do an initial screening of the literature, in which criteria like trigger events in multiple industries were used to select the relevant literature based on those studies' titles and abstracts. In total, 93 relevant studies (articles, news, reports and books) have been used for this literature review, whereas other studies were excluded as they were not relevant to the topic of study.

From the conducted literature review and the used articles (701) in 2017-2018, it has been found that:

Looking at the method used, case study research seemed the most employed method (36%). However, other methods have been utilised; notably, a fair number of papers present thorough literature reviews on the topic (20%). Also, it is quite common to see papers analysing historical data (11%); 18% of the papers deal with empirical studies (e.g., surveys). Also, a good 15% of the papers deal with measurement models for dealing with supply chain resilience (based, for instance, on a balanced scorecard, fuzzy extended analytic hierarchy process, or quality assessment exercise).

Looking at the industry perspective, almost half of the articles appeared to provide general studies, without a specific focus on a given industry (48%); around one-fifth of the studies look at the manufacturing sector (23%); finance (11%); the rest of the papers are concerned with other industries (chemical, consumer goods, e-commerce, inventory, oil and gas, service, social media, tourism, TQM, utility company, and airlines (18%)).

Looking at the country of the study, almost half of the articles are not focused on specific countries (48%) and only a few look at the MENA region (11%), keeping in mind that those articles studied the Arab Spring while just marginally mentioning supply chain issues. Some studies focus on the U.S. (8%), Japan (7%), Brazil (3%), India (3%), Jordan (3%), and a few more look into other countries worldwide (Denmark and Australia, Egypt, Germany, Italy, Korea and Taiwan, Malaysia, Singapore,

Spain, Taiwan, and the UK (18%)). Most of the articles (87%) are focused on developed countries. From this search, it has been found that the number of studies focusing on developing countries, especially the Arab region, is minimal and should be further expanded.

Looking at the theoretical perspective of the studied articles, the researchers have used a variety of theories; specifically, there is no dominant theoretical perspective that has been utilised in dealing with supply chain resilience study, with many studies which can be classified as exploratory (10%), and many studies dealing with modelling aspects (10%). Just a few studies use mainstream management theories (such as Transaction Cost Economics, Resource-Based View and Agency Theory) in order to deal with supply chain resilience issues (8%). This seems another relevant gap.

Finally, a number of trigger events are mentioned in the cited papers. Among these, 15% were looking at the Arab Spring, 26% of the articles were aimed at studying supply chain performance measurement, 13% risk management, 7% supply chain performance, natural disasters (5%), supply chain resilience (5%), disruption risk (3%), globalisation (3%), information exchange (3%), and other triggers for research (customer engagement, e-commerce, environmental management, global financial crisis, national TQM programme, operating frontier, trajectory and absorptive capacity, politics, economy, and society, sustainability, systematic bias in choosing which disruptions to announce, terrorist attacks, uncertainty, and unified theory of resilience) accounted for 20%.

The majority (75%) of articles that studied supply chain resilience with regard to long-term disruption focused on natural disasters. There are just a few articles (6%) covering supply chain resilience in relation to man-made disasters.

2.8. Firm Performance

Supply chain management is a driver for improving the effectiveness of a company, enhancing its competitiveness, helping it to better serve its customers, and to gain higher profit (Wieland and Durach, 2021; Ruiz-Benítez et al., 2018; Gunasekaran et al., 2014). Therefore, companies should carefully choose their performance strategy. However, doing so is not easy due to the complexity of choosing the appropriate supply chain performance measures (Beamon, 1999). Supply chain resilience can be crucial in order to ensure the sustainability of an organisation, especially from a business performance point of view (financial and non-financial). It is hypothesised that Supply Chain Resilience can drive the performance of a firm to a higher level, especially when firms operate in a turbulent environment (Wieland and Durach, 2021).

Even though researchers have tried to develop a supply chain performance framework (Beamon, 1999; Gunasekaran et al., 2014, 2001), efforts to do so are often considered inadequate as they may have neglected some interactions of the supply chain or critical factors, which made it very difficult in practice to measure companies' performance, and to select and evaluate measures (Ruiz-Benítez et al., 2018). However, in order for this research to measure firm performance in the context of a supply chain, it is vital to revisit previous research and studies.

Firm performance is the ability of a firm to achieve its targets in comparison to its main competitors in the industry (Cao and Zhang, 2011). For companies to remain competitive in a dynamic market they should improve their manufacturing efficiency, improve their supply chain performance, and improve their product quality (Panwar et al., 2018). Firm performance is usually used in research concerning strategic management wherein, in most cases, firm performance is studied as a dependent variable. However, there is no consensus about its definition or its measures and dimensions despite their relevance to all those researches, which to some extent limits understanding of what this concept exactly means (Santos and Brito, 2012).

Performance measures are the estimation of output for companies' work; having those measures helps the company in reaching its target and knowing how to improve its practices in the future (Panwar et al., 2018). Meanwhile, firm performance could have multiple dimensions.

Performance measurement involves how effectively customers' needs are achieved and how efficiently the resources of an organisation are used (Shepherd and Gunter, 2006; Gunasekaran and Kobu, 2007). Traditionally, performance measurement approaches have been focused on financial outcomes, such as return on investment, cash flow and revenue (Gunasekaran and Kobu, 2007). However, many activities and processes are not easily identified and measured by financial outcomes. For example, the recent need for sustainability is not solely based on economic performance but also on environmental and social performance (Chan and Kumar, 2007; Seuring and Muller, 2008; Genovese et al., 2013). It is also important to achieve this by reducing cost, waste elimination, managing demand, and conformance with quality (Panwar et al., 2018).

Maskel (1989) and Gunasekaran and Kobu (2007) enumerate the importance of performance management systems being practical, measurable, reliable, low cost and having the ability to provide prompt feedback. Such systems should be comparable to industry standards, considering intangible activities and outcomes (Chae, 2009; Bhagwat and Sharma, 2007).

A very common approach to measuring supply chain performance (SCP) involves the evaluation of time, output, resource, flexibility, and cost (Beamon, 1999; Landeghem and Persoons, 2001) dimensions; such measures can be arranged according to balanced scorecard measures (Kaplan and Norton, 1996).

Shepherd and Gunter (2006) performed a thorough review of the literature, finding 132 SCP metrics in the literature classified into cost, quality, time, and flexibility dimensions and these dimensions can be assumed as standards for measuring SCP (see for example Ebrahimi et al. (2017)). The next subsections will provide details for each of these.

2.8.1. Cost

Cost efficiency is still prominent in the supply chain environment as most organisations and business units are striving to achieve higher productivity which leads to higher profit margins and potentially financial sustainability (Sellitto et al., 2015; Gopal and Thakkar, 2012). This category, according to Bhagwat and Sharma (2007), includes metrics such as net profit, productivity ratio, return of investment, budget variation and cost per operation. Based also on a previous study from Beamon (1999), Shepherd and Gunter (2006) provided 55 metrics that have been used in the SCM literature to deal with cost (including cost-saving, resource cost, inventory turnover, inventory flow, items produced, stock capacity, number of backorders and stockouts, storage costs, delivery and distribution cost, and shipping errors). Recently, cost metrics have also been introduced to take into account reverse supply chain activities (dealing with product returns) (Mondragon et al., 2011, Hassini et al., 2012; Olugu and Wong, 2012; Hazen et al., 2013).

2.8.2. Quality

According to Beamon (1999), quality is one of the most measured indicators in SCP. Several studies retrieved a significant and positive correlation between quality and SCP (Flynn et al., 2010; Gopal and Thakkar, 2012; Sellitto et al., 2015). Quality measures can include: continuous improvement (Talib and Rahman, 2010), supplier quality management (Singh et al., 2006; Talib and Rahman, 2010), benchmarking (Singh et al., 2006; Talib and Rahman, 2010), management commitment (Singh et al., 2006), employee management (Singh et al., 2006; Talib and Rahman, 2010), training and education (Zhang and Sharifi, 2000), and customer orientation (Woon, 2000; Zhang and Sharifi, 2000); in

addition, defect-free rate, rejection rate, supplier relationship, competency, complaint rate, product quality, and customer satisfaction (Shepherd and Gunter, 2006; Gunasekaran and Kobu, 2007).

2.8.3. Time

Time efficiency is a very prominent SCP measure as it can be positively associated with customer satisfaction and operation costs (Droge et al., 2004; Deshpande, 2012; Sellitto et al., 2015). According to Gunasekaran and Kobu (2007) and Gunasekaran et al. (2001), time efficiency can contribute to the improvement of SCP performance not only at an operational level but also at tactical and strategical levels. Shepherd and Gunter (2006) mention measures such as lead time, delivery time, product lateness, the average time of orders, on-time delivery, and customer query time. Reverse supply chain measures have been mentioned as well, dealing with product recycling time and time required for product recovery or replenishment (Beamon, 1999; Olugu et al., 2012).

2.8.4. Flexibility

Flexibility refers to the ability of an organisation to reassess and relocate its scope, process, resource, and capability to meet uncertain customers' demands and business competition (Gunasekaran and Kobu, 2007; Deshpande, 2012). The intense and competitive market has driven organisations to revisit their main processes from planning, sourcing, making, and delivering, and to make sure those processes are flexible to cater for uncertainty such as new product development, supplier selection, production quantity, delivery approach and customer service (Gunasekaran et al., 2001; Deshpande, 2012). By ensuring flexibility across the whole supply chain, organisations can achieve effective operations and practices. A flexible organisation will be able to react in a faster way to customer needs; this can lead to larger market shares.

2.9. Arab Spring

As mentioned earlier, the source of disruption could be due to natural risks or man-made risks (Centobelli et al., 2019; Singh and Singh, 2019; Dubey et al., 2021). Disruptive events can have different ways of influencing the supply chain, for example, the level of impact, the length of impact, and whether or not the companies can predict if a disruption is going to happen and when.

Political events are a source of concern not only for companies but also for countries. For instance, if a country has political stability this will help to attract foreign investment, achieve better use of its resources, and increase its production and exports (Ünlü and Alshebami, 2022). Therefore, seeking political stability is important. Unfortunately, the Middle East and North Africa region could not achieve this in the past years due to geopolitical risks. Geopolitical risks are "*the risks associated with wars, terroristic attacks, armed conflicts, violent protests, and political tension between and within states that affect the normal and peaceful course of international relations*" (Klomp, 2021, p. 204). In contrast to previous researchers who believed geopolitical risks to be gradual and predictable, Darendeli et al. (2021) found that these risks spike and are unpredictable.

The Middle East and North Africa region recently faced a political disruption called the "Arab Spring" that led to it being considered a crisis-stricken region, during which several countries have faced geopolitical risk and a few are still experiencing it (Elbanna et al., 2020; Korbi et al., 2021). This crisis started in Tunisia when a street vendor died after setting himself on fire because he believed he could no longer make a living paying the continuous fines he received while working on the streets (Birhanu and Wezel, 2020; Klomp, 2021).

The death of this street vendor opened the eyes of others to the severity of the living conditions, the need for regime change, and the economic condition which they were living under (Elbanna et al., 2020; Alhassan et al. 2021; Korbi et al., 2021). This political event actually toppled the regimes in a number of countries, such as Tunisia (Ben Ali), Libya (Kaddafi), Egypt (Mubarak), and Yemen (Salah) (Korbi, et al., 2021).

Arab Spring has led to political instability in the region as it can be classified as one of the most severe crises the region has ever faced (Korbi et al., 2021). It highlighted a number of difficult circumstances people living in these regions have been facing, such as corruption, poverty, inequality, failed infrastructure, and unemployment (Alhassan et al., 2021; Ünü and Alshebami, 2022)

Political risk could be classified as an exogenous and endogenous political risk. Exogenous political risk is considered a political shock as it is hard to predict and has a dramatic influence over the country's political system that could be fundamental to the status quo of the country (Buckley et al., 2020; Darendeli et al., 2021). Those risks could come from natural disasters, terrorist attacks, wars, or coups (Darendeli et al., 2021).

Endogenous political risks are related to political risks coming from within the company or in other words risks coming from a country's day-to-day political system (Darendeli et al., 2021). These types of risks are considered to be to some extent predictable as they come from reasonably predictable changes in political leadership deriving from elections or resignation, or changes coming from tax issuance, or deregulation, where those predictable risks can be controlled or managed by monitoring them or by making some strategic adjustments (Darendeli et al., 2021).

According to this two-dimensional classification, Arab Spring can be considered an exogenous political risk. However, for some countries, for instance, Syria, it has grown into a civil war that has also affected neighbouring countries (Ianchovichina and Ivanic, 2016). Also, in Syria and Iraq, the war has advanced to the emergence of the Islamic State of Iraq and Syria (ISIS) (Ianchovichina and Ivanic, 2016). These two risks arising from the Arab Spring have had a further negative impact on the respective countries and neighbouring ones, by increasing the costs on human lives, the economic environment, and social life, also impacting the businesses trading in the region (Ianchovichina and Ivanic, 2016).

These types of risks could have a higher impact on emerging countries than on developed countries, as it is harder for the former to operate in an unpredictable environment where these risks have a direct impact on their return on investment and also have an influence on companies' continuity decisions in those countries under those circumstances (Darendeli et al., 2021). Darendeli and Hill (2016) argue that for companies to try to moderate this effect they need to focus on providing social value and improving their relationships with influential social groups. Darendeli et al. (2021) believe that when companies decide on the location of their businesses, they do so by finding countries which have close political relationships or countries where they have political leverage as it helps in avoiding political volatile contexts.

The countries in the Middle East and North Africa region are considered to have close political relationships. These relationships have had a positive effect on the business trades that they conducted together before the Arab Spring. In spite of this, the Arab Spring hit them as it overturned the business environment, even for countries that did not actually face it, due to the shared political connections concentrated in this region (Kahveci, 2019).

While soft power tools for policy activism such as preferential trade agreements, free trade agreements, visa liberalisation programmes, and high-level economic cooperation councils had positive impacts on bilateral trade, being part of a region facing this conflict and having a coercive policy had a negative impact on bilateral trade between those countries (Kahveci, 2019).

The level of impact on the companies that this risk is causing in the emerging country is hard to determine when it involves revolution, abrupt changes in alliances and arrangements, or violent conflict

due to rapid change which increases the uncertainty of the working environment (Jiménez et al., 2017; Jiménez and Alon, 2018; Darendeli et al., 2021). Also, the corruption, regulation changes, resource uncertainty, lack of information, and operating licences all make it harder to measure the political risk, especially in the case of political discretion to change the rules and regulations for companies' operations or when those governments hide corruption or destroy the information flow (Darendeli et al., 2021), which is usually the case in the emerging countries.

Therefore, it is important to know how to manage political risk, but so far few studies have focused on how companies achieve resilience after facing such a risk or how to respond to it in emerging economies (Darendeli et al., 2021).

The literature has shown that political disruptions have a negative impact on the supply chain, companies' operations, employees, financial performance, and customers no matter how strong the company is (Witte et al., 2016; De Villa et al., 2018; Darendeli et al., 2021). As for the influence on the investors due to the Arab Spring, Klomp (2021) believes that they could react in two opposite ways. First, political risk has a negative impact when investors become concerned about their businesses due to the sanctions against the Arab Spring countries from the international military to protect humans' rights and restore peace from the escalation of protests. That explains why companies usually tend to pull out rather than pile in (Darendeli et al., 2021).

The other reaction could be that the investors expect that when the protests end, they will need more products until they put everything in order (Singh and Singh, 2019). Also, in alignment with this, companies can enhance their chance of overcoming the political disruption by investing in countries where they can rely on their relationships with the governing bodies (Zhu and Chung, 2014; White et al., 2020; Darendeli et al., 2021) by relying on the credibility of their companies and local market knowledge (Darendeli et al., 2021). However, this could be considered as risky as the companies doing this are taking the side of the current government in that country and if this government lost its legitimacy there would be a high probability that this company would lose its market (Leuz and Oberholzer-Gee, 2006; Siegel, 2007; Bucheli and Salvaj, 2013). Therefore, companies should, if possible, predict the determinants of legitimacy in those countries (Sidki Darendeli and Hill, 2016) to enable them to decide on which side to build relationships.

The negative influence of supply chain disruption can be formed as uncertainty which creates some ambiguity surrounding the value of the unit of resources that help in recovering from this disruption (Singh and Singh, 2019). Disruptive events are also considered recurring events, therefore, countries and companies should seriously look into becoming more resilient to unpredictable disruptions and knowing how to react to them (Darendeli et al., 2020; Sharma et al., 2020; Korbi et al., 2021). For instance, governments' strategies in the Middle East and North Africa were not aimed at the minimal investment, use of technology, innovation, and entrepreneurship, but the Arab Spring brought these issues into focus for those governments by paralysing their economies, changing them from struggling economies to something even worse, especially with regard to unemployment and GDP (Khan 2014; Ünlü and Alshebami, 2022), which the protesters were hoping to highlight and fix (Ünlü and Alshebami, 2022).

2.10. Research Context

This section will look at how previous literature linked the research variables. As already mentioned in section 2.7, the related studies found on this specific topic were not sufficient at all. Therefore, each variable from this research has been looked at and linked to the other variables. This section is divided into two sub-sections, the first of which looks at the relationships between the research variables: disruptive events, economic environment, supply chain resilience, and firm performance, while the second sub-section will link those variables to the Arab Spring.

2.10.1. Relationships between Variables

Some researchers (Sheffi, 2005; Schmitt and Singh, 2012) have mentioned the importance of having a resilient supply chain and how it helps in reducing companies' costs deriving from transportation distance and time. In their view, working with local suppliers might be better for companies even if their per-unit price is higher, as those suppliers can reduce different costs in a way that might be more beneficial for companies in terms of the overall situation.

The flexibility of the supply chain plays a significant role in impacting the company's profit and sustainability; however, this flexibility needs to be aligned with the strategy of the company (Sreedevi and Saranga, 2017; Morad and Houssam, 2019). Supply chain resilience is a significant strategic asset for firms and supply chains as a whole (Cheng and Lu, 2017). Although the economic environment can be affected by turbulent events and disruptions with which companies might struggle to cope, Supply Chain Resilience can mitigate the impact of those events (Ghosh, 2016).

Supply chain resilience has enabled companies to develop their business strategies, which, importantly, can help them to overcome disruptions. Nevertheless, from a managerial or environmental viewpoint, current research still does not give a clear insight into how companies can manage their supply chain with resilience (Centobelli et al., 2019). It should be added that companies' supply chain resilience can be developed at the firm level through the effective use of organisational processes, resources, and capabilities (Kamalahmadi and Parast, 2016).

Firms have different performance levels depending on the levels of resilience in reacting to the same disruptive events. For example, after the September 11 attack, Toyota managed to maintain its operational continuity because it had multiple stocks and multiple suppliers, while Chrysler and Ford could not do the same because the U.S. government shut down the Canadian and Mexican borders (Longo and Ören, 2008). As another example, Dell was able to carry on with its work, while Apple could not do so after the Taiwan earthquake affected its supply of semiconductors (Longo and Ören, 2008). As a further example, on the 17th of March 2000, there was a problem with the power lines at a Philips electronics plant which destroyed silicon wafers and chips. Philips was the only supplier of these parts to Nokia and although Philips contacted Nokia to tell them the problem was under control, Nokia decided to further investigate the problem. On finding out that it would cause some delays, they also decided to source other suppliers in addition to modifying their mobile phones to work with different types of silicon wafers and chips. Ericsson, on the other hand, relied only on what Philips told them and when they found out that there would in fact be months of delay it was too late for them to source other suppliers (Longo and Ören, 2008). Even if the firm can manage the interruptions in its operation, the economic impact can still be high and sudden in nature, as was the case with Land Rover in 2001 when their sole chassis supplier, UPF-Thompson, became insolvent (Longo and Ören, 2008). High impact low frequency (HILF) disruptions usually involve public fear which also leads to over-consumption of resources and might also increase the demand (Sheffi, 2005), leading to an increase in the impact and cost.

Firms' ability to continue their operation after facing a disruption event is considered one of the main determinants of long-term competitiveness, as this event may interfere with firms' production activities, which will also affect financial profits and market share in the long run (Abe and Ye, 2013). Disruptions can also have a particular financial impact if one or more of the parties facing disruption cannot maintain the firm's cash flow or if it cannot finalise its financial payables on time (Abe and Ye, 2013).

Firms should keep in mind their long-term continuity. Therefore, they need to analyse what could happen in order to have the necessary risk management plans and measures in place and to avoid jeopardising their marketplaces. Additionally, planning for their future in the right way and finding out the vulnerable points in their supply chain in the case of disruption are very important in enabling companies to find the best solutions, strengthen their supply chain or increase its complexity and make it less vulnerable, and to share information with supply chain partners to increase flexibility to deal with market fluctuation (Abe and Ye, 2013). Controlling disruption or resilience requires a systematic

strategy, as risk reduction in one place in the supply chain does not necessarily reduce the risk to the company if the remainder of the chain is weak; therefore, if the company wants to reduce the vulnerability of its supply chain it needs to strengthen its weakest parts. Additionally, companies should keep an eye on what could happen and develop a recovery plan if disruption is unavoidable (Schmitt and Singh, 2012), to increase the supply chain's resilience.

Firms should keep in mind the importance of having resilience against disasters and strategies for survival in order to avoid catastrophic losses. Having the required level of supply chain resilience can mitigate the risk to performance in uncertain environments (Sreedevi and Saranga, 2017). In doing so, they should focus on the trade-offs between the efficiency of the supply chain and the risk of disasters in order to be better invested in strengthening supply chain continuity in the long term (Abe and Ye, 2013). The terrorist attack in the U.S. on September 11 has highlighted that firms did not give much focus to supply chain risk management as companies found themselves no longer able to keep operating due to this terrorist attack, unable to continue operations outside the US at that time, and had no alternative plan or did not know when the impact would be reduced or disappear (Sodhi and Tang, 2021). This attack or similar attacks or even other types of catastrophic events or disasters have made it clear that firms need to give more attention to such events and carry out corrective actions to avoid their negative impacts and thereby increase the possibility of the continuity of the firm; in addition, more research interest is needed to investigate the security and vulnerability of the supply chain (Sodhi and Tang, 2021; Longo and Ören, 2008).

Generally speaking, aligning supply chain strategies with environmental strategies has a positive impact on the performance of the company (Gunasekaran et al., 2014). Companies also use outsourcing in order to further improve their performance. Outsourcing helps companies to reduce costs and to be closer to customer needs in a global marketplace (Gunasekaran et al., 2015; Bustinza et al., 2010; Kakabadse and Kakabadse, 2005). However, globalisation has forced companies to increase their competition level and build better relationships with their supply chain (Sodhi and Tang, 2021; Prajogo and Olhager, 2012). This will be discussed in more detail in the following sub-section.

2.10.2. Relationship between research variables and the Arab Spring

The impact of natural and man-made disasters on the activities of the economy depends on the characteristics and the conditions of the economy itself, supply chain networking being one of these conditions (Todo et al., 2015). The impact of those disasters can appear as a highly dynamic economic environment. The Arab Spring, as an example of a major man-made disruption and a cause of such a highly dynamic economic environment, has put supply chains under stress in the face of this turmoil. The related political instability can impact the achievement of economic growth through an accumulation of physical capital, technological progress, and accumulation of human capital due to its impact on investment, since future returns are expected to be lower and hard to predict, or due to a decline in improving education or cuts in governmental funds (Veninga and Ihle, 2018). This has shown that companies who had better supply chain resilience were able to rearrange their supply chains more quickly and thereby reduce the turmoil's impact on their performance. When discussing sustainable supply chain management, consideration of just the social, environmental and economic aspects is insufficient (Wu and Liao, 2016).

From the previous sections and the studied literature, it has been found that company performance is a multi-faceted concept, involving several dimensions (cost, quality, time, and flexibility). In this chapter, the supply chain resilience concept has been examined, in order to determine whether it has had a significant impact on the performance of the companies, within the turbulent context experienced by Jordanian firms in the last years.

Resilience building results in costs for firms which are assumed to be calculated based on the estimated cost of disruption, with such preparation helping the firm to avoid more serious consequences.

However, this is not a reasonable way of calculating it as this amount does not appear in the financial statements of the firm (Sheffi, 2005). This research seeks to study the cost of facing the effects of the man-made type of disruption, which includes disruptions due to such as political instability, elections, strikes and power outages that could shut down the business completely and affect the operations of the government or the infrastructure of the transportation. In this research, the Arab Spring, as one of the man-made disruptions, will be studied to check its risk to firms' performance in Jordan and to evaluate how resilient those firms are and how they have been influenced by this disruption. Both tangible and intangible costs (impacts) will be considered.

The literature has shown that the HILF events which have a catastrophic shape are received differently by cultures and generally have a higher impact in cultures with a low tolerance for uncertainty (Abdelzaher et al., 2017). This means that cultures extend from certainty-oriented toward uncertainty-oriented and each of them has its way of dealing with catastrophic events (Abdelzaher et al., 2017). For instance, Egypt, Libya, and Syria have faced significant negative changes after their revolutions as those political revolutions were not only sudden but also highly unpredictable, especially since those countries had been under the autocratic rule for the past 30 years (Abdelzaher et al., 2017).

Literature also has shown that the Arab Spring has influenced different sectors at different levels. For instance, Button et al. (2016) find that air services between the MENA countries have not been affected in a significant way in the short term, except where there are specific distinctions in the nature of the changes to national political economies. In particular, there is no evidence of airline protection in the area because the number of people travelling to the affected country was reduced because of the political event and not because of the airlines. On the other hand, in the banking sector, the analysis conducted by Ghosh (2016) indicates that the Arab Spring has decreased firms' profitability by 0.2% and increased the risk by 0.4%; however, this did not affect the Islamic banks or their stability and performance.

Moreover, the Arab Spring has affected the financial costs in a significant and upward way but affected the developments regarding institutional and governance quality in a negative way (Arayssi and Fakh, 2017). Consequently, the weakening of the relative contribution of finance has affected economic growth (Arayssi and Fakh, 2017). Furthermore, the Arab Spring has also affected tourism, although its influence in this sector was subject to whether it concerned an oil Arab country or a non-oil Arab country. Indeed, the harm that faced some Arab countries has benefitted other Arab countries. Oil-rich Arab countries such as the GCC countries have managed to boost their tourism performances very rapidly, which helped them not only to attract tourists from other Arab countries but also from non-Arab countries, especially in light of travel warnings issued due to high risks in the non-oil Arab countries which have increased the latter's economic losses from the tourist sector (Mansfeld and Winckler, 2015).

This research studies the topic of companies' performance in the aftermath of the Arab Spring, which is an important issue in Middle Eastern countries and one on which there is a lack of supply chain risk management studies.

2.11. Conclusion

Companies should care about their resilience due to the importance of its impact on their performance or even their survival, especially when facing a sudden disruptive event. However, companies' checks on their resilience must not be limited to their own company, they should expand their care to reach all parties in their supply chain, starting from suppliers of raw materials and passing through the whole chain: from suppliers of processed materials, to wholesalers and retailers, until finally reaching the final customers (Pettit, 2019). As no matter how much a company is working to strengthen itself, if any part of the chain is weak it will drag down the whole chain to the same level; in other words, a chain is only as strong as its weakest link.

In this chapter, key variables have been studied, i.e. economic environment, supply chain management, risk management, supply chain resilience, firm performance, and Arab Spring, as well as research theory. Additionally, the relationships between those variables have been looked at. In particular, the chapter has examined the role of supply chain resilience and its impact on supply chain performance, and explained the types and causes of disruptions that can lead to a risk to companies' resilience. Definitions of resilience and other related terms have been provided as well as a discussion of the economic environment. Finally, the chapter explained criteria by which to measure supply chain resilience and firm performance.

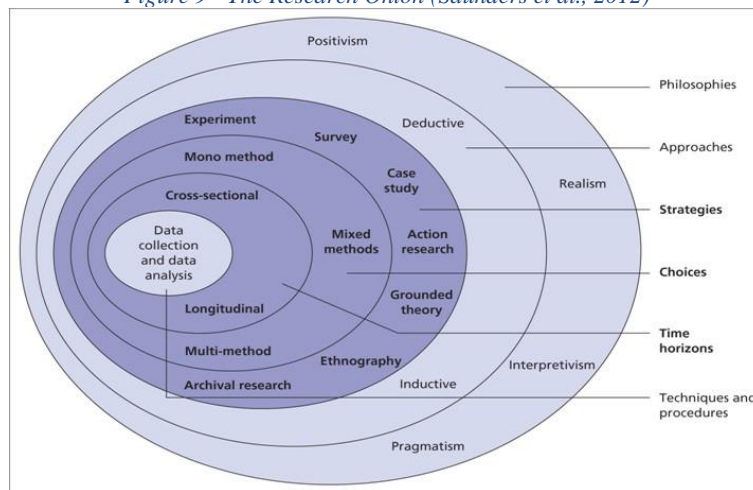
Chapter 3: Methodology

3.1. Introduction

This chapter presents research methods that have been adopted to address the stated research question and achieve the presented research objectives. The chapter starts with the research onion that helps in illustrating the research philosophy and its rationale, after which it explains the research approach, strategy, choice, time horizon, techniques and procedures, and finally the research ethics.

Saunders et al. (2012) have developed the research onion for researchers in the business field to guide them in selecting the right philosophy, approach, strategy choice, time horizon, and techniques and procedures, as illustrated in Figure 9 below. This research onion helps researchers to proceed through the research methodology layers, one after the other, in a logical way and without forgetting any step of it. The next sections will explain each category and then highlight how these categories have been addressed in this research.

Figure 9 - The Research Onion (Saunders et al., 2012)



3.2. Research Philosophy

The research philosophy is concerned with underlying assumptions that help the researcher to decide which research approach should be adopted and why. There are, broadly speaking, four main research philosophies, i.e. positivism, realism, interpretivism and pragmatism, with other philosophies that can be considered hybrid forms of these (See Figure 9) (Saunders et al., 2012).

The choice of research philosophy will depend on what type of research is being conducted and what are the expected types of outcomes from the research. For instance, positivism is usually selected when the researcher is looking at large, highly structured, qualitative data. Whereas realism relies on the idea of independence of reality from the human mind. Interpretivism philosophy is usually adopted when the researcher chooses to understand a phenomenon by using a small sample of qualitative data to conduct an in-depth investigation. Meanwhile, pragmatism is a philosophy that combines positivism and interpretivism within the same research and depending on the research question.

In contrast to positivist or interpretivist research, where the researcher adopts one philosophical stance, pragmatism enables the researcher to address research questions by using all available approaches to

understand the problem (Cresswell, 2009). Pragmatism is predominantly focused on the research question rather than on the epistemology, ontology and axiology of the research philosophy. Pragmatism can thus combine both positivist and interpretive perspectives within given research and integrate more than one research approach or strategy within the study. It can therefore be used as a justification for simultaneously adopting qualitative and quantitative methods of research (Onwuegbuzie and Johnson, 2006).

The aim of this study is to examine the relationship between supply chain resilience and firm performance in turbulent environments, characterised by major man-made disruptions. This study attempts to identify whether identified dimensions of supply chain resilience have different impacts on firm performance for manufacturing companies in Jordan. Moreover, by adopting an interpretive approach, this relationship between supply chain resilience and firm performance can be further explored to provide a better understanding of the underlying causes of this relationship.

The interpretive approach, as mentioned earlier, allows the researcher to study a small representative sample that would help in understanding and addressing the research question. Therefore, this research would apply it to assess how companies' performance has been impacted by looking at a number of companies from Jordan's business sector.

3.3. Approach

As illustrated by Saunders et al. (2012) in Figure 9, research can be deductive, inductive, or both. The inductive approach looks at developing a theory by going from specific observation toward generalisation, while the deductive approach goes in the opposite direction.

This research incorporated an inductive research approach. This research is considered exploratory research to look at whether or not supply chain resilience practices help in improving companies' performance when faced with a sudden disruptive event. Therefore, an inductive approach has been adopted in order to enable the researcher to collect descriptive data for the purpose of studying this relatively new topic, aiming to develop an understanding of this theory and to be able also to generalise it. This would help in testing whether the influence of a disruptive event can influence the relationship between supply chain resilience and firm performance.

3.4. Strategy

Figure 9 shows seven different strategies: experiment, survey, case study, action research, grounded theory, ethnography, and archival research, from which the researcher can choose at least one. This selection will depend on the nature of the research itself, the level of generalisation, size of the sample, among other factors.

The case of Jordan has been chosen as a single unit of analysis within the wider Arab World to investigate the research question. Jordan, as the unit of analysis, is a relatively small Arab country in Western Asia and is bordered by Saudi Arabia, Iraq, Syria and Israel and Palestine.

The Arab Spring, especially in Syria, has affected Jordanian companies in various ways. Foremost it had a profound impact on trade relations. Jordan has close relationships and a high level of business trade with its neighbour countries. It used to conduct varied business trade with other surrounding countries such as Syria, Lebanon, Turkey, Israel, and Iraq, whereby they would export, import or pass goods from one country to another. However, since the turmoil began in Syria the trade relationships between Syria, Iraq and Jordan have been affected, particularly with respect to the import and export

levels. For instance, several sources found a decrease in the import rate from Syria to Jordan from 3.7% in 2010 to 1% in 2017 (Trading Economics, 2018).

This research as a whole is considered a case study to investigate the influence on Jordan of the disruptive Arab Spring event that happened in the neighbouring countries. This case study has been studied through semi-structured interviews.

3.5. Choices for Data Collection

As shown in Figure 9, data can be collected through mono-method, mixed methods, or multi-methods. Mono method involves using only one strategy of collecting data; mixed methods entails using two or more strategies and both quantitative and qualitative data; multi-methods research involves using a wider range of data collection strategies.

This study uses a mono-method approach to address the research questions. Semi-structured interviews, as the main data collected approach, would enable the researcher to reveal more accurate and comprehensive findings on the underlying causes of the relationships among the data. It would also help in finding the rationales behind these relationships. Secondary data have been collected from formal entities in Jordan to support the data collected through the interviews.

3.6. Time Horizon

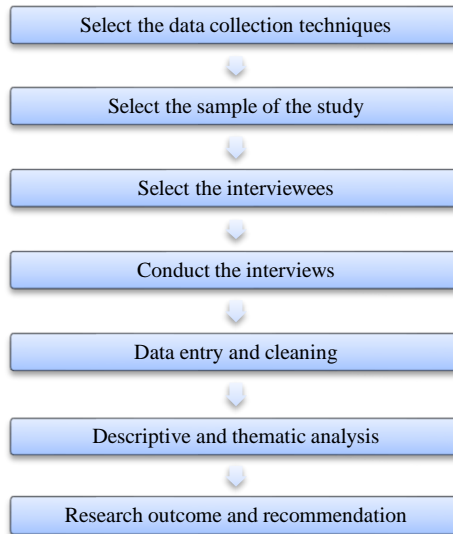
Research can either be cross-sectional or longitudinal (See Figure 9), depending on what is being investigated and how it is going to be investigated.

For this research, the cross-sectional form was selected, based on determining the data collection time (2019) to study how companies which had been established before the Arab Spring have managed to survive and what they have gone through during this period.

3.7. Techniques and Procedures

The following sections will illustrate the research context, along with the data collection and analysis plan. Figure 10 below shows the research plan for the data collection and analysis process which will be explained in the following sections.

Figure 10 - The Data Collection and Analysis Flow



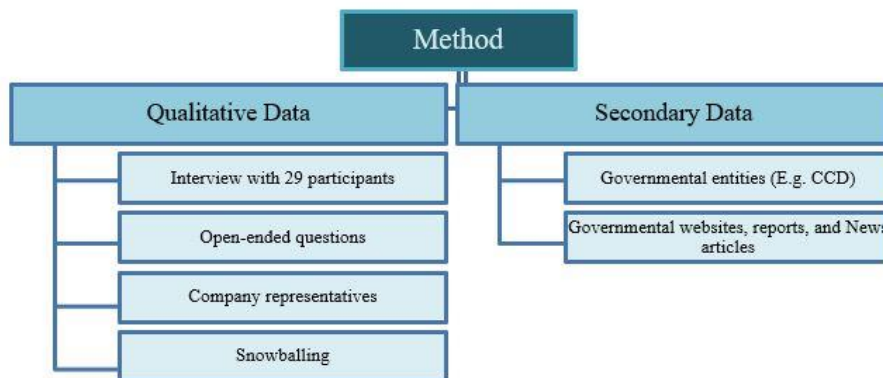
3.8. Data Collection Method

This research identifies the key factors that can affect and control a company’s operations, and it investigates to what extent man-made disruptions, and in particular the Arab Spring, have affected this relationship. This research describes the relationship between supply chain resilience and company operations in the context of the disruptions caused by the Arab Spring turmoil.

As shown in Figure 9, Figure 10, and Figure 11, this study mainly used semi-structured interviews to collect data. In addition to the interviews, data were collected from formal entities in Jordan through reports, articles, and websites.

Moreover, certain secondary data resources have been used to gather further related information (Further details are presented later in this chapter), such as information relating to the rules and regulations that govern the business industry and help companies to survive and stabilise the economy. This information, which was gathered from the official entities in Jordan, literature, reports, and books, was collected in order to gain a broader picture of the situation.

Figure 11 - The Data Collection Method



3.9. Sample

This research aimed to examine how supply chain practices have affected the performance of the manufacturing companies in Jordan while facing the unexpected events of the Arab Spring. As stated earlier, the Arab Spring has affected Jordanian companies in various ways. Foremost it had a profound impact on the level of business trade with its neighbour countries, such as Syria, Lebanon, Turkey, Israel, and Iraq. For instance, there was a decrease in the import rate from Syria to Jordan from 3.7% in 2010 to 1% in 2017 (Trading Economics, 2018). Furthermore, it had a substantial impact on business trade between Syria and Jordan; in the first year of the turmoil, business trade declined by 37% due to the closure of the Syria-Jordan border, leading to materials flow disruptions and significant implications for the wider supply chain. This has led to increased costs and longer delivery times (Ryan, 2014; Gasiorek, 2013). Hence, trade-in in Jordan has been affected in different ways. Therefore, the research was concentrated on manufacturing companies in Jordan that have been in operation since before December 2010 and have survived the disruption caused by the Arab Spring.

The sampling frame is created from a report by the Companies Control Department in Jordan (2018) which contains primary details of companies in Jordan (whole population) including the number of companies in Jordan before and after the Arab Spring, the sector in which they operate (Services, Agriculture, Constructing, Merchandise, and Manufacturing), the nationality of the owners, and companies that have been liquidated (18,621). Overall, the report identifies 56,137 operating companies and 13,087 non-operating in the five sectors (as shown in Table 5), among which there were 9,319 operating companies and 2,067 non-operating companies during the period from 2005 to 2011. Those companies which operate in manufacturing and survived the Arab Spring were considered as the population of this research.

Table 5 - Number of Companies in Jordan by sector (CCD, 2018)

Sector	Operating Companies	Non-Operating Companies
Services	20,306	4,312
Agriculture	3,669	288
Constructing	2,038	338
Merchandise	20,805	6,082
Manufacturing	9,319	2,067
Total	56,137	13,087

For this study, it was important to select the respondents carefully because not all employees within the company might be aware of the supply chain resilience measures being undertaken or might not have details on the different relevant firm performance indicators. Thus, respondents were selected based on their knowledge and understanding of the company's performance and the impact of relevant factors, particularly supply chain resilience factors, on that performance. In this case, the most appropriate respondents were considered to be the Chief Executive Officers, Chief Operating Officers, and Owners.

The selection of the study sample was carried out by means of snowballing technique. This method was chosen due to the requirement to gain access to a specific elite group of interviewees who would be asked to provide relatively sensitive/ confidential information. Snowballing was considered the most appropriate sampling method for this research because it is based on personal contacts and recommendations and could therefore encourage the interviewees to trust the researcher and give them the confidence to share information about their companies. Also, this has helped in assuring the interviewees that this research was studying the influence of the disruptive event (political event), not the disruptive event itself.

The snowballing (or judgemental sampling) started through the researcher contacting representatives of the sample companies who agreed to participate in the interviews through her personal connections. After interviewing these respondents, the researcher asked them if they could pass on the interview request to another company representative from within the research population. This was a particularly helpful method given that this research needed to conduct interviews with the top-level personnel in the company and, usually, it is easier to contact such people through recommendations from another party.

As for the sample size for this research, the minimum number of companies targeted to be interviewed was 18 companies. However, the researcher managed to interview 29 companies from all sectors of the manufacturing industry, the extra interviews were added in case there was a need to remove any of the conducted interviews.

3.10. Data Collection and Analysis Plan

Figure 10 shows the data collection and analysis flow that was followed in this study. After establishing the sample for this study, data were collected through semi-structured interviews (Interviews questions can be found in the appendix 4 and in Table 6), which is a format that provided a structure for the interview but at the same time gave the interviewees the flexibility to discuss the research topic with relevance to their company and its particular situation. Interviews enable a more detailed study of the phenomena than would be possible using previous reports and research alone and are particularly valuable in developing countries where there might be a lack of such documentary evidence in the research area.

The interviews helped in getting information covering research variables and some companies' background information. The sample companies were asked to provide details about their companies, their supply chain, what resilience capabilities they have, their performance, what disruptive events affect the company, and the economic environment in which the company operates.

After the interviews, the collected data were entered and coded based on which research variable they covered, what question they were answering, and what information they were providing. Table 6 provides more information about this. Descriptive and inferential analysis was carried out to obtain a general understanding of the phenomena of the study. The data obtained from the interviews were subjected to thematic analysis as the next section 3.10.1 shows.

The researcher conducted interviews with 29 companies. These interviews were conducted with C-level managers and business owners from the top companies in the manufacturing sectors. The number of interviews was determined based on two factors. First, it was necessary to conduct at least one interview with each sector from the manufacturing industry, to ensure that the research would have some information about each sector and the companies in it. Second, reaching a level of saturation would mean that further interviews would not add new significant details to the study and mostly would start to give the same information as obtained from previously interviewed companies.

The interviews helped to obtain a more detailed explanation from companies' representatives on the supply chain resilience practices they implement within their company and what the impacts of these practices are on their company. They also provided an opportunity to discuss in more depth potential difficulties and barriers in implementing supply chain resilience practices.

Moreover, the interviews gave the companies' representatives the chance to provide more details about their answers, such as their perceptions about which indicators have more influence on performance when dealing with turbulent events and the underlying rationale. In addition, they allowed the potential identification of new factors or performance indicators.

3.10.1. Thematic Analysis

Kiger and Varpio (2020) seem to agree with Thorne (2000) that the most complex phase of any qualitative research is its data analysis. One of the reasons that this phase is still considered complex is that most of the qualitative research lacks an explicit description of what methods it has used, while

another reason could be that some qualitative data terms have an unclear definition or a wide one (Kiger and Varpio, 2020).

This research relies mainly on qualitative data analysis. Analysis of qualitative data relies on the data collection and interpretation by the researcher (Alhojailan, 2012). Therefore, it is quite important to find the most efficient ways of collecting and analysing data in order to reach the most accurate results. Denscombe (2010) believes that this could be achieved by following three principles when analysing the data: first, by combining a comprehensive variety of collected data in a succinct structure through tables, charts, and graphs. Second, making the research objective the driver of the qualitative data collection and data analytical methods in order to achieve clarity of the objective of the research and its summary. Third, enhancing the research conceptual base and/ or developing a model should be the goal for any research.

Choosing the right approach (deductive, inductive, or both) is also critical for the researcher, and to choose the right approach for the research, according to Braun and Clarke (2014), it must be thorough and reflective and it needs to take into consideration a number of factors, such as the research topic, the research question, the researcher, researcher's experience, the sample, the location, the context of the research, and others. As those approaches are considered to be nuanced, diverse, and complex (Braun and Clarke, 2006), Braun and Clarke (2014) suggest that thematic analysis would work well with qualitative data and whatever approach the researcher uses.

Thematic analysis has been defined by a number of researchers, who seem to have come to agreement on a definition of it. For instance, Kiger and Varpio (2020) define it as a qualitative data analysis method that aims at looking through the collected data to identify, report, and analyse repeated patterns, as a method of working on describing the data while interpreting through constructing themes and selecting codes. Thematic analysis has been defined as a qualitative data method that works on identifying, interpreting, and analysing patterns (themes); thematic analysis can be used with quantitative data, but this is unusual (Clarke and Braun, 2017). Javadi and Zarea (2016) defined it as an approach of extracting meaning and concepts from data drawn from such as transcripts, interviews, notes, documents, pictures, and videos by finding patterns (themes), examining and pinpointing the data collected. They also described it as the simplest analysis approach used in qualitative research. Alhojailan (2012) defined it as a qualitative data type of analysis that works on the interpretation of detailed and diverse data to analyse, classify, present, and pattern the data. Finally, Braun and Clarke (2006) defined it as an analytical method that identifies and draws patterns for the collected data that help in describing and organising the findings and explaining the research topic.

When researchers apply a thematic analysis approach they need to classify the collected data into themes and codes. Therefore, it is quite important to distinguish between themes and codes in order to accomplish the analysis and reach the findings in the right way.

"Coding methods employ processes that reveal themes embedded in the data, in turn suggesting thematic directionality toward categorizing data through which meaning can be negotiated, codified, and presented. Coding is a key structural operation in qualitative research, enabling data analysis and successive steps to serve the purpose of the study" (Williams and Moser, 2019, p. 45)

Themes arise from gathering data that have things in common (patterns) so that those combined data will form a meaning when looked at in combination, and when linking those themes with the literature the researcher would have a base for their research findings (Aronson, 1995). Clarke and Braun (2017, P.297) state that *"Themes provide a framework for organizing and reporting the researcher's analytic observations"*. Themes not only work on counting words and patterns, they also work on identifying and describing explicit and implicit ideas (Alhojailan, 2012). Javadi and Zarea (2016) describe themes as the outcomes of the codes.

Gathering patterns from the set of collected data to form a theme that represents a meaning helps in understanding and answering the research question (Braun and Clarke, 2006). As thematic analysis and

themes are used mainly on qualitative data, Braun and Clarke (2006) and Javadi and Zarea (2016) argue that there is no rule for the minimum required amount of data to be considered as a theme or a code but it is mainly dependent on whether this theme or code captures something important.

Codes are tools that are used to build a theme (Javadi and Zarea, 2016; Javadi and Zarea, 2016). “*Codes are the building blocks for themes, (larger) patterns of meaning, underpinned by a central organizing concept – a shared core idea*” (Clarke and Braun, 2017, p. 297).

There are a number of analytical-qualitative methods, such as thematic analysis, grounded theory, ethnography, or phenomenology. Some researchers, including Kiger and Varpio (2020), Nowell et al. (2017), Javadi and Zarea (2016), Clarke and Braun (2017), and Braun and Clarke (2006) claim that thematic analysis is underestimated and underrepresented even though it is widely used. Nowell et al. (2017) argue that thematic analysis should become the foundation for qualitative analysis, especially since qualitative data need to be understood and made sense of, and thematic analysis does this (Alhojailan, 2012).

There are no constants or clear guidelines for thematic analysis, which might be a criticism of this method, but at the same time, this makes it a good fit for the qualitative data (Kiger and Varpio, 2020; Nowell et al., 2017; Braun and Clarke, 2006). Even though some researchers seem to agree that there are a number of phases that the researcher can follow: a) familiarisation with the data, b) initial coding, c) generating themes, d) reviewing themes, e) defining and naming themes, and f) writing up (Kiger and Varpio, 2020; Nowell et al., 2017; Javadi and Zarea, 2016; Braun and Clarke, 2006), Kiger and Varpio (2020) argue that thematic analysis should only be chosen if it fits the research goal not because it is widely used or easy to use.

At the core of thematic analysis is the comparison of the data from multiple codes within the same theme to find the common feature for that theme, then finding themes that share features and comparing their codes together (Tuckett, 2005). Thus, thematic analysis allows the researcher to test and determine the relationships and compare them among the research concepts (Clarke and Braun, 2017).

Alhojailan (2012) thinks that thematic analysis fits any research that is looking for discovery and relies on the researcher's interpretations as it helps to look into the data in a systematic way; it also improves the accuracy and intricacy and enhances the outcomes of the entire research. Once the researcher decides to use the thematic method for analysis, the next step will be to choose which approach to use.

The research approach could be inductive or deductive. (as explained in the previous section 3.3, this research will be using an inductive approach) (Clarke and Braun, 2017). According to Braun and Clarke (2006), there is no determinant on which approach to choose or whether one is more accurate than the others, as some researchers think that early reading might narrow the analytical vision of the researcher, while others believe it might enhance the researcher's analytical sense. There are some researchers who add another layer to the research approach, namely the semantic and latent; the semantic layer looks into the explicit meaning of the data and the latent looks into the assumptions and subtext of the data (Clarke and Braun, 2017).

The aim of thematic analysis can be considered not only to understand and summarise the gathered data but also to interpret and identify the key features of the data in light of the research question (Clarke and Braun, 2017). The researcher should also ensure that their research can be considered trustworthy by anyone reading it.

For qualitative research to be considered trustworthy it should provide detailed assurance to the reader that it has been conducted in an exhaustive, constant, and precise way throughout the entire analysis stage by recording, systematising, and disclosing the chosen analytical method, to enable the reader to decide whether or not the analysis has been conducted in a credible way (Nowell et al., 2017).

Researchers tend to cite a number of reasons for preferring to use the thematic method for analysis. The most distinguishing feature of thematic analysis is its flexibility (Kiger and Varpio, 2020; Clarke and Braun, 2017; Javadi and Zarea, 2016). The simplicity of this method also encourages researchers to rely on it (Kiger and Varpio, 2020; Javadi and Zarea, 2016; Braun and Clarke, 2014). Another feature is its accessibility (Kiger and Varpio, 2020; Clarke and Braun, 2017). It also can be used when studying new research fields (Clarke and Braun, 2017). Researchers can, moreover, adopt this method when conducting applied research (Braun and Clarke, 2014). It allows the researcher to summarise big data in an easy-to-read way (Kiger and Varpio, 2020; Nowell et al., 2017; Clarke and Braun, 2017).

Table 6 shows the initial themes for this research based on the interview questions. In the following chapter (Chapter 5: Analysis and Findings - Manufacturing Industry), more detail on themes and codes will be presented and explained.

Table 6 - Question-Code Guide

Number	Question	Question- Code Guide
1	Can you tell me more about your company?	Company_Info, Age_
1.1	What are you doing/ what is your business?	Sector_
1.2	What kind of products do you have?	Product
1.3	How many suppliers do you have? Who are they?	Supplier, Raw_material
1.4	Who are your target customers? How many customers do you have? Who are they?	Customer, Continent_
1.5	How is your supply chain organised?	SCM
1.6	Where is your company based is it national/ multi-national, or international?	Company_
1.7	How was your company business related to the countries facing the turmoil?	Turmoil_Disruption_Arab_Spring
2	Can you tell me about the challenges that your company faced since the beginning of the Arab Spring?	Challenge_
2.1	As the Arab Spring has an impact on the economic environment could you please describe me the economic environment in which your company operates?	Economic_Environment
2.1.1	Easy of doing business	Easy_of_doing_Business
2.1.2	Level of bureaucracy	Bureaucracy
2.1.3	Skilfulness	Labor_Skilfulness_
2.1.4	Poverty	Poverty
2.1.5	External Debt	Loan
2.1.6	Financial Sector	Financial_Sector
2.1.7	Social Protection & Labour	Labour
2.1.8	Trade	Trade
2.1.9	Urban Development	Urban_Development
2.2	Can you put them in order based of their influence on your company?	Rank
2.3	What was the influences of those challenges on your company?	Influence, Performance_
3	How easy would it be for you to replace suppliers? And customers?	Supplier_Replacement_, Customer_Replacement_
3.1	What would happen if you lose one of them?	Supplier_Replacement_, Customer_Replacement_
3.2	Is there any kind of regulation that influences the relationship between you and your suppliers or business partners?	Regulation_
3.3	Was this relationship exacerbated by the turmoil?	Turmoil_Disruption_Arab_Spring, Regulation_
4	What kind of practices have you adopted to mitigate, avoid, or reduce the impact of the Arab Spring?	Turmoil_Disruption_Arab_Spring, Practice
4.1	Supply chain practices:	SC_Practices
4.1.1	Agility	Agility
4.1.2	Collaboration	Collaboration
4.1.3	Information sharing	Information_Sharing
4.1.4	Risk and revenue sharing	Risk_and_Revenue_Sharing
4.1.5	Sustainability	Sustainability
4.1.6	Trust	Trust
4.1.7	Visibility	Visibility
4.1.8	Risk management culture	Risk_Mmanagement
4.1.9	Adaptive capability	Adaptive_Capability
4.1.10	Structure	Structure
4.2	When did you start to apply each of those practices?	SC_Practices

5	What was the reason for implementing those practices?	SC_Practices
5.1	Were you trying to implement best-practices from your industry?	SC_Practices
5.2	To what extent did you encourage other parties from your supply chain to adopt similar practices?	SCM, SC_Practices
5.3	Was there any kind of pressure on your company to adopt specific practices; business pressures (market, technology, or societal)?	Pressure
5.3.1	Market pressure:	Market_Pressure
5.3.1.1	The Global Economy	Market_Pressure, Economic_Environment
5.3.1.2	Strong Competition between companies	Market_Pressure, Competition
5.3.1.3	The Changing Nature of the Workforces	Market_Pressure, Labor_Skillfulness_
5.3.1.4	Powerful Customers.	Market_Pressure, Customer
5.3.2	Technology pressure:	Technology_Pressure
5.3.2.1	Technological changes and outdated of technology.	Technology_Pressure, Machine
5.3.2.2	Information overload.	Technology_Pressure, Information
5.3.3	Societal Pressure	Societal_Pressure
5.3.3.1	Social Responsibility	Societal_Pressure, Social_Responsibility
5.3.3.2	Government Regulation and Deregulation	Societal_Pressure, Regulation_
5.3.3.3	Protection Against Terrorist Attacks	Societal_Pressure, Terrorist_Attacks
5.3.3.4	Ethical issues	Societal_Pressure, Ethic
6	To what extent do you believe the organisation's capabilities restricted the adoption of certain resilience practices?	SC_Practices, Capabilities
6.1	What kind of resources enabled your company to overcome the turmoil and what kind of resources were missing to have done so more efficiently/effectively?	Turmoil_Disruption_Arab_Spring, Resource
6.2	What kind of skills enabled your company to overcome the turmoil and what kind of skills were lacking that could have allowed to do so more efficiently/effectively?	Turmoil_Disruption_Arab_Spring, Experience_
7	Could you please provide me with some details about your company's overall performance before and after the Arab Spring?	Turmoil_Disruption_Arab_Spring, Performance_
7.1	Profitability	Performance_, Profit_
7.1.1	Cost	Performance_, Cost_
7.1.2	Revenue turnover	Performance_, Revenue_Turnover
7.1.3	Quality	Performance_, Product_Quality_
7.1.4	Flexibility	Performance_, Flexibility
7.1.5	Time	Performance_, Time
7.2	Where there any positive influence from this turmoil on your company?	Turmoil_Disruption_Arab_Spring, Positive_Impact_
7.3	Overall, have things improved or worsen due to this turmoil?	Turmoil_Disruption_Arab_Spring, Performance_
8	Is there anything that you think you should have in the company for the future similar situations that would help you in overcoming them?	Future_Plan
8.1	Have you thought about it before facing this turmoil?	Future_Plan
8.2	Where there any kind of restriction on applying it or thinking about it?	Future_Plan, Regulation_
8.3	Are you planning to apply it now?	Future_Plan
9	Have you received any kind of help or support from the government which helped you to overcome the disruption?	Support_
9.1.1	Tax reduction	Support_, Tax
9.1.2	Financial support	Support_, Financial_Support
9.1.3	Loans	Support_, Loan

9.1.4	Training programme	Support_, Training_Programme
9.2	When did you received it?	Support_
9.3	To what extent did it help you continue your operations?	Support_
10	Is there anything else that you think should be mentioned about the research or any point that should be added to it?	Research_Add

3.11. Data Collection Protocol

Initially, this research aimed at selecting the companies based on a systematic probability sample; however, after 35 companies were contacted through emails and phone calls, this did not lead to any positive results as either they failed to respond or refused to participate after contacting their legal department. Therefore, convenience sampling was used (by using the researcher's connections) and snowball sampling to select the companies that met the research requirements for this study. This approach resulted in interviews being conducted with business owners or senior managers from 29 companies.

The data were collected by following a number of steps:

Determining the sample of the research and the type of data (Qualitative) to be collected.

Writing down the research questions which covered the research variables (SCR Practices, Firm Performance, Economic environment, and Arab Spring) to help in addressing the hypothesis of this research.

Applying for ethical approval from the University of Sheffield in order to proceed with the data collection.

Getting a cover letter from the University of Sheffield and AlZaytoonah University of Jordan (The researcher sponsor) in order to contact Jordanian entities to gather some data regarding the number of companies in Jordan before and after the Arab Spring, in which sectors they are, the nationality of the owners, and whether these companies have been liquidated or are still in the market.

Also, cover letters were used when contacting the companies' representatives (CEO or COO) in order to make an appointment for a meeting.

Contacting the interviewees to select the day, time, and location of the interview. And sending further details to those representatives who agreed to be interviewed unless they requested not to receive those details in advance.

Conducting the interviews with the representatives (recording these when the interviewees agreed on doing so). If possible, also asking them to connect the researcher with other representatives who fitted the research criteria.

Thanking the respondents and letting them know also the contact details of the project in case anything new emerged or if they wanted to add more details or withdraw from the research.

Writing down the details of the meeting and starting to categorise them as a starting point for the next step in the analysis.

Backing up the data collected in the university drive.

3.12. Data Collection

3.12.1. Semi-structured Interviews

Interview process: the semi-structured interview format allowed the researcher to prepare for the interview in advance by ensuring the research variables and indicators would be covered while also giving the interviewees the chance to express their opinion on their own terms.

The interviews with the Jordanian manufacturing companies were conducted face-to-face. The interviews were recorded with the interviewee's permission (26 interviews) to ease the writing of notes and to help the interview to run smoothly so it would be like a conversation, in order to help the interviewee feel more comfortable. For the three interviewees who did not feel comfortable with recording of the interview, detailed notes were taken instead. The interviews mostly lasted for at least one hour and all the interviewees were supportive in providing the information and the time required to do so. Interviews were conducted in the interviewees' native language (Arabic), after which the interviews were translated into the English language for the purpose of coding, analysing, and writing down the findings.

Interview questions were formulated around the main variables in this study, i.e. supply chain resilience, firm performance, economic environment, and Arab Spring (Interview questions can be found in the appendix 4). Articles such as those by Soni et al. (2014), and Shepherd and Gunter (2006) were referred to in order to determine the indicators for each variable and thereby develop the interview questions.

The interviews started with the researcher introducing herself and the University of Sheffield and then explaining in detail the research: what it is, the project's purpose, the reason for choosing them for the interview, possible advantages, disadvantages, and risks of taking part, confidentiality, ethicality, and all related information.

Then the interview moved on to asking for general information about the company, followed by a request for more details when needed, then to asking the remaining interview questions, at the end of which they were asked if there was anything that they would like to add to the research or if anything was missing that should be included in this research.

3.12.2. Secondary Data

For the purpose of this research, a number of Jordanian formal entities were contacted in order to gather related secondary data. Those entities include the Company Control Department (CCD), Ministry of Industry and Trade (MIT), Social Security Corporation (SSC), Ministry of Labour (MOL), Income and Sales Tax Department (ISTA), and Eastern Amman Investors Industrial Association (EAIIA).

Secondary data in report form that were of interest to this study and which were collected from these entities included: (i) names of companies registered since 2000, (ii) year of incorporation, (iii) sector for companies, (iv) the capital of the company, (v) number of employees, (vi) annual profitability of companies, (vii) the reason for the liquidation of companies that came out of the market, (viii) contact information.

3.13. Institutional Theory

Chapter 2: Literature Review has presented the most used theories in the field of operation management and supply chain. Examination of those theories has indicated that they focus on: agency theory; agents benefitting themselves over their companies, contingency theory; no company being efficient under all circumstances, dynamic capabilities theory; obtaining a competitive advantage in a dynamic environment, game theory; building scenarios to help in predicting actions and decisions, information theory; companies' reliance on information, institutional theory; operating while facing environmental pressure, knowledge-based view theory; company's knowledge as a unique resource, network theory; company's relationships with its supply chain, organisational theory; effectively managing the company, resource dependence theory; reliance on other companies for needed resources, resource-based view theory; company's resources representing a base for its competitive advantage, social capital theory; companies composed of people and how they influence it, stakeholder theory; companies' responsibility to keep in mind the interests of all their stakeholders, strategic choice theory; company's manager making the company's strategic choices, systems theory; companies operating systematically, and transaction cost theory; the company's manufacturing vs. buying choice.

As will be shown in the next chapter, some of those theories might fit some of the practices adopted by the interviewed companies (but do not apply to all the interviewed companies); however, the nature of the study itself can be best represented by the institution theory as it represents the environmental pressure and how it affects companies and their adopted practices. Therefore, the theory selected for studying this research phenomenon is institution theory.

The number of empirical studies that have adopted the institution theory has increased (Kauppi and Luzzini, 2021; Meherishi et al., 2019). Institution theory suggests that companies become isomorphic because the institutional pressures: coercive, mimetic, and normative, force them to adopt similar practices (Kauppi and Luzzini, 2021; Kummer et al., 2020; Meherishi et al., 2019; Ketchen and Giunipero, 2004). Coercive isomorphism comes as a result of formal and informal pressure on the company from other companies they rely on; those pressures usually stem from political influence (Kauppi and Luzzini, 2021; Meherishi et al., 2019; Zsidisin et al., 2005). Mimetic isomorphism comes as a result of uncertainty leading to imitation, when companies start to imitate successful practices adopted by other companies (Kauppi and Luzzini, 2021; Meherishi et al., 2019; Zsidisin et al., 2005; Ketchen and Giunipero, 2004). Normative isomorphism comes as a result of professionalisation and is linked to the continuous struggle of occupation members to define their working conditions to establish a base for their occupational autonomy (Kauppi and Luzzini, 2021; Meherishi et al., 2019; Zsidisin et al., 2005).

Zsidisin et al. (2005) believe that the pressures that the company faces which lead it to adopt certain business practices not only come from the external environment but also come from within the company itself.

A company goes through a number of stages when it is faced with risk (from an institutional theory perspective): practices adoption as required by the constituents, practices to imitate leading companies, and finally practices becoming the company's usual activities (Zsidisin, et. al., 2005). Ketchen and Giunipero (2004) seem to believe that a company's adoption of mimetic practices is considered as wise and will gain the approval of the company's stakeholders as it represents a legitimate action; however, this is irrelevant to supply chain practices driven by the company itself; therefore, if the company cannot find a logical motive for adopting those practices, this will negatively be reflected in its performance.

3.14. Research Ethics

The researcher applied for ethical approval in April 2019, in order to collect the data through interviews with companies' representatives in Jordan and some governmental institutions in Jordan. See Appendix 8 for the ethical approval.

3.15. Intended Research Contributions

This research aims at making contributions both to society and to academia by helping to better understand the relationship between supply chain resilience and firm performance and whether the relationship could be impacted by facing sudden disruptive events such as man-made disruption. Being able to better understand those relationships in the context of this research will contribute, on one hand, to society by sharing with the operating companies its recommendations on how they could become more competitive. This will help them to improve their performance and their profits, which will eventually reflect on the government as well as helping in improving national GDP and living conditions, in addition to attracting more investors. Recommendations could also include how to increase resilience, which will help those firms in facing future turbulent events. On the other hand, this research will contribute to academia by helping to answer the question of how supply chain resilience might influence the continuity of a company in the case of a turbulent event; it may also encourage other researchers to give more attention to man-made disruptions and in particular to give more focus to the cases happening in the developing countries.

Chapter 4: Interviewed Companies

The researcher has managed to interview 29 manufacturing companies in Jordan. Figure 12, the following chapter 5 section 5.2, and Table 23 present general comparisons among those companies, but first, this chapter will provide background information about each of the companies interviewed to give a general understanding of those companies.

C01

A chemical manufacturing company that specialises in manufacturing all kinds of cleaning materials for laundry, home cleaning, personal care, and all types of cleaning products. The company was originally Syrian, as the parent company was established in 1969 in Syria, and it has two subsidiary companies, one in Lebanon and one in Jordan, The branch in Jordan was established in 2009 due to the high demand from the Jordanian market and this branch became the one responsible to export to foreign markets. The parent company is still in Syria and all its production is for the Syrian market.

This company has about 100 Jordanian employees and it operates in 5,000,000 million JOD yearly. Half of its raw materials come from China and the other half come from Europe. C01 sends its production to the local market in addition to Libya, Iraq, and Saudi Arabia. According to this company's owner, replacing a supplier or customer is very difficult. For instance, one of C01's suppliers in Germany was also its first supplier in Europe to impose sanctions on holders of Syrian nationality. For the company to find an alternative supplier is considered to be difficult as the relationship with this previous supplier has lasted for 25 years and finding a new supplier to supply the same raw material with the same quality would be hard.

This company has faced several obstacles, such as the short stop to its parent company due to the turmoil. The parent company had to stop operations at some point for a few years due to the Arab Spring but returned to work in 2017. This turmoil also resulted in the loss of some markets from countries that faced this turmoil and its consequences, including the Yemeni, Syrian and Libyan markets.

Taxes in the Arab world as a whole are high and there is no protection for local industry such as exists in European countries, with taxes in the area being high in comparison to those levied by European countries on their business owners.

Meanwhile, the Turkish government provides better incentives to Syrian industrialists than those provided by the Jordanian government, also there is no product protection in the Jordanian market.

One of the challenges facing this company is the fact that the owners are Syrian, which at some point caused some confusion and disruption due to international laws. C01 and other companies with a similar situation are facing many interruptions in such as remittances, in addition to the restrictions with regard to bank transfers and imports that Syrian companies have faced, and concerns from other businesses that they would be negatively affected if they dealt with Syrian businesses after the Arab Spring. Even though this company's Jordanian branch is considered as a Jordanian business, suppliers and customers have continued to focus on the nationality of the owners to avoid any linkage with Syria, with the result that some exporters completely stopped dealing with this company.

Another of the challenges faced by this company is that European support and funds for the employment of Syrian workers provided to Jordan did not reach the companies at full percentage, so it did not help the companies as much as it might have done.

According to the C01 owner, today every Jordanian factory faces difficulties with Jordanian labour. They have no obligation to work, and the efficiency and commitment of the Jordanian workers are not good or not even as expected. Also, the level of expertise of the employees is not sufficient when the company, in accordance with its sector, has to hire mainly Jordanians (60% for this sector) due to the governing laws, and there is not enough labour.

Penetration of any market is achieved by one of two methods: fast penetration or slow penetration; slow penetration entails convincing the customer that the product provided is the best product in the market and fast penetration entails saturating the market with the product, with price being the only reliable factor to convince the customer to buy the product. C01 believes that the purchasing power of the customers has declined in the past years, therefore, they started to look for cheaper products that are considered affordable to them. However, reducing the price of the product is difficult for this company because it will directly reduce the profit margin of their product, which according to the owner cannot happen due to the high cost of providing high-quality products.

C01 believes that Jordanian products have a good reputation and the standards followed by the manufacturers in Jordan are higher than those in the neighbouring countries. However, the European products still have a better reputation, which increases external competition and the difficulty in entering new markets.

This company has all the related certificates from the Jordan Food and Drug Administration (FDA), and all its products are within Jordanian specifications and regulations. In comparison with the specifications and regulations of neighbouring countries, Jordan is considered as having among the strongest regulations for manufactured products and its products have a good reputation.

C01's profitability has declined to 20% of the previous value. The company's profit margin was 10% and fell to 3%. The company is mainly concerned with the quality of its products and does not accept reducing it. The business worsened because of the turmoil.

No financial support has been gained from European entities because these bodies have not offered the company any support and the company has not requested any.

Those obstacles and challenges that have been faced by C01 have forced it to find alternative markets and the owners have had to realise that those markets are better suited for their company.

The positive impact of the turmoil is the entry into new markets which were found to be more suitable for the company than the previous markets. For example, the Libyan market has recovered significantly after the turmoil. Similar to entering the European market.

This company thought that it would be able to overcome this turmoil due to its strong ties with its supply chain and the reputation of the company itself and their products. However, the factors that have helped the company to continue in the market are its relationship with its agents in the countries of origin as well as the quality of its products and its reputation in the market.

C01 had hoped to open branches outside the MENA region as this would help in lowering the impact of this turmoil. Under its current status, the company is allowed to open a branch or move its business to any country worldwide except for the United Kingdom and the United States of America. However, it cannot do so now due to the struggle that it is facing from this turmoil and the burden and risk for the company of moving its expertise and assets to a different location.

C02

A chemical manufacturing company that specialises in manufacturing mixing materials and para-pharmaceutical materials to make products to satisfy the need and requirements of its customers such as psoriasis, eczema and acne treatments, sunscreen, skin whiteners, children's rash treatment, and Dead Sea products, all made from natural ingredients.

C02 was established in 2006 and only produces for export. The company started as a small project exporting to one customer in Saudi Arabia, and had just two employees. The business owner had a master's degree in industrial pharmacy and the needed expertise to prepare the mixes of products based on the customers' needs and ensure the stability and safety of those mixes, while the other employee ran the machines and packed the products.

The raw materials that the company uses are mainly from the local market, especially for Dead Sea products. C02 also imports some of its raw materials from China, Spain, India, and Italy. Additionally, it used to buy some raw materials from local market suppliers that are of foreign origin. Those local suppliers for foreign materials stopped importing them, and, therefore, C02 started to import them for its own use. Doing this has helped C02 to lower its costs since those items, according to Jordanian law, are considered tax-free due to being production materials.

In 2009-2011 the production level for C02 improved to the level that the owner bought land and built a company factory on it instead of renting a factory. By 2011 this project was starting to expand, with 10 working employees (including the owner), and it had more customers in Saudi Arabia. Due to the Iraqi instability in 2013 and the spread of scabies and lice, the company started to develop products to treat these conditions. Those types of products needed by the Iraqi market are considered as under-crisis requirements which European and American markets do not usually need. Therefore, when C02 decided to enter the European and American markets it had to come up with a product that they might need or desire and would be considered as unique, therefore, it started to produce Dead Sea products.

By the interview time, the number of employees had grown to 37, of whom approximately 95% were female, as the company's policy is to encourage women's empowerment, especially since the location of the C02 factory is close to the refugee camp.

Current customers are from Saudi Arabia, Iraq, Europe (Spain, Italy, Germany, and Bulgaria), and America, with Saudi Arabia and Iraq considered to be the main markets for C02. The company's annual revenue is about 1,000,000 JOD. Additionally, C02 is about to enter the Kuwaiti market.

C02 does not operate under its own trading name, but instead labels its products with its customer's name (Private label); therefore, the company has not paid attention to marketing itself or its products except when operating in the European and American markets, where it had to participate in exhibitions to present its products for potential customers. Entering the European and American markets was not as easy as entering the traditional markets as those markets do not consume the same products that the company is used to producing and they have different entry requirements.

C02 still relies mainly on the Arabian markets for its production (75%) and it had to change its shipping method to sea when exporting to Iraq. This shipping method is considered to be time consuming as instead of 2 days the process takes 45-60 days, risky due to the shipping conditions and the shipping requirements, and costly as it used to cost \$1,000 and now it costs \$7,000-8,000.

Starting to work with the Iraqi market has resulted in an increase in C02 production, and in the machinery and number of employees needed to cope with the higher demand. However, due to the Arab Spring and the closure of the Syrian border, which directly impacted the Iraqi market,

C02 started to search for new markets and customers to compensate for any loss and to avoid the need to make employees redundant, especially since the owner of this company claims that those employees need this job as they rely on it to meet their living expenses and financial commitments.

Demand from the Saudi market has declined by 50%. C02's products are targeting women and due to the increase in living expenses and residence for foreign labour over there, residents have started to return their families to their home countries, which has resulted in a decline in the market size.

C02 hired two employees from Yemen and also a few employees from Syria, but the Syrian employees did not continue with this company, as Syrians receive support from European entities and they would have lost this support if they had worked for a Jordanian company. This would also have impacted the possibility for them to migrate to Europe. Moreover, most Syrian females do not have the necessary minimum educational qualifications to work with C02.

C02 does not operate in the local market as it considers the local market to be saturated and the taxes to be high, which means that the financial benefits would not be as desired. But Jordan has issued a new law for exports whereby companies have to pay a 5% export tax, which has had a direct impact on C02's costs and has affected its ability to compete in other markets.

The company has received some support from external entities that helped in developing its factory and business and helped it to benefit from the Arab Spring. Those supporting entities continue to check that the company is spending the funding as approved. C02 thinks of this as limiting the company's ability to spend the funding on what it actually needs the most. C02 received €60,000 for re-branding in 2014 from EBRD. In the same year it also received funding from JEDCO of €100,000, C02 has used €14,000 of this to register its products in the European markets. Further funding from JEDCO was received in 2019, valued at €60,000. Support from JED has also been used to cover 50% of the cost of participating in exhibitions.

The company has faced a number of obstacles not necessarily related to the Arab Spring as it believes that this turmoil has not had a major negative impact on it even though the business was started only a couple of years before it. One of those obstacles is the complication of the governmental procedures and the need for them to be complied with in person as their website is not actually working.

Another obstacle is the high competition from other countries, such as China, India, and Turkey, due to their governmental support for exporting, and market pressure coming from different markets having different requirements, for instance, European markets look for natural products, while the American market looks for scented products, and the Iraqi market looks for treatments.

Entering new markets was not easy for C02, especially when entering non-traditional markets. C02 had not only to start working on new production lines (Dead Sea products) when entering the American and European markets, but also had to issue product certificates, register its products in those markets, get its products tested by market representatives, and look for agents to represent C02 in those markets.

The company's profit margin used to be 40-60% and fell to 10-40%, but even so this company's profit has increased significantly as its revenue used to be 100,000 JOD and grew to 1,000,000 JOD. Although C02 is currently growing, it believes that working in the Jordanian market has to be on a daily basis, without being able to predict the future and what might happen or what it has to do if it faces another disruption.

C03

A chemical manufacturing company that specialises in manufacturing agricultural fertilisers from natural and eco-friendly ingredients that are physically blended. The parent company was established in 1999 and it has a number of subsidiary companies. C03 was established in 2002.

This company does not keep any product inventory as it produces according to each purchase request's specifications. The company has 18 trade names, and it uses multiple names for each country/ customer depending on the source of used materials and product specifications. C03 does not deal with customers directly but instead through agents.

One of the main issues for the company is the availability of raw materials in Jordan. It usually relies on multiple suppliers for each raw material except for the potash which has a monopoly supplier (in Jordan). Although there are other potash suppliers outside Jordan, if C03 deals with them it will be significantly more expensive due to the cost of the material itself, taxes, and shipping. Usually, C03 deals with multiple suppliers for each order and it keeps ordering from all its available suppliers to assure the continuity of relationships with them in case it needs to rely on them in the future.

It sells its products to a number of Arab countries, including Saudi Arabia, Syria, Lebanon, Iraq, and Egypt, and also has alignments with 13 international companies and a Jordanian company under their private labels. Those international alignments came as a result of the availability of raw materials locally, since it costs the international companies less than buying the raw materials from Jordan and processing them in their own countries. While obtaining the first international alignment required considerable effort from C03, once achieved, it became easier to obtain the rest of them.

The first alignment was with a Canadian company, which required a lot of convincing of the value of this alignment and guarantees that C03 would produce in accordance to its requirements and specifications. It also involved the Canadian company sending an audit committee to ensure that the production would happen as they required it. Afterwards, another 12 international companies came on board, and reaching those companies was easier given that C03 had the Canadian alignment.

Through those alignments, this company controls 90% of the Jordanian market, even though it sells at the highest price, as it has the best quality products in the market. One of its customers used to operate in two containers in the local market and now is operating with 300-400 containers yearly. Those alignments have been arranged with various countries, including China, which is considered as unique as usually companies buy from China but do not sell to it.

Alignments with those international companies prevent C03 from operating and competing in the local market directly; therefore, C03 has made an agreement to sell to a Jordanian company at a lower price to enable that company to sell under C03's name in the local market, as this will help C03 to avoid losing this market or breaking its agreements with its customers.

C03 believes that it has a high production capacity even though it is still not using it fully as its daily production is usually equivalent to 2 containers.

C03 used to rely only on a single customer, but the loss of its main customer in 2011 due to the Arab Spring led to its sales declining that year by 60% despite everything it had done to overcome it. For instance, in that year C03's main customer was in Tunisia, with a demand equivalent to 1,000,000 JOD. Therefore, it started to develop an annual plan for its production level for a given year and acknowledged that it should have a more diversified customer base in order to reach the desired level of production and to avoid losing everything if any kind of disruption were to affect any of those customers.

As a service to its customers, C03 offers to ship the production on behalf of its customers to help them reduce shipping expenses, which means its offers to send them to the users instead of to C03's customers.

The Arab Spring also influenced C03 due to the spread of competitors that were not following the production standards, which eventually influenced the reputation of the Jordanian product and led to the loss of some customers. Specifically, the loss of the Iraqi market came as a result of the lack of border control on products entering the country, which resulted in an influx of faulty products that eventually impacted the Jordanian products' reputation.

Furthermore, due to the instability of neighbouring countries, shipments were being reserved due to suspicion of their being of an explosive nature, which forced the company to charge its customers for shipping risks. In 2015, C03 shipped two orders, each with a value of 40,000\$, but those orders were reserved by the Iraqi government due to their nature and the possibility of being explosive materials, which resulted in a total loss of their value that C03 had to bear. Therefore, C03 started to ship to Iraq through Iraqi companies in Turkey or to ship to Iraq through the Iraqi borders only for the few customers who could afford the associated costs and were able to carry on with the product clearance. In 2018-2019 the level of orders in the Iraqi market increased and it even became better than before the Arab Spring.

The Yemeni market stopped in 2016 due to this turmoil and the Houthis movement. This resulted in the stoppage of shipping overland via Saudi Arabia, and C03 could not ship by sea due to the stoppage of sea shipping to Aden port. However, C03 was able to return to the Yemeni market in 2018 through licensed companies. This resulted in the presence of C03 products in the Yemeni market without any customs declaration that they were C03's exports.

In addition, the Syrian market stopped in 2011-2012 but then C03 was able to return to this market in indirect ways. In 2018-2019 demand from this market improved significantly and customers with good financial solvency were able to pay in advance without needing any financial facilitations. The Syrian market was the only market that upon return was in a better financial position than before the Arab Spring.

Exporting to the Turkish market stopped as a consequence of the Syrian border closure. When this happened Turkey started to produce those products itself and eventually it stopped importing similar products.

Another effect of this turmoil was the cessation of financial guarantees which resulted in the stoppage of bank credence. C03 was worried that its customers who were facing political instability would no longer be able to pay for their orders from C03, or that C03 could even be black-listed due to dealing with companies from certain countries with international restrictions.

Also, the instability in the area has caused customers from outside the area to look for alternative products or materials providers to avoid possible disruption. For instance, Holland, Spain, Italy, and other foreign markets, which take 25-30% of C03's production, stopped operating with C03 as they were worried about potential shipping disruption. Those markets were able to stop dealing with this company and to return to production in their countries, despite the higher costs, especially since their insurance policies covered the additional costs. Returning to those markets was difficult as worry over the instability in the area continued; furthermore, those markets started to request not only registering of the final products in their countries but also registering of the materials used to reach the final product.

C03 managed to return to any lost markets but it could not return to the same customers in those markets. For instance, it lost the Tunisian market in 2011 and returned to it in 2014.

This company managed to hire some Syrian labour and the cost of this labour was lower than the cost of Jordanian labour. Also, Syrian labour is considered to be more efficient, effective, and committed to work.

The political nature of this turmoil has prevented companies throughout the supply chain from being transparent with each other as they were worried that the communication was not secure and that sharing sensitive information between countries might have some level of influence on their companies.

C03 thinks that even with this turmoil no market is actually closed, companies only need to make more effort to maintain their supply chain. For instance, C03 has reached back to its customers by shipping the products through other countries, customers shipping their own products, or shipping through licensed companies. According to C03's owner, even if a customer is lost for a period of time that customer will eventually return to it as the quality and value C03 provides are significantly higher than provided by their competitors.

C03 also worked on adding new product lines, alignments, and customers to compensate for any customer loss or decline in sales. In addition, it started to host a field day for its customers to show them that it is still operating and capable of improving its products and even adding new ones. It also participated in international exhibitions to reach out to more customers.

Those exhibitions were supported by external entities to cover 50% of their costs, and C03 also received supporting funds to improve its factory and operations. It received funds twice from JEDCO, first, in 2009, valued at €300,000, and then in 2011, valued at €150,000.

C04

A chemical manufacturing company that used to work on architectural paints but now specialises in manufacturing adhesives, sealants, construction chemicals and waterproofing membranes. C04 is a family business that is run now by the second generation of the family. The parent company was established in 1987 and it had a subsidiary company in Saudi Arabia from 2013-2016, but this branch closed due to continuous change in the governing laws in Saudi Arabia.

C04 gets 60% of its raw materials from the local market, 30% from Gulf countries and 10% from Europe (The United Kingdom and Germany). C04 did not rely for its raw materials on any of the Arab Spring countries or countries that felt its consequences, therefore, its supply of raw materials was not impacted by this turmoil.

It sells its products to a number of Arabian countries in addition to the local market. C04's main markets used to be Syria, Iraq, and Yemen. It lost some of its customers (main ones) due to the turmoil. For instance, it lost its market in Syria in 2011 due to the instability caused by this turmoil and its associated risk, and it lost its market in Iraq in 2013 due to the competition from other markets (Iran and Turkey), even before the closure of the Syrian border, and it lost its market in Yemen in 2014 due to the ban on financial transactions.

What used to distinguish those markets was the ease of access to them, since that was required was to find an agent who was financially solvent, who had a storage location or the ability to rent one, and for these agents to trust the product's quality.

After losing those markets C04 started to work with the Saudi market, which is considered relatively harder to penetrate as it is a bigger market, has higher product requirements, and customers need to be reached through marketing instead of agents. C04 also increased its focus

on the local market as the demand for this market has increased as a result of the increased population.

The Arab Spring has influenced C04 in several ways, such as the closure of its main markets resulted in a drop in the company's sales and eventually its profit and the need to look for alternative products or markets. It has been affected by increased shipping costs, as they rose from 5,000 JOD to 8,000 JOD, which had a direct impact on profit margin.

There have been continuous changes in regulations, especially in Saudi Arabia, where annual renewal of companies' operating licences is required, with harder requirements every time, without previous notice. Saudi Arabia also changed its laws on re-importing through its lands and made it conditional on a number of requirements, including the value of the investment.

There has been an increase in the cost of work permits for Syrians, which is multiplied by six times in the case of Syrian. Knowing that the shipping lorry drivers are Syrians.

New businesses are opening in Jordan despite this market already being saturated. In addition, customers have failed to pay for what they ordered, relying on the instability in the area and assuming they will be able to get away with it, which eventually resulted in C04 suing those customers to get payment for its products.

The period of 2014-2015 was the hardest for the company due to the opening of competitors' businesses in Jordan and the closure of borders led C04 to sell with a very low profit margin or with no profit margin at all just to maintain its market share.

A shipment was sent to Iraq through Kuwait and due to the Arab Spring disruption the Kuwaiti government sent the shipment back to Jordan four times before it finally reached the customer with 40% damage and delay to the expected arrival time. The usual time to ship from Jordan to Iraq through Kuwait is 10-15 days, for this shipment it took 75 days.

In terms of its production decisions, C04 sometimes fully manufactures its products and other times partially manufactures its products, depending always on a judgemental decision by its operation manager on the full production against partial production cost.

After the Arab Spring, this company worked on adding more products to reach other customers or the same customers with multiple products. It also had to reduce its profit margin from 40% to 25% to improve its chances against the competition. Additionally, it increased the numbers of its agents and salespersons to improve its spread. C04 has 43 agents in the local market alone.

This company also worked on cutting the required time to prepare the order from 72 hours to 24 hours or the order would be automatically cancelled. It also worked on avoiding selling on credit, relying mainly on cash, and trying not to take out any bank loans, especially with rumours of cash devaluation, to protect itself from collapsing.

Due to the products being flammable in nature, high weight, and large in size, they are hard to ship via air, which put the company in a situation where it had to rely on traditional neighbouring markets within an area of 2,000 KM. Any longer journeys would result in the cost of the product being higher than its price.

C04 believes that it needs some expert training and coaching, product investment, and research and development. Even so, C04's owner seems to believe that this company has made an advancement of over 95% compared to its competitor Jordanian companies. He thinks that the Arab Spring has proven to the company that it has high efficiency that allowed it to survive this severe turmoil. He believes that since they were able to manage this even with all the associated

challenges and with their limited resources, this means that when the turmoil passes they will have significant success and benefits.

C04 obtained funds from supporting entities before the Arab Spring, but when they applied for other funds after the turmoil their requests were declined. Even so, C04 seems to believe that those funds focus on capacity building which is something the company does not think that it needs. However, C04 still does not think that it has the financial capabilities to make alternative plans in case another disruption happens.

Regarding the supporting entities, C04 seems to believe that they offer those supports not because they want to benefit the companies but to stop migration to their countries. If they were looking to actually help companies they would have shared their know-how with them and built alliances with them. It also claims that the Jordanian government has not supported the manufacturing industries at all, that it even considers them a burden and the sector with the highest electricity consumption. Therefore, manufacturers have established the Eastern Amman Industrial Investors Association to help them to share their experiences with each other and what type of practices they are adopting that would help in overcoming any disruption that they may face, and hopefully to reach a more favourable position.

C05

A chemical manufacturing company that specialises in manufacturing liquid detergents like household sanitisers, hand sanitisers, clothes fresheners and shampoos. This company was established in 1990.

C05 gets its raw materials from the local market and India. Before the turmoil, it was hard to replace a supplier but then a number of Syrian companies opened companies in Jordan and they started to sell not only products but also raw materials which were more convenient and cheaper to purchase. One of those companies is C01.

C05 used to manufacture only for export and exported to two countries: Iraq (mainly) and Egypt. Therefore, due to the Arab Spring and the closure of the Syrian borders in 2015, C05 lost both of its markets, and the company's production stopped completely for 2 years. Then they tried to return to the Iraqi market by exporting their products through Saudi Arabia, Kuwait, and finally to Iraq (A map showing this path can be seen in Figure 13 in next chapter).

However, according to C05's owner, this is a time-consuming path that used to take one day and now requires 6-7 days. It is also more expensive as the shipping cost increased from \$300 to \$5,700, with limits on the amount allowed to be transferred in each lorry, depending on Saudi and Kuwaiti laws, the need to change lorries at the borders, the higher risk due to the product nature, all of which have resulted in a higher percentage of damaged items, to which must be added the increased competition from other markets such as Turkey and Iran.

In 2017, C05 returned to its previous customers in Iraq, through Trebil; however, the profit margin has significantly declined due to the increase in shipping cost, increase in customs, higher competition, and selling at lower prices.

In 2019, C05 started selling in the local market and in the Library market to prevent the closure of its business. Entering the local market was not an easy choice as the market was already saturated. And a high number of new companies had entered the market and they did not produce according to the same quality standards, which impacted on the reputation of any new product in the market.

Entering new markets or reaching new customers is not easy as most markets are already saturated, in addition to which there are high customs expenses and complications in bank transfers as a result of the Arab Spring.

Since C05 is an exporting company it is exempt from production tax, however, it has to pay the tax first and then request a refund, which usually takes a long time through routine procedures. For instance, C05 is still waiting for its refund from the past years since 2014, an amount equivalent to 80,000 JOD, which has had an influence on its liquidity.

This company still faces a number of other challenges, including Iraqi customers not paying for what they have ordered.

The high customs tax, especially when compared with other markets, led some customers to stop purchasing from C05 even though they still believe that C05 has better quality products.

The continuous increase in electricity costs in Jordan and the additional income tax on the manufacturing sector from the Jordanian government in 2019 directly impacted the costs that this company is bearing. In addition, rental costs have increased and the company is unable to afford to buy its factory instead of renting it.

The absence of financial support from the Jordanian government for developing businesses and the continuous increase in costs made it harder to keep operating and have a good profit margin. Companies have to continuously lower their profit margin to ensure that they maintain their market share and even sometimes sell with no profit margin at all just to be able to cover their fixed costs.

The lack of product protection in Jordan is even harder for the companies when other markets protect their local businesses, as it increases the competition. And there is a lack of financial protection, the number of rejected cheques in the local market is increasing and there is no way to ensure that a cheque will be accepted beforehand.

In addition, there is a lack of sanctions against those who do not have a work permit or do not produce according to the standards,

The owner of this company believes that his company has some very well qualified labour even though there is a general lack of qualified labour in the market. Also, there is high employee turnover and the need to continually train employees. C05 has Syrian workers who work only when there is a need for extra workers as C05 financially cannot afford to hire anyone full time at the moment.

He also believes that there was nothing that this company could have done that would have helped in overcoming this turmoil, although he is working on opening markets in the Gulf area as the local market is saturated and it is hard to compete to obtain customers. C05 was not able to open those markets before due to a lack of cash liquidity.

C05's owner claims that there is no sharing of information in their supply chain or even between companies that might help in predicting any disruption or overcoming it when it happens. He also claims that it is not possible for the Arab Spring to have any positive impact on any manufacturing company.

C06

A construction manufacturing company that specialises in manufacturing chemical adhesives for construction and maintenance. This company was established in 2005.

C06 gets its raw materials from several countries, including Turkey, Italy, and Germany. Arab Spring has also impacted the availability of raw materials. On one hand, the entry of Syrian companies into the local market has resulted in the availability of diversified materials at lower prices. On the other hand, raw materials from Turkey became expensive and required longer shipping time due to changes in the shipping method. Therefore, C06 tried to turn to the European market for the required raw materials but, according to C06's owner, not all their Turkish suppliers could be replaced.

It sells its products to a number of Arabian countries, namely Saudi Arabia, Syria, Iraq, and Egypt, with exporting representing 70% of the company's production. C06 did not focus on the local market at all before the Arab Spring as it was satisfied with the sales and revenue from its export markets, while there is high competition in the local market and it is also already saturated.

Due to the Arab Spring, export to Syria and Iraq stopped. In Syria, this happened when the company stopped offering its products to the Syrian companies and the Syrian companies stopped requesting new orders as neither party (C06 and the customers) wanted to take the risk under this uncertainty. In Iraq, this happened because companies had to change to shipping their products by sea and there were continuous changes in regulations in addition to increased competition from the Iraqi companies. However, exporting to Egypt has increased as a result of the boom after the Arab Spring.

C06 had to increase its focus on the local market to reduce the impact of lost markets and customers resulting from this turmoil. It also returned to the Iraqi market but that was not as strong as before. Also, some of C06's Syrian customers have moved their businesses to Egypt, which allowed it to continue dealing with them.

C06 tried to hire a Libyan agent to be based in Libya and help in entering the Libyan market, but did not succeed in doing so. Entering new markets or reaching new customers was not easy for C06 as those markets were already filled with competitors' products that customers were already using and it was hard for C06 to let customers know that its products were trustworthy.

This turmoil has also impacted companies in multiple ways. It has impacted the manufacturers' mental health due to the worry and anxiety about what was going to happen, which ended up affecting their efficiency and productivity.

The increase in costs has resulted in customers sharing part of these extra expenses with the company but it was not to the desired level that this company was hoping for. C06 suppliers did not approve of sharing any of those added expenses as they have other businesses from which to buy their materials without the need to pay more for them.

One of the biggest impacts was the competitive pressure that has resulted sometimes in the company selling at cost just to maintain its customers and market share. Especially since C06 focuses more on annual profit than profit per order.

The owner of this company believes that his company has good financial stability which has given them the chance, from the start, to operate with their own money without the need to take out any loans, with the added interest, for the establishing period or for any reason during their operation period.

C06 owner stated that he did not even need to apply for any funds, support, or training from the government or any other supporting entities. Although he believes that if C06 had better financial capabilities it would have been better able to advance from this turmoil.

The owner of this company claimed that the wisdom while facing this turmoil is to buy and not to sell and this will not happen without having a high budget to do so. According to him, the amount of raw materials needed by the company is fixed and if the company were able to buy a larger amount of materials it would have a higher negotiating position to achieve a better deal. Furthermore, working with financially solvent customers is better for companies as it helps to guarantee the payment and reduce the marketing costs.

C06 argued that there is no company that has not been negatively impacted by the Arab Spring. However, those who have used wisdom in their reaction have managed to reduce this negative impact and keep their continuity in the market. When a disruption occurs, no matter what it is and of what nature, a company should react in a calm and logical way. First, it needs to accept that something has happened, then it needs to find suitable solutions based on what resources it has. As the company cannot isolate itself from its surrounding area.

According to C06's owner, the impact of this turmoil not only reached companies but also reached the government, which has exhausted its resources on refugees so that it is no longer able to help out its own people and businesses.

C07

An engineering manufacturing company that specialises in the iron industry, with a melt shop and a rolling mill. It is a company that originally was established in 1992 and was struggling until a corporate buyer (which was established in 1999) acquired C07 in 2000.

The melting factory's business is considered as recycling, since metal can be melted as many times as needed without any change to its characteristics, and this is considered a distinguishing feature of this industry.

The main customer for C07 is the local market, with some export to Palestine. C07 used to sign projects directly with governments, whereas now it works with agents who divide the work among the customers. Regarding its suppliers, it gets its raw materials from the local market in addition to a number of countries, and supplier decisions are based on tender.

The outcomes from the melting factory are the inputs for the rolling mill, where the metal belts are converted into rebar for use in construction. Coal is needed when producing rebar, which it used to buy from Egypt. However, in 2008 the company started to make decisions on whether to melt or not based on the profit margin of melting vs. buying. C07 decided to buy the rebar from China, Saudi Arabia, or Iran. As a result of the turmoil it was no longer able to buy coal from Egypt and started to buy it from Syria through Tartous port at almost the same cost, and also from Saudi Arabia which had started to supply it. However, buying from suppliers in China or Turkey is much easier than buying from suppliers in Saudi Arabia as the latter requires having a company representative in the Saudi market.

The majority (80-90%) of the company's work involves big projects with high consumption (a large number of belts) that provide big money for the company.

The company gets small amounts of raw materials from Arabian neighbouring countries, such as Palestine and Gulf countries, and from Turkey, China, Italy, and Germany, as it relies mainly on

materials and scrap from the local market. It melts this scrap to produce Belts which are iron alloy squares of 12 m in length and thickness of 0.10-0.15 m.

After the first Iraqi war, in 1991, C07 used to get large quantities of scrap from Iraq, until this stopped in 2009 as a result of the embargo. This scrap is considered a remnant of the war and is tested by the Iraqi and Jordanian governments to ensure that it does not contain any harmful materials or military materials.

The majority of the company's workers, from the beginning, have been Egyptian. Generally, this company believes that it has a good number of qualified workers and employees that it can rely on. This industry requires highly qualified and trained workers and employees as they need to work with extremely high temperatures, especially when melting the iron and working on its shapes. C07 could not hire Syrian workers due to the nature of its work and the restrictions from the Ministry of Labour on jobs that Syrian can do.

C07 melting factory prices have been impacted by the Arab Spring as there was worry over opening investments in the area due to the internal instability, and in the past 3-4 years the production has declined by 60%. Therefore, they tried to reduce the productivity of the factory to 30-8%, except for in 2011 when the factory worked at its full production capacity, as this helped in keeping production to the demand level and prevented the market becoming saturated with the company's products.

The company has faced a number of pressures, including the political pressure on Jordan as a country. C07 felt that Jordan relies on aid and some countries provide such aid as projects support in the Jordanian lands in return for Jordan taking a certain political stance, otherwise the project cash flow will be affected. C07 is affected when the support for those projects gets delayed or stops as it relies on being able to complete these projects. There is also an impact on future projects, for instance, when this disruption ends, decisions on who will get the reconstruction projects will also be political and made by countries not by companies.

Another pressure was financial in nature, since it had to take out loans to cover part of the losses, for instance, it had monthly 500,000 JOD factory expenses in addition to customers no longer being able to pay, especially those who relied on external support. The impact of the financial pressure has increased due to the increase in taxes and the increase in electricity costs (20%).

Another pressure relates to market need (number of projects), since there has been a noticeable decline (60%) in the projects' number and size, which resulted in a huge decline in the company's production and also impacted customers, with some of them forced to leave the market. High competition has been a big pressure on the company as those competitors that relied on dropping prices at first made 20-30% profit, then lowered their prices, then sold at cost, and finally sold at loss, as having a partial loss was considered better than exiting the market and losing everything.

The competitive pressure has increased due to the opening of other markets that seem to have lower costs and they use this as an advantage to lower their prices. Also, the Egyptian market has added a new law preventing importing, except for manufacturers, to avoid monopoly from industrials. They also have resources (natural gas) and can produce at lower costs. There is technological pressure from Gulf market competitors as they use more sophisticated technology in production than C07 can afford to buy. There is competition not only from external markets but also from Aqaba port, which does not follow the same laws and regulations as the other industrial cities in Jordan.

To reduce the impact of those pressures C07 had to enlarge its cycle of suppliers. It also started to make and sell belts in smaller sizes and based on lower minimum orders (from 1,000 Tons to 400 Tons). It also started to add other ingredients to the iron to improve its properties and create a competitive advantage. This ingredient helped in shaping the iron, which none of the

competitors in the local market or the neighbouring markets could do, except for Israeli competitors. And it stopped working during rush hours (3 hours) to avoid the 20,000 JOD fine. Additionally, it started to participate in exhibitions to reach out to new customers and have a better understanding of the needs of the market. It started to rely on alternative sources of power, thus following the market trend, improving the efficiency of its production as a result of the company's continuous effort for development, and adding new products based on market research and market need.

C07 worked alongside the Ministry of Public Works and Housing to reduce the amount of iron imported by improving the awareness of its quality and its availability in the local market. It also requested the Jordanian government to provide local product protection by convincing them of the higher benefit coming from the local product in comparison to the foreign product. This was partially successful as in 2017 it resulted in a change in the limit for imports from 3,000 tons plus the exempt projects to 3,000 tons including the exempt projects.

To better overcome those disruptions C07 also tried to reduce the bureaucracy and delegate authority, which has helped in speeding up processes, improving flexibility, and reducing discussion and negotiation time.

Stoppage of payments for the supported projects happened gradually, starting from 2017, as those projects had emergency funding that they used for payments due when their funding stopped. This was not a surprise for the company as there was continuous contact with the Ministry of Public Works and Housing that indicated this would happen, but C07 could not tell when exactly it would happen. This resulted in C07 no longer accepting selling at credit and replacing it with bank accreditation. This prevented the company having pending debts for this period.

Since 2018 and due to all the faced disruption and pressures, C07 started to have periodic meetings to work on a market exit plan. Although it has always found a temporary solution that has allowed it to stay in the market, until now it has not found the right solution to overcome this disruption and to survive in the long term.

C07 seems to believe that the government has a surplus of electricity and it should give it to manufacturers at cost instead of the government bearing its cost and not benefitting from it.

This turmoil has benefitted C07 through delegating authorities, finding new and better marketing methods, improving competitiveness through improving product quality, finding ways to benefit from production waste, and working on experiments to be able to produce energy from the wind (already applied in Turkey).

C08

An engineering manufacturing and trading company that specialises in household electrical appliances: refrigerators, washing machines, freezers, microwaves, televisions, air conditioners and water coolers. This company was established in 1960 and it is a family business currently being run by the second generation, and used to have a branch in Saudi Arabia.

This company has six galleries to show its production, it relies also on wholesalers and retailers, and it also works in the free trade area and Saudi Arabia. The company's employees number about 140.

Raw materials are mainly sourced from East Asia: China, South Korea, and Vietnam. Filling materials are imported from Saudi Arabia and packaging materials come from the local market.

C08 focuses more on exports than the local market as it has a very high production capacity that the local market cannot use fully. It sells its products to a number of Arabian countries including Iraq, Syria, Lebanon, Egypt, Palestine Saudi Arabia, Yemen, Libya, and Algeria.

As a result of the Arab Spring, three of those countries: Iraq, Syria, and Lebanon, were forced to close their markets as a result of the Syrian border closure. Syria used to be considered the main market for C08. Another three countries: Yemen, Libya, and Algeria, have stopped trading as a result of the Arab Spring. Additionally, the Saudi market has stopped as a result of the high competition and that market purchasing for credit, not cash, which influences the company's cash liquidity.

Currently, C08 relies only on the local market, the Palestinian market, and partially the Lebanese market, to which it ships its products by sea. Even with the re-opening of the Syrian borders, companies cannot return to the Syrian market as a result of the government's decision to reciprocate with the stance on Syria. Returning to the Iraqi market is not possible either due to its withdrawal from the Economic and Social Commission for Western Asia (ESCWA) and the high customs duties that it levies.

During the period 2015-2018, there was significant growth in demand for electronics in the local market which has helped in overcoming the decline that happened in the exporting markets. For instance, demand for air conditioning has increased annually from 30,000 to 80,000. Also, C08 now sells not less than 350,000 LED devices annually. However, in 2019 the purchasing power of customers in the local market declined; in addition, the market started to become saturated, which resurrected the need to find new export markets.

The influx of Syrians into Jordan has both pros and cons, C08 has benefitted from this turmoil as the population in Jordan has doubled according to the 2016 residential census (from 5,000,000 to 10,000,000), which was reflected in demand for the company's products from the local market. Also, some of those Syrians lived outside refugee camps and started to work with Jordanian companies, and as workers and employees were considered as talented. Other Syrians, with good financial solvency, came to Jordan as business owners and helped in enhancing the economy in Jordan and providing workplaces for Jordanians. However, some of the Syrians came as refugees and lived in the refugee camps where they have been seen as consuming Jordan's limited resources.

C08 has faced a number of challenges during the period of this turmoil. The challenge with the most significant impact on C08 is the high production costs in Jordan: high electricity prices and high shipping costs internally (Local market) and externally (Export market). This has led to a lowering of the earned profit margin. According to a study that C08's owner conducted (only shared the final result during the interview) during the period of 1/1/2011 to 1/1/2015, electricity costs increased by 93% and petroleum products prices doubled, which had a direct impact on production costs.

Other challenges that have faced C08 include the decline in purchasing power for customers and the continuous changes in the governing laws and regulations that affect the population directly and impact on their livelihoods, leading them to take more conscious decisions on lowering their consumption as a result of the uncertainty under which they are living.

Challenges also came in the form of market stoppages, as its exports to Arab Spring countries and countries that faced its consequences represented 41% of C08's production. For instance, border closure, which threatened the existence of the company's products in foreign markets and reduced the level of exports, has not only impacted those countries' markets but also markets that it used to re-export to through those countries, especially since C08 could not return to any of the lost markets. Furthermore, C08 used to rely on Syria to produce templates, but after the border closure it had to rely on China and Turkey, which also led to an increase in production costs.

Government has put pressure on citizens and companies through income tax and sales tax to compensate for the huge loss that it faces from losing the transit trade and its related customs duty. It has lost more than 400 million JOD just due to the closure of the Syrian borders. The government also stopped the export tax exemption and stopped the export support. Another pressure of international origin that has also impacted companies derives from the Caesar Act which was recently approved but is not yet in operation. It bears a threat from the USA that if any company in the world deals with a Syrian company operating under the Assad regime, the bank accounts of that company will be blocked.

Challenges came also as a result of changes in other regulations, for instance, Jordan Standards and Metrology Organization (JSMO) setting new basic conditions concerning energy efficiency in 2014.

Challenges faced by C08 came also from employment. C08's owner believes that there is a problem with the companies' structure as there is a high number of educated people in Jordan who are looking for opportunities and due to the high unemployment, they accept a position even if it is lower than their qualifications merit, with a correspondingly lower salary, which affects their motivation to achieve to their potential or look for a job that better suits them, not wanting to lose their current position. This challenge has influenced C08, since its number of suitably talented employees is low and even when the company manages to find talented employees they work with the company for a short period of time and then are lost to foreign markets. C08's owner argued that losing those talents affects the company not only through the loss of the individual but also the loss of the know-how that they would have passed to other employees in the company. He also argued that Syrian and Egyptian employees are more committed to their jobs.

To overcome those challenges C08 tried to put extra effort into finding alternative markets for those lost and to make sure that it reached the maximum possible number of existing customers to avoid taking out loans. For instance, 20-25% of its production used to be for the local market, whereas now the figure was 50%. It changed its shipping method to stay in markets such as Lebanon and Egypt. It also tried to add new production lines and became a pioneer in improving production lines.

C08 also tried to hire Syrian employees from the refugee camps to improve its chance of benefitting from Jordan-EU Relaxed Rules of Origin. Those employees have been trained by Norwegian organisations to help them to find jobs in Jordanian companies, but none of those employees continued due to the complexity of procedures that they go through on a daily basis, which take up 5 hours per day. Jordan-EU Relaxed Rules of Origin also offered Jordanian companies more facilities to enter European markets if they hired employees from countries that have faced Arab Spring.

Lowering the profit margin is another strategy that C08 has used to help in overcoming this turmoil. This prevents new businesses from entering the market and increases the competition level. C08 tried to lower its production costs internally by starting to get its raw materials based on tender. It also worked on improving its quality and after-sale service.

C08 succeeded in receiving a governmental grant worth €160,000 from the Ministry of Environment in 2014 to make adjustments to the gases used in the devices' production in order to reduce their environmental risk.

The manufacturers have worked on establishing a number of associations, one of which is East Amman Industrial Investors Association, to develop training programmes, share experiences, and advice, and help each other. Also, they managed to delay the implementation of the basic conditions concerning energy efficiency until 2016 to give them a chance to sell what had already been produced and to modify their production lines to follow the new standards.

All those practices, along with the company having multiple suppliers, have helped C08 to reduce the negative impact of this turmoil and to benefit from it when possible. C08 thinks that if it had a wider range of products it could have benefitted better from the Arab Spring.

According to C08's owner, there was no communication through the supply chain, however, even if there were any sort of communication it would not have helped with this disruption, as the nature of this turmoil and the decisions made are at the level of countries, not companies, as shown by what happened when they closed the borders.

C09

A food manufacturing company that specialises in chocolate production from start to finish, A-Z. They have different lines of chocolate production: (1) Chocolate for catering. (2) Chocolate by weight Per KG. (3) Chocolate Occasions/ Seasonal (Christmas). (4) Supermarket chocolate pieces or spread (for homemade cakes) FMCG. This company was established in 1950. It consists of three companies and considers itself a family and national Company for Sweets and Pastries. Its factory was established more than 60 years ago and it is run now by the family's second generation.

It orders its raw material on a quarterly basis depending on each quarter's estimation for production. C09 imports raw materials from Europe and West Africa and they are processed in the Netherlands, start from these materials formations within the four categories mentioned above. The Arab Spring did not affect suppliers or imports. Any supplier can be replaced by any other supplier as they all produce the same raw materials but with different reference numbers. C09 does not depend on a single supplier due to the seriousness of such a decision for the company.

C09 sells its products to a number of Arabian countries and exports to 27 countries. In addition to the local market, C09 produces customised chocolate with the customer's brands (private label), knowing that the trend for customers is to have their own private labels. Most of those exporting countries were affected by the Arab Spring, from North Africa to the Gulf.

Each country had its own particular cause of disruption; Syria: because of chaos and war; Iraq: ISIS, the army and the border between closure and open; Libya: chaos and war; Egypt: Currency Collapse; Algeria: remittances were delayed; Morocco: market falls due to conditions in neighbouring countries; Tunisia: the market was closed for more than a year and when the market returned, the customers had become accustomed to other items; Lebanon: closed due to the closure of the Syrian border, and shipping by sea was not feasible as it takes 18 days instead of 3, in addition to the conditions of shipping and storage, with 25% of the price being used to support the logistics services.

Shipping is on the importer, not the company, but the shipping costs are priced by both parties and are introduced at a lower cost either by the importer paying them directly or being added to the goods invoice. However, this has affected the company as their customers found that the products had increased in cost.

Dependence on a particular market or country is extremely risky in the event of any disruption and may result in a serious loss that could lead to exit from the market. It is difficult to replace a customer as the market cycle for this sector is 10 years. It was only possible to restore the first country/ market that was lost due to the Arab Spring (Tunisia), but it was noted that a collapsing market cannot return, the loss of the markets was full and not gradual, and the company needed to work to compensate for these markets as soon as possible.

Usually, the most difficult phase of the disruption is at the beginning of the problem, however, the way to behave to solve it and the speed of response depend on the size and nature of the problems facing the company.

C09 has faced a number of disruptions that have affected its operations. Deriving from those disruptions, instability and wars in neighbouring countries affected the markets in those countries and extended to other neighbouring countries. The Syrian border closure affected the Syrian, Lebanese, and Iraqi markets, which caused the shipping costs to increase dramatically when shipping by sea or by air. Exporting to Egypt has become impossible due to the impediments to protecting their product or preventing the foreign currency (\$) from leaving their markets. In addition, the Egyptian currency collapsed.

Another pressure was the high cost of alternative shipping methods. Shipping by land is less expensive than shipping by air or by sea and is much faster, therefore, it does not have as many shipping requirements as shipping by air or by sea. Also, changing shipping methods had caused remittances to be delayed. Fixed costs were affected as previously these costs were divided across the full productivity of the plant, and due to the circumstances, productivity decreased by half, which doubled the fixed cost of each piece.

There were often changes in the Cabinet which led to a continuance of changes in governing laws. The government, in order to reduce the economic impact on the country, had to increase taxes and electricity costs, reduce labour, impose unqualified labour on Jordanians and prevent use of more foreign labour.

Chocolate is considered a luxury product that some customers stop purchasing in times of overall economic decline. This has led to a noticeable decline in income. Additionally, costs are affected by fixed costs as before these costs were divided across the full production while now they are divided across half production.

Another challenge faced by C09 is the imposing of unqualified Jordanian labour and prevention of using foreign labour. The Jordanian labour law states the percentage of Jordanian labour in each company depends on the nature of the business and the sector; in addition, there is not enough qualified Jordanian labour.

Additionally, a challenge faced by C09 is the decline in the income of the company and its impact on the life of its owners and their families as they are accustomed to a specific lifestyle and specific obligations. This put them under pressure to either work more to compensate for the loss or adapt to lower income and profit.

Exporting to European countries was not an option due to the exporting requirements, such as the need for certificates of origin; it was also difficult because of protection laws on exporting to European countries imposed on external competition in order to protect their local companies.

Recently, Saudi Arabia, due to the Arab Spring, required all Jordanian companies to issue a certificate of conformity. This means that the contents declared by the merchant and the Ministry of Health are identical to the items registered by the Saudi FDA. A company such as TUV is sent to the Royal Scientific Society at a cost of JOD 2000 to issue those certificates.

C09 considers Jordanian labour to be unqualified labour and hard to rely on to develop the company and the quality of work. It also thinks workers from the Arab Spring countries do not have the skills needed and they only are looking for migration outside Jordan, which means job instability may affect the workflow.

C09 had to search for new markets to enter in order to compensate for those lost due to the Arab Spring. It started looking at non-traditional markets such as those in Canada and America. This

was done by intensifying participation in exhibitions in various states and different regions, but this participation was not successful at the beginning and it took 2-3 years of continued participation to reach the first customer. After that, the customer recommended another customer to buy from them and this helped spread the products further. In addition, C09 has focused on markets that have the potential for expansion after the loss of its traditional markets.

C09 worked on reducing the cost of energy and planned to resort to solar energy to stop the continuous rise in the cost of energy. It also reduced advertising expenses and compensated by participating in exhibitions, and investing in packaging since the packaging for Jordan is different from packaging outside Jordan (for external export, packaging must be valid for a longer period of time in addition to having at least three languages on the box (Arabic, English and French)). C09 has worked on redirecting the scope of its factory. Due to the Arab Spring and the need for optimal use of resources, C09 has carried out restructuring and reorganisation of employees of the company and cut out unnecessary jobs.

Those practices were already established before the Arab Spring; in addition, the factory has been in operation for 60 years. Moreover, it had availability of reserves for emergencies in similar situations where quick decisions would be needed in order to avoid the negative impact of any crisis facing the company. Also, C09 was not carrying any debt, which meant that it did not bear any financial burden or even the burden of its interest from before. Additionally, C09 does not depend on a single supplier or customer due to the seriousness of such a decision on the company's continuity. Companies were using the most up-to-date technology in production which helped to protect them from facing any technological pressure.

The owner of this company believes that his company has good financial stability that has enabled it to operate with its own money without the need to take on any loans with their added interest. It also allows them to always keep a backup fund to be used if faced with any disruption or for any unexpected event that might occur along the way. He further stated that no discussion has taken place with other companies about the practices that have been applied by industrialists, and neither they do advise each other on what they should do in order to overcome the disruption.

C09 thinks that getting out of the region is the solution to avoid similar crises in the future. However, it is not an easy option to apply and may carry high risk and significant losses, especially if the company does not succeed in the area into which it moves.

C10

A food manufacturing company that specialises mainly in manufacturing halva and tahini in addition to thyme, powders (cocoa, oats, brown sugar) and herbs. Its food production is dependent on dietary habits. C10 was established in 1926. It was one of the first companies established in Jordan and is one of the biggest manufacturing companies in Jordan; it was also the first factory in Jordan to work with electric power. C10 is considered the best halva and tahini company in Jordan and is the second ranked company in terms of production level in the Arabian region.

It sells its products to 30 countries worldwide, including some Arabian countries, selling its products under its brand names and also under its customers' names (private label), and it also relies on some Arabian countries for its raw materials, its main raw material constituting 80-85% of the product.

The company sources its raw materials from suppliers in various countries: Ethiopia and Sudan for sesame, Saudi Arabia for sugar, Syria for pistachios and nuts, Turkey for packing materials, and Saudi Arabia and Lebanon for cartons.

Arab Spring had some influence on the importing of those raw materials and although C10 tried to keep importing from the same suppliers, it lost some of them. For instance, importing of sesame from Sudan stopped, and the company were no longer able to bring packaging materials from Turkey and had to use local packaging materials, with the same applying for cartons, as C10 had to rely on the local market instead of Lebanon.

Regarding its customers, in addition to the local market, C10 sells its products to a number of countries, including the USA, Europe, Russia, Australia, Malaysia, Singapore, Palestine, Gulf countries, Qatar, Egypt, Iraq, Kurdistan, Iran, and Libya. While C10 currently is exporting to 30 countries and has managed to keep those markets, the exporting rate has been affected due to the Arab Spring. For instance, exports to the Qatari market increased significantly, with an increase also in the European market, and there was a decline in markets such as Libya, Egypt, Yemen and Iraq. This has resulted in a slight increase in C10's exports.

The company has faced a number of supply challenges due to this turmoil, including the low quality of packing materials available in the local market. Before the turmoil, they used to import them from Turkey and they would arrive in 7 days through Syria but afterwards the company had no choice but to import them by sea, which had a high effect on the transportation cost and time (60 days). It also influenced the inventory level, as C10 must maintain a fixed stock (reserve). This made it difficult to continue with Turkey, since the storage of these quantities of packing materials is a burden on the company in terms of storage volume and storage conditions and cost.

The price per kilo of pistachios and other nuts rose, with the price of raw pistachios increasing from 7 to 17 JOD and importing them became difficult as the company had to bring them from Syria. C10 could not change the provider of this raw material as it is one of the main production ingredients and has a high impact on the quality and taste. At the beginning of the turmoil, the company managed to use the stock it had to continue its production, especially since it could not find a replacement with the same quality of raw material. Afterwards, they found a way with their suppliers to keep importing pistachios and other nuts by sea but this has affected the cost and the transportation time.

Transportation and shipment costs have increased due to changes in transportation methods from land to sea or air. Additionally, some countries have changed their shipment law, which also had an influence on shipping. In the case of Iraq, Jordanian shipping vehicles were no longer allowed to cross the Iraqi border, which resulted in the need to hire two vehicles, one for shipping from the factory to the Iraqi border and another one from the Iraqi border to the customer.

Due to the increase in shipping costs, the profit margin has been reduced to encourage customers to continue ordering goods and to avoid the risk of consumers sourcing and buying other products available in the market, which would lead to a permanent loss of those markets. Additionally, the cost of transferring papers and documents by DHL to Iraq has tripled, and the process requires a longer time, which cannot be determined as it is dependent on airport procedures.

Furthermore, energy prices in Jordan are high and are continuously being increased by the government, causing costs to the company to increase significantly (from 5,000 to 25,000 JOD). Note that the growth rate is only 10%. Also, there are additional shipping costs for Saudi Arabia (2019), which has added a tax of \$ 1,000 per freight car (car value 50,000) for laboratory tests by international companies, while these tests are not required in Jordan.

Another challenge is ensuring receipt of the value of the goods. One of the results of the Arab Spring was collapse of the banking system. Payment through bank intermediation was called cash against documents. Countries affected by the Arab Spring no longer have a banking system allowing for the withdrawal of credit. Since the Arab Spring this has created difficulties for credit customers and the global banking system does not accept Libyan currency, which led to the demand for customers to pay in advance and forced them to transfer payment in multiple ways,

either legitimate (through money transfer companies such as Western Union) or illegal (sending the payment through another country or customer), in order to pay the company for the goods. Commercial transactions becoming cash instead of cheque based has made these transactions difficult because of their large financial value and, usually, companies do not keep large amounts of cash as most of their dealings are through banks.

The turmoil also led to a loss of some consumers and reduced the proportion of sales, especially at the beginning of the turmoil. Also, it became harder to get insurance as the insurance companies started to ask for higher insurance premiums with less coverage and sometimes even refused to give insurance, depending on the country that they were exporting to.

An external competitor, producing similar products, opened a factory in the Jordanian market after the Arab Spring in 2012 and started to take part of the market share. This pressure is considered to be high as it will continue even if the turmoil ends. Those competitors who opened factories in Jordan and found that business trades and transactions are easier in Jordan in comparison to their countries will continue to have their main factories in Jordan even if they return to their countries or open in other locations.

Another challenge for C10 is that the Arab States region is heavily affected by the external environment, which is difficult to control. This means that it is almost impossible to foresee any decisions by external governments that might affect companies operating in any of those countries.

In Iraq and Egypt, new laws have been drawn up to make it difficult to export to those countries. In addition to the difficulty of penetrating the Egyptian market and the complex procedures in place to protect the domestic product. Furthermore, Iraq (2016) and Saudi Arabia (2019) added certificates of requirements for export through conformity companies that charge very high fees to ensure compliance with specifications for each shipment and per weight. In Iraq, the cost was shared but in Saudi Arabia the company paid the added cost in full.

Due to the increase in shipping costs, the company started to reduce its profit margin in order to keep the prices the same and encourage customers to continue ordering goods, both as a kind of support for them due to the deteriorating economic conditions in those countries and to ensure the company's survival in these markets.

The low switching ability is considered another challenge for C10, as the industrialist has a huge investment in the factory, land, equipment and manufacturing machinery, which does not give them much flexibility to change their location or production nature.

One of the solutions to the continuous energy cost challenge was to reduce the cost of energy by resorting to solar energy (2018). The cost of its installation was 600,000 JOD and C10 now is considering using electricity instead of other fuel for the whole factory.

The company has at least been helped by its horizontal spread; it was a diversified industry in that it did not depend on a single country or a single market for its sales. This was the company's policy from the beginning. Also, C10 is using the most up-to-date technology in production which has protected it from technological pressure.

Alternative methods have been used to assist in exporting to Yemen and to ensure that the market is not lost completely. The goods are sent to Saudi Arabia and then two invoices are made out for the goods since there are two governments in Yemen. Each invoice represents half of the value of the goods and each invoice is taxed accordingly by the respective governments to avoid paying double taxes.

Further political disruption led to the isolation of Qatar and the imposition of a blockade on exports of Saudi goods to Qatar, which led to increased purchases from Jordan. Where formerly Qatar used to buy palm tahini from Saudi Arabia, C10 now began to compete in this market.

The Arab Spring has benefitted C10 in that it is a food company that caters to dietary habits. Since the Syrians have a similar diet to the Jordanians, Syrian families coming to Jordan, or any of the countries to which C10 exports, started to buy its products. This has led to an increase in exports to these countries, especially since the nutritional properties of halva remain valid for a long time, in addition to the fact that it does not have stringent storage conditions.

The revolution had another positive impact in terms of the appointment of Syrian workers. The maintenance manager is a Syrian engineer and has 15 years of experience and with this level of experience it is customary for Jordanian engineers to become managers, but the Syrian engineer has continued to work and to supervise the work. In addition to his continued development of the company's work remarkably. There were also two Syrian workers in the maintenance department.

C10 believes that its policies and corporate philosophy are growing slowly and that companies must be flexible in order to survive, it believes that every year a small development takes place to push the company forward and the administrative work is diligent; each company has its own nature and requirements according to its activity. C10 thinks that even though there was no communication throughout the supply chain or within companies to help predict what might happen in the future, the presence of high expertise in the company, especially with regard to management expertise, has helped in overcoming this turmoil. This company claims that it has good financial stability that prevents the need to take out loans with added interest; it also claims to have strong customer loyalty, high-quality products, and reputable history.

C11

A food manufacturing company that specialises in chocolate production. This company was established in 1995. It considers itself a national company for chocolate production. C11 produces under its commercial name or the commercial name of customers (private label). It manufactures hospitality chocolate. The company manufactures approximately 70-80 chocolate products.

C11 brings in raw materials, including butter and cocoa, from Belgium, the Netherlands, Italy, and Turkey. Meanwhile, sugar is usually purchased from the local market (Jordan). Its suppliers were not affected by this turmoil. However, importing from Turkey used to take three days and this increased to 15 days. There was an increase in costs, but Turkish merchants lowered prices in order not to lose their customers. Moreover, since there has been a global recession, many suppliers have submitted offers to the company, and because the company deals with only a few of those suppliers, it is easy for the company to change supplier.

C11 manages its raw materials orders based on the production plan and the annual requests of the customers and it distributes them over the year as agreed. C11 sells its products mainly to supermarkets and chocolate shops and it does not sell to individual customers.

Exports were made to the Arab Spring countries and the countries affected by its consequences. This means that sales have declined and the company had to compensate for this. C11's customers are in the local market in addition to Palestine, Qatar (2%), Saudi Arabia (10% increase), Canada and Germany. It used to sell to Libya (2%) and Iraq (10%), but entered the Qatari market to compensate for the loss of the Libyan and Iraqi markets. In addition, it increased its sales percentage in the Saudi market.

In 2019, C11 exited the Saudi market because of the political situation and has not yet been able to compensate for the loss of that market. This is considered a major loss since the Saudi market is one of the largest markets in the area and it consumes big quantities of goods. It is difficult for this company to reach new customers or enter new markets in the current economic situation due to the luxury nature of the product.

One of the challenges facing C11 is that, in the past, raw materials were requested when needed and arrived within 3-5 days from Syria or Lebanon, but due to the turmoil, the company has had no choice but to buy large quantities, sufficient for a year, and store them.

C11 recognises that it needs to work harder to compensate for the loss of customers, especially since the nature of the product means it needs to build customer trust. The company also was unable to compensate for the losses incurred through falling prices due to the high costs and the low purchasing power of the Jordanian market. The loss of many markets and the decrease in sales have forced C11 to increase its efforts to make up for this shortfall. This also resulted in the company facing financial pressures and it is difficult for them to use bank loans due to the high bank interest rates (9.5%). Additionally, C11 faces competitive pressures from the market, as some companies have opened production lines that use advanced machinery.

Another challenge facing C11 is the logistic services, as previously, when any malfunction occurred in the work machinery, the company would bring in a technician from Syria to repair it, as they have the required skills. Also, C11 was unable to attract skilled workers from Syria, as these workers went to the Saudi, Egyptian, and Emirati markets, given that these markets are stronger than the Jordanian market.

The company faced a number of societal pressures due to changes in Jordanian government law, such as the imposition of a 2% tax on previously exempted goods and a 5% tax on exports. Also, previously in Jordan, exports were exempted from sales tax, but now they are subject to it (16% of the price). Saudi Arabia also added a 5% tax on exports to it, as well as requiring certificates for the products, each of which needs to be examined separately. The cost of issuing this certificate for each product is 30-100 JOD. The quantities required from the Saudi market need to be large in order to cover the increased costs resulting from added taxes and product certification.

To deal with those challenges C11 started to plan what practices to follow and possible solutions for the problems encountered, which is determined at the meeting of the Board of Directors at the end of each year. Since companies are not open towards each other, there is no concept of sharing plans, ideas or practices with other companies, whether in the same sector or other sectors. C11 has started working on setting short-term goals that must be achieved within 12 months. These goals were intended as guidance throughout the year to help evaluate the position of the company and what it should do to maintain its position in the market and even grow.

C11 has also decided to make better use of its sales representatives in determining the market demand correctly and to look at each individual client to determine the quantities required and who are the customers that C11 should supply, to enable it to start producing what is needed and to avoid excess production or requesting excess material, in order to avoid unnecessary costs. Which customers to keep and which to stop working with is also determined based on the data provided by C11 sales representatives, data that focused mainly on customers' financial solvency, customer history, and order level (the amount that the customer ordered).

The company worked at reducing its liabilities and cutting out any source that affected it negatively; for example, any incompetent employee who was dispensable or non-profitable was fired. Any product that was not popular was stopped, and any customer who failed to pay their dues was removed. By attempting to remove anything that has a negative impact on the company and introduce or consolidate anything that has a positive impact on it, the company has worked to use its resources efficiently.

C11 has relied on a technician from Syria for logistics services as they have the skills required to repair the malfunctions in machinery. Workers were recruited from Syria, but they did not have the maintenance skills that the company wanted.

The company's current position does not allow expansion as C11 is facing financial pressures and it is difficult for it to use bank loans due to the high bank interest rates (9.5%). Having to buy large quantities of raw materials that are sufficient for a year and store them as a result of changes in the duration and costs of shipping raw materials has also decreased the chance of doing so.

Turkish merchants lowered prices to encourage their customers to keep dealing with them, which helped C11 to reduce the cost of the raw materials, while other costs, such as energy cost, kept increasing, which overall helped in keeping product pricing the same. C11 was unable to compensate for the losses through prices due to the high costs and the low purchasing power of the Jordanian market.

In 2017, Jordan was allowed for the first time to hold a Jordanian Industries Exhibition in Qatar. This helped Jordanian companies to extend their market reach and find new customers. C11 participated twice in those exhibitions in Qatar.

The support that C11 has received has also helped during this turmoil. However, European grants did not come directly to the industrial sector, but the company benefitted from them by introducing the ISO system, support for exhibitions, employment and training of workers, and other similar matters. The company received support to participate in exhibitions through JEDCO that was worth €3,500 in 2006 and €5,000 in 2013. This support helped the company to compensate for the lost markets and enter new ones. The Japanese Grant 2014 GiZ has funded training programmes on how Japan was able to strengthen its economy after Hiroshima.

C12

A food manufacturing company that specialises in production of dairy, cheese, and their derivatives. This company was established in 2002.

It only works in the local market. The nature of this company's products makes it harder to export them as they have a very short lifecycle, low profit margin, and face high competition.

Export to Palestine is limited due to the existence of agreements with Israel that place limits on the quantities of these exports. There is a plan for C12 to enter African and Asian markets based on encouragement from the King of Jordan for traders to enter the markets of Kenya, Tanzania and Singapore.

C12 relies mainly on Jordanian-made raw materials in addition to importing a few raw materials from Denmark, Germany and sometimes America, and formerly imported from Turkey. The owner of this company believes that the company must rely on local products for its production inputs in order to keep hard currency in the country and increase employment.

The source of raw materials is determined based on the availability of the raw material. The company prefers to take the raw materials from Jordan if they are available with the required quality, even if they are at prices up to 10% higher than the foreign imports. Imports from abroad require large warehouses to store these materials, in addition to a high possibility of having to pay the prices directly when importing the raw materials. At least 80% of the manufacturers' production inputs must be from the local market so that production is not affected or stopped in the event that the borders are closed or there is a blockade on the country.

Importing was not affected by the Arab Spring; even though importing raw materials from Turkey stopped, that was due to the quality of those materials.

Customers of C12 are supermarkets and malls. However, the Jordanian market is relatively small in relation to the number of companies in it. Most of the industrial companies in Jordan, when they were first established, were operating on the basis that part of their production would be for the local market and the other part for export. The largest market for Jordanian companies was the Iraqi market.

The biggest source for Iraq was Syria, but production in Syria almost stopped. Nevertheless, Jordan did not benefit from that until recently, in the last year. Due to the political situation in the neighbouring countries, exports were affected. Consequently, all companies had to compete mainly in the local market. C12's owner seems to believe that this turmoil has become more of a blockade of Jordan than a window for entering new markets. Hence, instead of Jordan benefitting from the conditions in neighbouring countries and supplying these countries with its products, the border closure came as an obstacle to prevent it from exporting even to countries that it exported to in the past.

C12, like any other company, has faced some challenges due to this turmoil. As a result of the prevailing conditions in neighbouring countries and the absence of any escape for the Jordanian people in the event that any misfortune happened, the Jordanian population started to save what they had in order to use it in time of need, which affected the purchasing power, and citizens got used to being thrifty; even when stability returns to these Arabian countries, the Jordanian citizen will still follow an approach of thrift and saving.

One of those challenges faced by C12 is the depletion of Jordan's resources on behalf of the Syrian refugees, and the Iraqi refugees before them, in order to create shelters, infrastructure, and other facilities, which led to a deficit and indebtedness in Jordan, which had to resort to loans from the World Bank. The World Bank then began to interfere with Jordan's economic policies and thus taxes were imposed that affected companies who had to increase prices to cover this increase in costs. Increases in costs come from taxes, energy prices, and water prices. This affected the purchasing power and worsened the situation in general.

C12's owner stated that companies attempt to recover by overburdening themselves (with loans). He thinks that the economic policy must change in order to prevent the collapse of companies and the national economy.

C12 also has been impacted by the Arab Spring in other countries; as an instance, Egypt's currency collapsed due to this turmoil but this enabled its companies to export at lower prices, which meant that the Jordanian companies could not compete with them. Also, recently, Jordan failed to benefit from the blockade of Qatar, while Turkey did benefit and now exports food products to Qatar on a daily basis by air.

Another challenge is that export to the Gulf countries must be done through Saudi Arabia, which controls the specifications of the products exported to the Gulf countries. C12 used to export to Saudi Arabia, but it can no longer do so, due to the request for the certificates of specifications imposed by Saudi Arabia and the time and costs that these certificates bear, especially since the company's product carries a small profit margin and a very short validity period.

There has been an amendment to the law on income tax on exports, which used to be exempt and should have remained exempt to encourage the Jordanian exporters to compete abroad, but tax has been imposed recently at a value of 15-20%.

Jordan did not benefit from what happened in Libya and its neighbouring countries, due to political, logistical and geographical issues. According to C12's owner, the government has weak

vision. It does not have the know-how or the knowledge to improve the situation. He also believes that the private sector should be running the government sector when it comes to industry because it is more successful, as was the case with the Orange Telecom Company, and potash and phosphate industry.

The implementation of some projects in the country (the express bus project), led to the closure of some streets and thus the closure of some shops and the loss of some customers. And increased competition. This pressure is not related to the turmoil but it impacted C12.

A few factors have helped C12 during this turmoil. It is using the most up-to-date technology in production, which has prevented it from facing any technological pressure.

There is no direct contact with the supply chain, but since 2017, contact has been made through sales representatives who forecast the market need, or any pitfalls that may occur, or the competitors' situation in the market.

As a result of increasing competition in the dairy sector, companies in this sector during the last 3 years (2017-2019) reduced prices by 30% below cost in order to remain in the market and compete, which led to losses for all these companies in this period. Given that the factory sells at a loss, it is not operating at full production capacity and is not working to increase the number of its customers, in order to reduce losses as much as possible.

One of the ideas that helped C12 to compete in the market is the development of new packaging methods, as it has used more healthy materials that can be placed in the microwave. And the colours used are easy on the eye. The company has worked to improve its marketing in order to prevent loss of any customers.

Another idea that C12 worked on to mitigate the impact of the Arab Spring was combination of jobs, meaning that one employee started to perform more than one task instead of having one employee or more for each task, in order to reduce costs.

Also, C12 reduced the periodic checks on the products, which became weekly instead of daily. But this practice was wrong and rebounded negatively on the company and threatened its continuation into the future, as these factors affected the company's development.

In 2013 the company obtained a subsidy of € 1,300,000 from JEDCO. The grant provided by JEDCO helped the company and made it worse at the same time. It helped it to develop the factory, but the amount provided was not enough, which forced the company to resort to taking out bank loans to help complete the project, which became a burden on it. Also, JEDCO gave the association € 427,000 to help it develop and to help more manufacturers.

The company was forced to take out loans to save itself from collapsing, as it lacked the financial liquidity to continue. In 2017, the company took out loans equivalent to 1,700,000 JOD. The government did not support it in any way, either financially or morally. The supported loans from the government are given through for-profit banks, in whose interest it is to give loans with high interest rates through them directly instead of the supported loans with low interest from the government.

Additionally, associations have been established by the manufacturers themselves in order to increase communication and cooperation between manufacturers, increase intra-trade, reduce imports, and reduce the trade balance deficit (between the exporter and the importer). The establishment of the association encouraged manufacturers to share ideas and practices that would help them withstand the market and work together more cooperatively. In the association, two training workshops are held on a weekly basis in order to spread awareness and advice among manufacturers.

C12's owner believes that the company needed better vision in order to avoid losses increasing. In 2016 he thought that the market growth would continue, therefore, decided to expand their factory by purchasing land and machinery as a result of a rumour that Jordan would become the main source of goods for neighbouring countries, but this created a material burden on the company and it would have been better if the money had been kept as cash in the company instead of freezing it to expand the factory, which has created a loss for its owners.

C12's owner also argued that Jordan was expected to benefit from the Arab Spring, since it enjoys stability and security compared to neighbouring countries. Unfortunately, the Arab Spring did not bring Jordan any competitive advantage as the government did not take advantage of this opportunity.

C13

A food manufacturing company that was established in 1980. It specialises in canned materials, spices, and related products. The factory is divided into three sections. C13 has 25 products in the market. And it has about 100 employees working as engineers, technicians, and other workers.

Most of the company's production is for the local market, while 30% of the company's production capacity is allocated for export. It exports to Europe in general, Germany, the Netherlands, France and Spain, in addition to exporting to America, Canada, and some neighbouring Arabian countries such as Palestine and the Gulf states. C13 used to export to Syria, Lebanon, Iraq and Libya but had to stop as a result of the turmoil. Exports to Libya did increase at the beginning of the Arab Spring, but then stopped.

As a result of the Iraq war and then the closure of the borders, Iraqi customers started to rely on other product providers, who became the controllers of the Iraqi market share, which led to the permanent loss of the Iraqi market. Even if the stability of the Arab countries returns to its previous state, the Jordanian manufacturers will not be able to return to the Iraqi market as before, especially since the Iraqi market has transferred its loyalty to other markets, such as the Iranian market.

The raw materials used by the company are mostly imported from abroad and are divided into two categories: first category is direct materials, such as legumes, that are imported from global sources: Canada, Argentina, Turkey, Australia and Britain, according to international prices. C13 imports raw materials from Egypt as well. The second category is packaging materials purchased from the local market, which are metal or plastic. In the past, the company sometimes imported packaging materials from Turkey, but due to the high costs as a result of the Arab Spring, the company began to rely entirely on local factories with regard to packaging materials. C13 claims its raw materials supply was not affected as a result of the Arab Spring, as all the raw materials used by the company can be obtained from other countries.

The company was able to withstand the pressures it faced in the previous period, but now believes that it has reached the maximum level of tolerance, which means that if it faces another disruption in the future, the continuity of the company may be affected.

C13 has faced a number of challenges. One of the biggest challenges that the company faces is the high production costs in Jordan, higher energy costs, and high transportation costs, whether internal or external. It has weak purchasing power in the local market in general. In addition, it faces challenges with regard to legislation, such as the Income Tax Law, Sales Tax Law, established building regulations, and any laws that directly affect the life of the citizens and affect their stability, as this is reflected in their spending approach. The impact of this challenge

increased when the profit margin fell from 5% to 3%. Also, the factory does not operate at full production capacity, which increases the fixed cost ratio of the productive unit.

The challenge of suspension of import or export trade with countries that have suffered from the Arab Spring and its consequences was expected by the company based on what it experienced from previous disruptions. C13 continued working on purchase, production and sale until it was forced to stop as a result of the closure of the borders. Even though it had orders ready for export through Syria, it had to export them by sea and bear the extra cost of changing the shipping method, especially since those orders were prepared under the customer's private label.

The increase in internal competition among all the companies in the local market is due to the decrease in the level of exports. which resulted in companies selling under cost to avoid products expiring, losing the entire cost, or even losing their businesses, in other words to reduce the damage.

Another challenge is to find alternative markets to compensate for the lost ones. Two years ago, the company started working to enter the Canadian market and it is now in the final stages of entering this market. In order to enter such a market, companies must be prepared to answer all the new market's questions and to meet their requirements in accordance with their standards and conditions. They should also have an insurance policy to cover costs in the event that the product violates the agreed-upon standards and the material and moral damages that this violation may cause. C13 had never considered entering such markets before and would not have considered it if the neighbouring markets had not stopped, as entering such markets requires time, effort, adjustment, and extra costs.

C13's owner also claims that companies faced pressure as a result of the Jordanian government losing at least 400 million JOD in fees from the transit trade because of the Arab Spring, in addition to other related losses to such as customs. This loss derives only from the closure of the Jordan-Syria roads and has resulted in the government acting to compensate for these losses from the manufacturers and the general population through the Income and Sales Tax Laws, by suspending tax exemption and stopping export support. This led to a great deal of pressure on the Jordanian citizens, in addition to causing many companies to leave the market or reduce the scope of their work.

Additionally, implementation of the law that granted companies the right to use alternative energy was stopped, due to the government's decision to reorganise the energy sector. Whereas the cost of producing solar energy had been equivalent to 0.120 JOD it increased to 0.015 JOD. If the population start resorting to alternative energy it may cause a financial problem for the government, as energy is one of its sources of income.

Another pressure faced by companies, in general, is the recently approved Caesar Act which, as mentioned in relation to C08, bears a threat from the USA that if any company in the world deals with a Syrian company under the Assad regime, the bank accounts of that company will be blocked.

Employment is one of the challenges facing C13. There are huge numbers of educated people in Jordan who are seeking jobs, however, there is a lack of opportunities that could be considered equivalent to their qualifications. Therefore, they end up accepting positions that do not match their competence or expectations and with a lower salary. In addition, the number of skilled and talented employees in Jordan is insufficient due to the availability of opportunities abroad for such employees. The foreign markets are continually attracting these skilled employees. This affects the efficiency of work in general and the efficiency of other workers who could have benefitted from working with them. Also, Syrian and Egyptian workers seem to demonstrate much greater ability to learn in comparison with the Jordanian workers.

The horizontal spread of its products to reduce the negative impact has helped the company throughout this turmoil and could help it in future ones. Also, Jordanian products are of high quality and follow international specifications and standards. Jordanian FDA standards are considered high and are largely in line with international standards, which will help companies to enter global markets in addition to earning Jordanian products a good reputation.

Another factor that helped C13 to get through this turmoil was the previously granted support from JEDCO before the Arab Spring, in 2006. In order to receive it, it had to carry out a study and make a strategic plan of action. This study not only helped it to receive the support but also greatly benefitted C13. The study and planning carried out by the company at that time helped it to withstand the turmoil and better plan for the future of the company.

The company obtained support from the European Bank, through JEDCO, for training programmes and to obtain certificates, for example, in 2018, the company received support for up to 60% of the cost of the certificates (ISO 22000).

The owner of C13 believes that the company should not produce products that have a high profit margin, as this margin will lure others to enter the market as competitors, and thus any profit could be lost. Thus, the company must search for products that have a reasonable profit margin that will enable the product to stay in the market and achieve a reasonable profit, which will make it difficult for others to enter the market and compete. He also believes that the more a commodity is in the market, the less profitable it is.

Neither is C13 seeking to expand into many foreign markets, fearing that its production capacity will not be sufficient to accommodate all requests. When any company enters foreign markets in general and European markets in particular, it must have the production capacity to meet these markets and in all the quantities that might be requested, otherwise, it will expose itself to losing these markets to a competitor with the production capacity to take on the idea and sell to these markets. If this happened, the company would turn from being the market leader to being dependent on it and could possibly even leave the market.

At the beginning of the Arab Spring, there was some benefit in the form of an increase in demand, especially with the United Nations buying large quantities of food for the refugees. This turmoil helped industrial companies to search for new markets and strive to find out what the customer needed, thus expanding their activities and developing them for the future. Thus, companies may avoid similar disruptions in the future by diversifying into new markets. As a result of the turmoil, C13 paid attention to the quality of its products, to enable it to compete in the market based on quality.

One of the positives of the Arab Spring is the new challenges that emerged in the market. And there has been a basic motivation to survive and benefit from the experience. Another positive aspect of the Arab Spring is the increased ability of the company to search for other sources, whether with regard to raw materials or to customers. The Arab Spring gave C13 more incentive to improve the image of its company. Therefore, C13 considers that, in general, the benefits from the Arab Spring have been greater than the harm.

C14

A food manufacturing company that specialises in making natural potato crisps from imported raw materials. It was established in 2015.

It gets its raw materials from different countries. Potatoes come from the local market in addition to Lebanon and Egypt, spices are imported from several countries, such as the USA, Dubai and the Netherlands, corn is imported from India and Turkey, and oil is imported from Malaysia.

Supplier switching is relatively easy as there is high competition, which helped C14 to put pressure on suppliers in terms of prices. Even so, the cost of exporting from Lebanon and Turkey has increased due to the Arab Spring, but C14 continued to buy those materials as they are of very high quality and it did not want to compromise on that.

C14 exports some of its production to Arabian countries: Palestine, Saudi Arabia, Dubai and Bahrain. It exports also to Qatar, but the winter demand is higher than the summer demand. It also used to export to Iraq and Europe (Germany, Sweden and Belgium) but at a low level. Export to European markets did not continue due to the high shipping costs, in addition to the fact that this product is defined by large volumes and low prices, which made it difficult to continue exporting.

It is difficult to replace or compensate for the loss of a customer due to the high competition, especially in the local market, as a result of the decline and the new challenges in export and the limited market share in general, for instance, in the Jordanian market there are 30 crisps factories.

The existing turmoil made this even harder as it prevented C14 from entering new markets such as Yemen and Bahrain. The turmoil also led to the imposing in 2018 of new taxes of 18% by the Iraqi government in order to protect the Iraqi products, which prevented C14 from continuing with the Iraqi market.

The shipping period created another challenge for C14 that affected its exports as the product expires in 6 months and shipping takes 45-60 days, which affects other countries' decisions on ordering and the quantity of the order.

Another challenge faced by C14 involves exporting to Palestine, where there are conditions on the height of the truck, which has reduced the number of boxes shipped from 800 to 720.

At some point, the government issued a decision to stop selling crisps to schools, due to the hygiene risk if students did not wash their hands properly. This decision had a great impact on C14 as schools represent major customers for the product from the local market and it resulted in an 80% decline in sales.

Additionally, the Jordanian economy was completely dependent on the Iraqi market. However, this led to two problems: first, the security risk as a result of the Arab Spring and ISIS and, second, closing of the borders has meant companies are no longer able to reach Iraq by land and have to export by sea.

C14's owners consider the lack of encouragement from the government for industrialists, as provided in other countries, as another challenge facing companies in Jordan. For example, in Qatar, there is no sales tax, no income tax, no social security tax, energy is free, and factory land is given for free. For manufacturers, the biggest problem facing them is the very high level of taxation in Jordan.

To reduce the negative impact of the disruption, the company was forced to lay off a large number of workers (reduced from 150 to less than 70). It also cut costs where possible. And it halted development of machinery, which had undergone annual improvement in the past. Therefore, C14 is currently seeking to transfer the potato production line to Jordan in order to reduce its dependence on imports and reduce costs, especially as the company's owner is against bank loans on principle. Therefore, C14 had to rely only on what it had in its hands.

The devaluation of the currency in Egypt after the Arab Spring helped the company reduce its production costs. In some cases, importing the completed goods from Egypt is less expensive than importing raw materials, manufacturing them in Jordan and selling them, as a result of the lower costs in Egypt of raw materials, labour and energy. Also, the reduced costs from the suppliers are a result of the high competition.

Additionally, C14 seeks to find alternative non-traditional markets other than the surrounding markets, such as the European markets, in order to avoid the negative impact of similar disturbances in the future and to increase its probability of survival.

The company participated in the Energy Saving Programme with the Royal Scientific Society in 2017, and this training had a positive effect on it.

Also, the owner believes that C14 has skilled workers who greatly help it to compete in the market. It possesses skills higher than those of companies that have been in the market for a longer time. C14 has hired some workers from Syria, Egypt and Yemen. It has found those workers to be committed and professional employees (especially the Syrians).

C14's owner argues that working in trade in Jordan is more profitable than working in manufacturing. This is due to the impact of high costs on the profit margin, high taxes and the continuous tax changes, changes in regulations and laws, high competition internally and externally, limited market capacity, and obstacles to exporting.

He also argues that the level of impact on a crisps factory is directly proportional to the size of the factory. The most affected factories were the large ones, as reflected by the fixed costs that they have and the decline in revenues that they have faced from market exit. This has led to the exit of many of those large factories from the market.

This factory is the only factory in Jordan that obtained the trust mark from the Food and Drug Administration. It also holds a quality mark from the Institution for Standards and Metrology and an ISO 22 mark.

All of those factors have helped C14 survive the turmoil, even though it was established after the Arab Spring. It was able to keep improving its product quality. Despite the overall increase in costs in Jordan, C14 managed to reduce its costs by pressuring its suppliers to lower the prices of raw materials. Reducing the costs has helped C14 lower its prices and create some pressure on its competitors. Additionally, throughout the whole period, it managed to keep the same level of profitability except for in 2018 when it recorded slightly lower profit. Relying on cash payments has protected it from many payment troubles that other companies have faced.

C15

A furniture manufacturing family company that was established in 1969 and started out in woodworking. Then in 2009, it was transformed into five sub-companies that specialised in wood industries, decorative materials, curtains and accordion doors, contracting, and interior design. Now it is run by the second generation of the family (sons of the founder), each of whom has responsibility for the management of one of those sub-companies. C15 was able to develop itself and its work and to open those sub-companies after the owners studied engineering majors related to decoration and interior design.

It only works in the local market, where it is engaged in manufacturing all kinds of wooden products and all sorts of production related to design. Its customers are obtained from projects, tenders, and bids rather than working with individuals. Currently, C15 is trying to expand its

work's scope by exporting to Qatar, Bahrain, and Oman. Lost customers are hard to compensate for or to replace due to the high competition.

C15 imports all its raw materials from Europe, Saudi Arabia, China, or India. It used to import some of its raw materials from Syria, such as copper, Arabesque, and decorative bars, as the cost of importing them from Syria was much lower than buying them from the local market. It also used to get some of its raw materials from Turkey but it had to stop due to the high shipping costs when it started shipping by sea. Replacing any supplier is relatively easy as every raw material has multiple suppliers offering similar quality and those suppliers are continually increasing.

One of the challenges faced by C15 is its customers' decline in exports as this influenced their level of purchase from C15. Recently, the local market started to experience a decrease in big projects, which resulted in C15 not being able to sell all its factories' production in the local market.

Another challenge that has faced C15 is the impact of this turmoil on the Jordanian government itself through grants and debts deriving from the World Bank that led the government to increase the pressure on its already hard-pressed population and companies by increasing the energy costs and taxes.

Governmental pressures have also resulted in companies having to focus on how to cope with all these financial burdens instead of focusing on how they can improve their businesses, thrive in the market, and expand their scope of reach.

The nature of its products is a source of challenges for C15 as it does not have a stable customer base. C15's production relies on supply and demand based on needs which usually do not arise again for many years.

Languages have also caused a challenge for C15 and prevented it from entering the European market. C15 wished it could have benefitted from the rules of origin that have been simplified to allow more commercial trading between the Jordanian companies and the European markets, especially since its production costs are lower due to the lower labour costs in Jordan as compared with Europe. The C15 owner argues that the language barrier prevents it from negotiating with market representatives and reaching agreements on the standards of production and product requirements.

Additionally, the lack of studies on different markets' needs and how to enter them has caused confusion to C15 over which markets to enter and what type of products they need in order to do so, as well as their regulations and level of competition.

Future planning represents another challenge for C15 as currently it is in a recovery stage and all its plans are daily ones and based on continuously changing and upcoming events that it faces and which impact it.

Jordan is considered a stable country, politically and economically. However, it was significantly impacted by what happened in the Iraqi market as there were companies in Jordan who traded entirely in the Iraqi market and when they were forced to stop trading there as a result of the instability there, they turned to the local market and increased the level of competition within it. The decline in export, in general, for competitors' companies in this sector has led those companies to focus on the local market and compete for a share in the existing market.

But even so, C15 has benefitted from what happened in the neighbouring countries as this instability resulted in people migrating from their countries to Jordan, which resulted in an increase in the number of customers in the market. This migration has led to an increase in residential projects and a corresponding increase in the consumption of furniture and decoration.

Such benefit from the disruption in the neighbouring countries was temporary. After a while, the market became saturated and the growth in sales stopped.

Keeping what it has already achieved is one of the main goals for C15. It tries to do this by cutting as many costs as possible. One of the actions that it adopted was to reduce the number of employees by 30%. Also, that strategy is reflected in the zero hiring of employees from any of the Arab Spring countries.

C15 had to take out loans and look for trade concessions to enable it to develop its business to cope with the challenges and competition in its surrounding environment and to prevent it from facing severe losses that might cause C15 to leave the market. The owners of this company believe that they would benefit from funding or support, especially in order to increase the number of employees, train the employees, and improve their personal skills, especially skills related to languages and exporting.

To reduce the impact of competition on C15, in 2017 it started to create new production lines to improve its chances of reaching more customers and provide the current ones with more products. This will also help C15 to start exporting to new customers.

C15's owner claims that there is no communication at all throughout the supply chain that might help in understanding what is happening and predicting what might happen in the future. He also argues that companies do not share their experiences with each other as they are afraid that this might affect the confidentiality of their information or might lead their competitors to use that information to reach their customers.

According to C15's owner, if Jordan wants to improve its capabilities in exporting, which would help to enhance its economy, it should focus on developing its labour and its companies. Jordan can achieve this by developing individuals' skills and helping them to develop their talents and to work more efficiently and effectively, and that would also help companies to attract more customers to whom they could export.

Another way of improving the individual employees is by training them to learn languages and how to conduct business agreements in terms of knowing the market needs, offering, negotiating, adjustment, contract signing, supplying, or in other words, conducting trade agreements from the start to the end.

C16

A furniture manufacturing company that specialises in education-related materials: white writing boards, projection screens, engineering furniture, and interactive whiteboards. It also manufactures the filling for educational panels, doors and furniture (Anyvan paper). It was established in 1982, starting as a trading company, then in 1999 it became a manufacturing company and later, in 2006, it separated the trading from the manufacturing and became two companies.

It imports its raw materials from a number of countries including Japan, Belgium, Korea, China, Italy, and Saudi Arabia. Replacing a supplier is extremely difficult as, for instance, one of the used raw materials has only two suppliers in the world, one in Japan and the other in Belgium.

It sells its products to 50 countries around the world, including European and African nations, Afghanistan, and Pakistan, but principally to the Arabian countries in the Middle East. The main markets for C16 are Saudi Arabia, its biggest market, the Gulf states, and Europe. Only 15% of C16's production is for the local market and the remainder of its production is for export.

However, as a result of the Arab Spring, C16 had to stop exporting to some countries, including Syria (2011), Egypt (2011), Tunisia (2011), Libya (2014), Iraq (2015), Lebanon (2015), Yemen (2016), Algeria (2018), and Morocco (2018). This caused a 50% drop in C16's exports and now the exports represent 50% of C16's production and the local market represents the other 50% of production.

C16 has faced a number of challenges, including changes in regulations in exporting countries. For example, C16 stopped importing to Algeria in 2018 due to those changes in regulations, even though there were some exemptions for a few products, however, C16's products did not fall under those categories. Also, African countries started to request conformity certificates for any products to be sent to them, and those conformity certificates had to be issued before packaging and shipping.

Significant increases in shipping costs and the need to change the shipping method in some cases have also caused pressure on C16. The cost of shipping from Aqaba (Jordan seaport) to the company's location in Amman is equivalent to the cost of shipping the same items from Shanghai to Aqaba, as the cost in both scenarios is 600 JOD per shipment.

Market closures have caused a 50% drop in C16's sales. Lost markets could not be replaced, except for the Yemeni market which returned only for 2018 through the UN. Also, the amount ordered has been affected by this disruption; for instance, Saudi Arabia used to spend 25% of its budget on education and now this has been reduced to only 10%.

Customer pressure due to their increased expenses and the decline in their purchasing power started to pressure the companies to reduce prices and allow a longer payment period.

Another challenge is the cash liquidity in the company, as C16's cash liquidity declined due to market losses impacting its ability to purchase raw materials, which was eventually reflected in its inability to accept orders that it was no longer able to fulfil.

Even when the turmoil finishes, C16 does not think it will be able to return to those markets, especially not the ones in Syria and Iraq, as a result of Jordan's political stance toward these countries.

The Jordanian government also represents another source of pressure on companies. According to C16's owner, it lacks the right economic judgement, has poor economic policies, and all it cares about is the levy.

Another challenge linked to the Jordanian government is the timeframe that is given to companies to pay the sales tax of 16% on their orders. Companies are given only two months to pay this tax from the bill issuance day, even if they have not received the payment for what they sold. Also, exports used to be exempt from sales tax, but in 2019 this exemption stopped and companies in this sector now have to pay 20% in tax.

Employees also pressured C16 as they thought their salaries were not sufficient and did not adequately cover their living expenses. And whenever there was a delay in receiving their salaries they ended up striking until they got paid.

For C16 to overcome those challenges it had to reduce its prices to cope with the increase in competition, customer pressure, and the decline in the available markets. It also tried to open other markets in Europe, to widen its spread and increase the number of its customers. It had to take loans to compensate for the financial losses and decline in cash liquidity. In 2015, it took out loans that added up to a value of 500,000 JOD. It also took out another loan in 2019 from the Central Bank for 150,000 JOD with a high-interest rate of 4.5%.

Participating in galleries in Europe and Dubai is another practice that C16 has used to increase its scope of work and reach out to more customers. The Jordan Chamber of Industry annually funds every company with 1,000 JOD to participate in such galleries.

Another practice is searching for cheaper raw materials. C16 is concerned now mainly with the cost of the raw materials, even if this impacts the quality of its product, as it believes that lowering costs and prices will increase its chances of survival and staying in the market. For example, its glue used to be imported from Italy and aluminium used to be imported from Germany but now both of these are imported from China. C16 tried to request its suppliers to lower their prices and while they agreed to this a few times, they did not accept reducing the prices at all times.

C16 received funding from JEDCO in 2015, valued at 80,000 JOD, for it to expand its production line. And it always sends its employees to receive the training conducted by the Ministry of Industry Trade and Supply.

The provision of external funds to Jordan has declined in comparison to what they received at the beginning of the turmoil. Also, the Jordanian government did not offer any support to its companies to encourage them to keep working and develop their businesses as other governments, such as the Turkish government, have done with their business owners.

It is the only company in the Arabian world that produces filling for educational panels, doors, and furniture (Anyvan paper).

It used to have 80 employees but now it has only about 50. And it did not hire anyone from countries that faced the Arab Spring. The decline in the number of employees reflects the decline in production.

The owner of the company believes that they have good experience in the market as they have been in business for about 40 years, and they have high skills. They also have good financial stability in terms of owning the land and the factory where they are working. This helped C16 to take the right decisions, as companies, in general, rely on themselves and do not discuss what they are facing and how they are reacting to it with other companies in the market from the same industry, sector, or even within the same supply chain.

C16 owners argue that the Arab Spring had no positive impact. And that companies cannot prepare themselves for future similar disruptions as they are operating in a high-risk politically unstable area that is almost impossible to predict. They also argue that if a similar impact disruption hits the company it will be no longer able to recover or survive it and it even might have to exit the market.

C17

A furniture manufacturing company that was established in 1993 and its trade name was registered in 2005. It started by producing plastic boxes for agricultural products, then it shifted to producing furniture such as chairs and tables, afterwards it turned to household items, and then storage tools, and now produces complete home solutions from plastic.

C17 used to be the only provider of plastic boxes for agricultural products for companies that used them for exporting; however, due to the increase in competition it had to make some modifications to its products. At the interview time, C17 had 220 products.

Currently, it sells its products to 30 countries worldwide including the USA, Gabon, Angola, Tanzania, Malta, Panama, and Morocco, and its main markets are Iraq, Saudi Arabia, Palestine

and Kuwait, with exporting representing 75% of its production. Additionally, it controls 70% of the local market.

Raw materials such as plastic granules are imported from Saudi Arabia and the United Arab Emirates. The owner of C17 argued that it is quite easy for it to replace those suppliers as all those materials are available from multiple suppliers in Europe, America, and China. Also, the cost of those materials is determined internationally, therefore, different suppliers will provide similar products at the same prices.

C17, like the rest of the companies, has faced a number of challenges. One of those challenges is the economic pressure on Jordan due to the political disruption in neighbouring countries, even though Jordan itself is considered politically stable. This instability not only impacts Jordan as a country but also reflects on the companies operating in it. Additionally, the general fear of trading with Arab companies might affect the supply of materials or products.

Another challenge that has faced C17 is the increase in taxes. Jordan's income tax rate has been raised from 14% to 20%. Also, there was an increase in tax in Saudi Arabia of 5%. The Palestinian market has also imposed a new customs tax of 12%.

Shipping costs have also impacted C17, as shipping costs in Jordan are considered to be extremely high. For instance, shipping a container from China to Aqaba (Jordan seaport) costs \$1,000, while shipping the same container from Aqaba to Amman (Jordan's capital) costs \$3,000. The owner of this company claimed that shipping to Aqaba from any country costs twice as much as shipping to Dubai due to the poor management at Aqaba port and the continuous delays and strikes happening there which make countries try to avoid shipping to it.

Due to the Arab Spring, exporting to Iraq has declined by the equivalent of 60%, also many obstacles have affected export to Iraq, including the border closure for 5 years. Then returning to this market became harder as it was saturated with other market products, such as Iranian products, also as a result of the increase in shipping costs as Jordanian lorries had to change to Iraqi lorries at the border because of a new law issued in Iraq. The cost of shipping one lorry to Iraq in 2004 used to be \$400 and it would arrive in one day; however, when the border closed this cost jumped to \$4,000 and it would take a month to arrive. When the border re-opened the cost declined but still did not fall to its previous price as it now costs \$2,500 and requires a week to arrive to the customer.

Exporting to Saudi Arabia has also been impacted due to this turmoil, especially in Yemen, as Saudi Arabia used to order 10 lorries per order and now it orders only 3 lorries per order, with the same number of orders per year.

Additionally, due to political instability between Saudi Arabia and Qatar, C17 was no longer able to export to Qatar by land and had to change to shipping by sea, which is more costly and takes a longer time. It used to take 3 days and now it takes 30 days, which has increased the product cost for the customer and led those customers to turn to alternative products from the competitors.

The Lebanese market has also been impacted by the Arab Spring and the border closure, therefore, C17 had to ship by sea. Also, after the re-opening of the borders, this market has been impacted by the increase in Lebanese customs duty to 12%.

C17 has tried to lower the negative impact of this turmoil and to instead to benefit from it by implementing new practices, such as entering new products and new product lines into its production, to improve its market spread and to better reach its customers by providing more products which they desire. It also continually tries to find new product ideas that satisfy its customers' needs and are affordable at the same time.

It used to have 170 employees and now it has only 100, as the company had to cut some jobs to reduce costs. It also has employed workers from Syria and Yemen as those workers tend to have greater commitment to work than the Jordanian workers as they are willing to work for more days and longer hours. Another factor that has impacted the cost of labour is that there was a change to the minimum employee salary just before this turmoil. Before 2010 it used to be 150 JOD and then it was increased to 220 JOD. C17's owners stated that there are three main sources for operating costs in the manufacturing industries, namely energy cost, shipping cost, and labour cost.

C17's owner argued that his company has a strong financial position, therefore even with the negative impact coming from the Arab Spring it did not rely on any loans to overcome this turmoil. C17 also relied on its profits from the years 2010-2013 to compensate for the decline in sales in the years 2014-2018.

To compensate for customer losses, C17 tried to find new methods of reaching customers. For instance, it has participated in a number of galleries to reach customers worldwide. Additionally, C17 adopted online marketing relying on social media to enlarge its reach to customers and to better understand customers' needs.

Currently, this company is conducting research on how to enter the American market by following the free trading agreement. A number of factors have encouraged C17 to decide on entering this market. One of those factors is that exporting costs to this market are 3,550-4,000 JOD which is the same cost as exporting to neighbouring countries.

C17 conducted, from the beginning, a monthly sales analysis to evaluate and anticipate its sales which has helped it to predict the market loss due to this turmoil. Even though C17 owner claims that this company did not lose any of its customers and that it stayed in contact with them, it has only faced a decrease in its exporting and a decrease in order levels.

The owner of C17 believes in the importance of the company maintaining provision of its products to its customers in order not to lose those customers to any of its competitors, as he thinks that if a company is absent for even a short period of time that will immediately impact its market share, especially when competitors are providing similar products and there is a low switching cost. He also believes that companies should continually provide their customers with new products as if they fail to do so their competitors will imitate their products and they will have tough competition that might impact their profitability.

A number of external support funds have been received by C17. In 2008 it received a fund from JEDCO for improving its factory machinery. In 2018 it received a fund from JED to participate in galleries. And it has received a fund from European Central Bank to cover 65% of obtaining ISO certificates. Those supports have had a great positive impact on the company.

This turmoil's positive impact, according to C17's owner, is that it has changed the way the managing parties think; where they used to rely only on one market or only a few markets, this turmoil has encouraged them to look for new markets, find better marketing techniques, and continually develop their company's products rather than relying on market stability. For instance, entering the European and American markets started in 2014.

C18

A leather and garments manufacturing company that specialises in the manufacture of fabrics, linens, duvets, bedspreads, school uniforms and Shemagh (traditional Middle Eastern headdress). It was established in 2008.

C18 main raw materials are threads and it imports them from China, India, Thailand, and Indonesia. Replacing any of those suppliers is considered extremely easy as there are many suppliers for those materials in multiple countries.

It works mainly in the local market, it used to export 20% of its production before the Arab Spring to Egypt and Algeria. However, this ratio has declined to only 5%, with the remaining 95% of its production targeting the local market. Not only have C18's exports declined but also its entire production has significantly declined as now it is working at only 50% of its production capacity. But even with the decline in exporting C18 did not lose any of its export markets.

Challenges that have faced C18 in the past period were not only due to the Arab Spring as some of them are considered as operating challenges from working in a developing country. For instance, one of the challenges that is not related to the Arab Spring is the amount that the company pays in social security as there has been an annual increase to this amount and it is calculated as a percentage of the registered salary in the Social Security Department.

Meanwhile, a challenge that could be due to the Arab Spring is the cost of issuing work permits for Egyptian labour, which used to be 275 JOD but has risen over the past few years to 520 JOD.

Another challenge that impacts C18 is that the Qualifying Industrial Zones (i.e, Aqaba) in Jordan are semi-exempt from work permits. Even though the Ministry of Interior has been requested to reciprocate the work permits for the company with companies in those zones nothing has changed as those zones are considered outside the jurisdiction of Jordan and do not follow its legislation.

C18 has also struggled with the continuous increase in electricity prices as the owner of this company claims that those prices have tripled and while C18 used to pay 500 JOD per month, now it is paying 1,500 JOD per month.

Another challenge that faced C18 and led to an increase in its costs is the exporting tax of 10% which companies used to be exempt from and now have to pay.

Companies in this sector are allowed to hire up to 25% non-Jordanian employees. C18's owner considers that 25% is not sufficient as there is a lack of qualified labour in the market. To overcome the lack of qualified labour C18 tried to get trained labour from The Vocational Training Corporation, Deaf & Muteness Charity Society, and Jordanian Directorate of Employment but could still not find the right fit for the company. This pressure had a high impact on C18 as not only there is no entity responsible for training employees before they start work but also there is no right fit for the position even when the company is willing to give the needed training.

The time that C18 needs to produce its final product has tripled due to the lack of qualified labour or even labour that might become qualified after getting the needed training.

Additionally, the high competition in the industry, low switching costs, and low entry requirements for any new business have increased the pressure on C18, especially with the stagnation of markets.

One of the challenges that also impacted C18 is the lack of protection from the Jordanian government for the products manufactured by Jordanian companies, protection for the manufacturing industry from other industries or computers, or even a law to protect Jordanian products (any product manufactured in Jordan) from competition from external markets.

The owner of C18 claims that there is a lack of fair treatment when comparing the manufacturing industry with the trading industry as both of those industries have to pay income tax of 16% for their products, even though the manufacturing industry companies have also to pay for all the

production and labour costs, while in the trading industry, they only pay for the final product. This means the manufacturers have to bear higher costs and finally pay the same income tax, which reduces their profit margin when compared with traders.

C18 has faced a gradual increase in income tax from 2011 to 2019, equivalent to 65%. At the same time, its costs have increased by 60%.

To overcome those challenges C18 has adopted a number of practices. For example, in 2017, the company took out a loan valued at 150,000 JOD due to the decrease in its cash liquidity that has resulted from the decline in production and the stagnation of markets.

The company has also reduced its costs by lowering the number of employees. It used to have 30 employees and after the Arab Spring this number declined to 15 due to the decline in production. It also lowered its electricity consumption by avoiding working in rush hours to avoid higher rates and fines and by trying to reduce its reliance on machines and replace them with workers when possible.

To reduce the costs C18 has also applied to use renewable energy sources such as solar energy. The cost of installing the equipment for this alternative source will be covered by external supporting entities from the European Union and this will reduce the cost of production and maybe even become a revenue source if more electricity is generated than is needed and this surplus energy can be sold to the government or other companies.

C18 is now working on entering new markets like Iraq and Saudi Arabia to compensate for the markets that it lost due to the Arab Spring. The owner of this company claimed that entering those markets or any other new ones is easy to do.

C18 had to shut down some of its production lines as it no longer had qualified and trained labour to run those lines. Therefore, they either had to shut those lines or allow unqualified labour to run them. Allowing such labour to do so might have been even higher risk than closing those lines as producing bad quality products not only would add non-necessary costs but probably would impact the reputation and the image of the company and create hard-to-repair damage.

Another idea that this company is working on due to the challenges faced since 2019 is to re-allocate its factory and company to another country that provides protection to its companies and products. One of those countries that C18's owner is considering is Turkey.

The owner of C18 claims that he does not know about any funding or support provided by the government or any external entities, or about any soft loans or interest-exempt loans provided by the government or any external supporting entities. He argues that if he knew about them he would have applied as such support could have helped the company in overcoming all its obstacles and challenges.

The Arab Spring had no positive impact on the company whatsoever, according to this company owner, all that it has done is create a more challenging working environment, filled with obstacles.

C19

A leather and garments manufacturing company that was established in 1992. This company started by making blankets from the ground up, then in 2006 it stopped manufacturing from the ground up and focused just on sewing blankets. Additionally, it started a partnership with a carpet factory that ended in 2009, and since 2011 it has mainly been leasing hangars to other factories

as it has 40,000 m² in lands. Upon establishment, this company's registered and operating capital was 600,000 JOD.

The production process for this company from the ground up follows multiple stages. It starts by importing the threads from its suppliers, interweaving them to become rolls or vestures, and then sends them to another department of the company to be washed. After that they are sent to another department for colour fixation in specialised ovens to ensure the colour stability when they are washed in the future. After that, they are cut based on the pattern design, then sent to the sewing department to prepare the final products which are finally sent to the packing department.

Raw materials such as the threads were imported from Indonesia, India, or Turkey. All suppliers from those countries provide the same materials, therefore, every time C19 made a purchase decision it did so based on the prices when it placed its order. C19 purchased three types of threads for its production: acrylic (14%), polyester (78%) and cotton (8%), and these were dyed to produce the desired shades and colours.

C19 used to mainly sell its production to Syria, Iraq, and Egypt up until 2006. Due to the competition, the level of export declined. Then in 2011, due to the Arab Spring, all its exporting stopped.

In 2006, due to the extremely high competition from chain companies who entered the Jordanian market and the markets of neighbouring countries, C19 was no longer able to continue its production from the ground up as its production costs alone, without adding taxes, labour costs, or even profit margin, were higher than if importing the same products from China with the added shipping costs and import taxes. This made importing rolls or vestures from China and only cutting and sewing them a more reasonable choice for production and reduced its costs.

Another challenge that faced C19 in 2011 was the closure of its export markets due to the Arab Spring, which forced it to rely on the local market which is a relatively small market. Relying only on the local market after losing its other markets has forced this company to reduce its production and not to work a full capacity production at any point since 2011.

Customers no longer looked mainly at the quality of the product to make their buying decision but started to look more at the price of the product, especially with the harder living conditions and the decline in the customers' financial solvency. Therefore, C19's owner's decision to rely on China for rolls and vestures has impacted the quality of its products and caused them to decline. Before, the quality of C19's products was equivalent to and could compete with the Spanish products as it used to use three different types of thread for production, but the Chinese rolls and vestures are only produced from polyester threads, which has impacted the quality.

Customers' declining interest in quality and the loss of markets have resulted in a massive reduction in this company's sales. Its importing of materials from Chain has declined from 40 containers every year to only one container every year. Sales have declined by approximately 70% when compared to before 2011.

Another challenge facing C19 is the general decline in trading. Instead of C19's customers trying to improve their market spread and therefore order more, due to this turmoil, some customers have been lost and their market share has declined, which has affected C19 again in an indirect way through a decrease its sales.

Entering Gulf countries' markets is not easy, as those markets order large quantities that exceed C19's full production capacity; therefore, as they tend to prefer ordering from one source, those markets usually rely on one of the major Chinese companies that can provide them with the required quantity.

A licence for a troubled factory still costs 3,000 JOD. This company has suffered losses for the past few years and even so is still required by the law to pay for its operating licence.

Additionally, the lack of protection laws for Jordanian products and the Jordanian manufacturing sector presents a big challenge for the companies working in Jordan; especially since most of the other countries have some level of product and company protection. This creates a barrier for Jordanian companies, preventing them from freely operating when exporting and from being protected when outside competition tries to enter the Jordanian market.

To overcome all those pressures and challenges, especially the significant loss of sales which in other cases has forced companies to leave the market, C19 has had to rely on its substantial lands, covering an area of 40,000 m². Therefore, it has been renting out those hangars, with the rental price minus the governmental income tax representing pure profit for C19. The cost of renting those hangars is equivalent to 25 JOD/ m².

The annual minimum revenue for C19 from renting hangars alone is 500,000 JOD, of which it pays about 100,000 JOD in income tax to the Jordanian Government. This gives it a minimum profit every year of 400,000 JOD, which is higher profit than made in any other sectors in the manufacturing industry.

The decision of C19's owner to stop producing from the ground up and to rely on external suppliers for the production materials has significantly helped him to cut costs and to sell at lower prices. For example, the price of duvets fell from 35 JOD to 17 JOD. Especially with the continuous increase in costs, the economic feasibility of trading in the leather and garments sector has increased when compared to manufacturing.

In 2009, C19 decided to liquidate its partnership with a carpet factory as it found that liquidating that company, selling its assets, and renting the land from that company would earn C19 higher profit.

However, rather than shutting the site down completely, the owner of C19 decided to keep on paying the licence fee for the troubled factory and is currently using it as an office to run the rental business for their hangars.

C19 no longer keeps employees in the company and relies on hiring workers when needed to accomplish an order. Whereas it used to have 300 employees, now C19 has only 28 workers (not employees) who work for wages and based on demand and amount of work accomplished. None of those employees or workers are from the Arab Spring countries.

Since C19 has been in business for about 30 years, its machinery has fully depreciated in value, therefore, there is no harm or loss deriving from it not being in use. C19 owner argued that the price of that machinery has been fully paid in the past years, production levels have been extremely low, meaning the machinery has not been overloaded, and since it has been in use for a long period of time they know how to fix it if needed, without relying on an external source. Hence, C19's owner did not try to improve that machinery, especially since the production level would not compensate for the added costs of such improvements.

Arab Spring has had a positive impact on C19. Due to this turmoil, a number of investors and manufacturers have come to Jordan to relocate or even to open new businesses in Jordan and those investors and manufacturers have started to rent hangars from C19's owners.

C19's owner claimed that the government did not provide any funds or support to the companies to help them overcome this turmoil. He also claimed that he did not know about any funds and support from external entities.

C19's owner declared that he has no intention of improving the factory and he is satisfied with the simple level of production that they have and knowing that they do not have to rely on the factory for a living.

C20

A mining manufacturing British conglomerate that specialises in construction chemicals. The company has four production departments: admixtures, powders, sealant, and epoxy. C20 creates solutions for construction companies in order to achieve the most ideal construction in terms of purpose and form.

The parent company was established in 1972 and its branch in Jordan (C20) was established in 1994. In total it has 16 branches across Europe, the Middle East, and North and South Asia, including the United Kingdom, Jordan, Indonesia, Malaysia, Dubai, Saudi Arabia, and Kazakhstan, with headquarters in Dubai (UAE).

It prefers to rely on each branch's local markets for its raw materials, however, the cost of these raw materials plays a determining role. Usually, the raw materials for C20 are sourced from the local market (sand, silica and cement) or imported from India, Germany, Dubai, Saudi Arabia, and Egypt (Epoxy production, Powders, Flooring, Ad mix). In the local market, there are a number of companies who can provide the required raw materials and even if those materials are not originally available in the local market those companies import them and then sell them in the local market. C20 also has an intercompany raw material purchasing policy whereby when it imports a raw material one of its branches buys it, adds a bit of profit to it, and re-sells it to the branch that needs it. This also gives C20 flexibility and ease in changing suppliers; if it needs to do so as it can simply ask any of its branches to provide it with those materials.

This conglomerate also has another policy whereby it divides its export requests among its branches based on demand and the location of the branch. For instance, C20 allocates exports to Syria, Iraq, Lebanon, and Palestine. As for its customers, it only deals with one client in each country and this client becomes the responsible person for dividing its production in that country.

Another policy relates to an internal system (ERP System/ DACs Life) they have to allow managing branches to look into the data of branches under their management and details related to their customers' feedback. Also, there is a sharing information policy throughout the entire conglomerate's supply chain. Information related to the raw materials is usually discussed through this supply chain and the suppliers usually inform the company of any possible shortage in the future to give them enough time to either order in advance and store it until needed or to find an alternative supplier to order from when needed. However, this information sharing only applies to this conglomerate's supply chain and there is no sharing of information among other companies inside the sector, the industry, or even from other industries.

The fact that most of C20's customers are in countries that have faced the Arab Spring or its consequences created a challenge for C20 when exporting to Syria and Lebanon was forced to stop due to the closure of the Syrian borders. Also, exports to Iraq have been impacted due to ISIS' presence there and C20 would not export to Iraq unless it had export insurance for its products. This insurance used to be arranged by a separate company and an insurance fee of 400 JOD per shipment was added.

The increase in costs due to an increase in taxes from the government is another obstacle that C20 has faced. Those costs have directly impacted the profit margin of this company. Meanwhile, other companies that were no longer able to cover those continuous increases in taxes have closed

down and reopened under a new name so that they could benefit from the five years tax exemption for new businesses.

One of the obstacles that C20 faced is importing some raw materials that it needs for products such as gunpowder and explosives, which are also substances used in the manufacture of weapons. Due to the political situation in the neighbouring countries and the fear of misuse of these materials, there is greater caution on the part of the government over importing and using such materials. As a result, currently, a policeman comes to the company every time such materials are imported, to ascertain where they are placed, how they are used and everything related to them. The company was also obligated to allocate a room for these materials, which need several keys, each key held by a different person and the primary key to be placed in the company's management building in order to impose control over these materials and ensure that they are not misused.

One of the ways in which C20 has attempted to control the impact of this turmoil is by making its headquarters in Dubai responsible to manage how and what to do to deal with any disruption, challenge, or even pressure that any of its branches are facing and to find a way for those branches to rely on each other to achieve a better position.

Another way that C20 used to control the impact of this turmoil was through its connections with and reliance on other branches throughout the entire conglomerate, by helping each other to find new customers or markets after losing any of their customers, letting each other know about the availability of new projects worldwide, and when facing difficulties with exporting for any reason they can export through any of the other branches of this conglomerate.

This conglomerate does not rely on loans at any point in time as it has a policy for its branches to support each other when needed. The parent company with its general manager are responsible for such decisions as which branch needs to be supported, how to support it, and when to support it.

Currently, C20 is working on expanding and developing its machinery as it believes that there will be an increase in demand for its products in the near future.

Arab Spring has benefitted C20 in that when this turmoil started to stabilise the company started to be involved in harmed countries' reconstruction projects by exporting its products to them. It continued to receive profit throughout this turmoil period.

This company not only benefitted from individual customers, it also benefitted from companies that transferred their businesses to places within the work scope of C20. Additionally, C20's owner liked to believe that his company will be one of the main companies responsible for reconstruction projects in Arab Spring countries when this turmoil is over.

Another benefit of the Arab Spring is the expansion in exports to Iraq, with C20 exporting 4-15 lorries monthly, depending on the number of projects that they have and the need for products.

The nature of C20's work and products has led it to implement an internal policy whereby it cares first and foremost about the safety of not only its employees but also the safety of its visitors. C20 not only follows the necessary safety instructions according to the law, it has extra safety procedures and requires safety equipment to be worn by anyone who decides to enter the factory. For instance, the company's visitors should receive the proper safety instruction and wear the right outfit before being allowed to enter the factory.

This company has about 50 Jordanian employees, two of whom have disabilities. The company feels that hiring employees with disabilities can be seen as the company caring for its social responsibility. C20 owner believes that when a company cares for its employees, customers,

visitors, and society this will help in enhancing its image and encourage others to join its supply chain and also gain the respect of those who are not in this supply chain.

C21

A plastic and rubber manufacturing company that specialises in manufacturing infrastructure plastics: UPVC, HDPC, PVC. It was established in 1978. C21 is considered a local business and it does not have any branches outside Jordan.

It relies on tenders to purchase its raw materials, whereas C21 does not have any contracts with its suppliers as it purchases from them only when needed and it does so from any supplier that provides it with those materials that match its requested specifications. However, C21 usually gets those products from suppliers in Saudi Arabia, Europe and America. This company finds that relying on tenders to supply its raw materials makes it easier for it to switch suppliers if needed, and without any obligations if it decides to do so.

Regarding raw materials, C21 mainly uses plastic, which means that their prices fluctuate continuously based on the oil prices. Therefore, prices of those materials are evaluated by C21 on a monthly bases to determine when to buy and whether or not to buy more and save those materials as inventory for future use.

As for its customers, it works mainly in the local market but also exports a small proportion of its products to Iraq, Saudi Arabia and Ethiopia. C21's reliance mainly on the local market came as a result of Jordan's political stability when compared with neighbouring countries, which reduces the possibility of its market being impacted by political disruptive events.

C21's production is usually based on projects and is also based on tenders, with the customers for those projects coming from the public sector and from the private sector. But before C21 decide to place a bid for any tender in the market they first evaluate their ability to fulfil it, their available capacity when the project will start, and whether they have any other projects that they are still working on that might influence that project.

Therefore, the work balance for this company is not divided equally throughout the year and that is why they cannot evaluate or even compare any year's performance with previous years before the end of that year. Hence, the company's revenues vary from one year to another depending on the government and private proposed tenders and whether or not the company wins any of those tenders.

The owner of this company claimed that the Arab Spring did not impact any of those suppliers or customers and C21 continued its business with the same supply chain. According to the owner of this company, the Arab Spring did not impact its supply chain as its suppliers and customers are not from countries that have faced the Arab Spring.

Changes in regulations, either internally or externally, have affected C21. Those changes had come without a previous warning and affected them directly in multiple ways.

Instability and wars in neighbouring countries have also impacted C21 through affecting its import and export from other countries and its suppliers requesting a financial guarantee to assure their rights before supplying to the company.

Another challenge is the imposition of unqualified Jordanian labour and restrictions on use of foreign labour. Jordanian labour law determines the percentage of Jordanian labour required in each company depending on the nature of the business and the sector.

Even though there have been some changes in laws and regulations due to the Arab Spring, according to the C21 owner, there were no changes in laws and regulations in Jordan or any other country in which the C21 supply chain operates that have influenced their operations.

C21 have hired employees from countries that have faced the Arab Spring, one such country being Syria, but they have only hired a few employees from there. According to this company's evaluation, the employees were more talented and skilled than the Jordanian labour that they already have and others in the market, but they still have not reached the expected efficiency that C21 was looking for from them.

This company has benefitted from Zaatari camp projects as those projects relied heavily on building infrastructure (2014-2015). Those projects with the Zaatari camp came as compensation for the loss or suspension of other projects in the local market. Therefore, C21 achieved a profitability increase of 4-5% in the period of 2011-2016, but this profitability improvement did not last as in the period of 2016-2018 C21's profits stabilised.

The owner of this company believes that the Arab Spring did not have a direct positive impact on this company, even though C21 benefitted from the new projects at the beginning of the turmoil.

The profitability improvement at the beginning of this turmoil and the general stability of the demand and projects amounts have helped C21 to prevent any financial suffering and it therefore has not needed to rely on financial loans or look for any type of financial support or funding which, according to C21's owner might have helped to compensate for a potential decline in revenues coming from disruption if it had impacted their customers or suppliers.

Even though C21 did not need any financial support, it claimed that even if it had needed this kind of support it did not know about any support provided by the Jordanian government or any other external supporting entity. This includes support related to taxes, loans, training programmes, and even business facilitation.

To improve the company's position even more, C21 owners are looking to expand their markets by trying to enter new markets in which they believe they have the ability to work and compete. C21's owners have started this initiative by trying to expand into the African markets.

The owner of C21 believes that they should give more attention to their marketing since this would help them to reach out to more customers in the local market, in their current exporting markets, or even in new exporting markets.

Another improvement that C21's owners believe is required is for their companies to obtain related certificates and for their factory to obtain efficiency certificates, in addition to their products getting ISO certificates. The owners were keen on this as they believe being able to achieve all those certificates will help in enhancing their company's image and help it in attracting new customers and reaching new exporting markets, especially if they decide to try to enter non-traditional markets such as the European markets. C21's owners believe that they have what they need to obtain those certificates and that it is just going to take time for them to finally get them.

C22

A printing and packaging manufacturing company that specialises in carton packaging and recycling. It was established in 1979. C22 specialises in producing carton packaging and recycling. However, due to the Arab Spring, in 2012 the factory was shut down, and in order to keep its business the company made an agreement with a Saudi company whereby C22 sold its machinery to this Saudi company, provided it with the know-how, showed it how to manufacture

or maintain equipment, and provided raw materials by collecting printing waste from printing presses, pressing it and sending it to Saudi Arabia in exchange for the entire production of this Saudi company to be given to C22 to market and sell.

It relies on the waste from printing presses, newspapers, and magazines and 80% of the raw materials for this company's product are paper, which is in continuous decline. It used to export its entire production to Syria and Iraq but due to the Arab Spring C22 had no other choice but to close all its markets and start working in the local market. The Arab Spring came as a hit to this company with regard to its customers as it used to sell only to those countries that have suffered from this turmoil, therefore, they had to make changes to their company structure by working with the Saudi company and this eventually helped them to overcome their market loss.

Closure of the Syrian borders has affected this company either directly through losing the Syrian market or indirectly through losing the Iraqi market. When the Arab Spring occurred, exports stopped completely. This was one of the main reasons behind the suspension of work and the decision to sell the factory, in addition to the strong competition from Saudi Arabia and the low costs there due to the lower fuel prices in Saudi Arabia.

Market closures have heaped to another pressure on C22 since it has no longer been able to operate at full production due to not being able to sell its products. Moreover, this has resulted in increased costs due to fixed costs being the same but being divided across a lower number of products; also, the machinery C22 uses is designed for mass production and has high depreciation costs.

Changes in regulations have also pressured C22 through changes in shipping laws. Some countries have changed their shipment law, which also influenced shipping. For example, Jordanian shipping vehicles are no longer allowed to enter the Iraqi border, which means hiring two shipping vehicles, one from the factory to the Iraqi border and another one from the Iraqi border to the customer. Also, the Jordanian law exempting export of raw materials tax due to the lack of related production machinery for those materials in Jordan. Additionally, 5% tax has been added onto exports to Saudi Arabia.

The cardboard industry is made up of approximately 80% paper, which makes it highly reliant on a drained source for its production. Also, the raw materials for this industry are in constant decline as a result of the general trend towards obtaining electronic copies of such as newspapers (production was 100,000 newspapers per day and has fallen to 20,000 newspapers per day).

For C22 to better control those pressures it applied for a Ministry of Energy loan of 350,000 (support for industrialists) for a period of 5 years, without bank interest, in return for reducing energy consumption, based on the submission of a feasibility plan and implication plan. The company presented plans based on the existence of newer machines than the ones it currently used and that would offer better production with a higher production capacity and less energy consumption, in order to work on the re-production of egg dishes in Jordan.

C22 also submitted a request to convert to use solar energy in order to reduce costs and is waiting for approval.

C22 started searching for supportive bodies to work on developing the factory in order to increase competitiveness and improve productivity by bringing more advanced mechanisms into their factory and into Jordan and also in order to reduce dependence on other countries.

At the beginning of this turmoil, C22 recorded a 35% loss, but after selling the machines to Saudi Arabia in 2012 its profits rose to 7-9% due to it becoming the only provider for the region and it has benefitted from manufacturing in Saudi Arabia at lower cost.

Regarding sales, C22 has faced a high decline in sales. Before this turmoil C22 relied only on exports to Arab Spring countries and now it works in the local market that already has competitors from Saudi Arabia with lower prices. However, when C22 started its alliance its sales slightly improved.

Costs for C22 increased due to the need to export raw materials and the need to complete the production stage outside Jordan, and all other related costs.

C22 is considered one of the companies most affected by the turmoil. Even so, it still believes that Arab Spring has had some positive impacts, such as the governmental support and the external funds that helped it to survive and stay in the market when none of its local competitors were able to do so.

One form of support came from The Ministry of Energy, which offered support for industrialists through a loan of 350,000 for 5 years without bank interest, in return for reducing energy consumption, based on the submission of a study showing how it would work.

Other support came from JEDCO, from which C22 got a grant for 100,000 euros to buy printers to make labels or print on cartons. Part of this support (20,000 out of 100,000) was for training programmes for engineers and marketing.

Achieving such a grant was not a guaranteed thing. In order to obtain the grant, first, the donor announces the amount of financial support that it has available to distribute to the company, which in turn submits the required papers, and usually companies are given a month to obtain approval and submit the rest of the required papers, and then the support is given.

The company may obtain the required value or less, or its request may be rejected. Each sponsor has its own terms and conditions for applying for its funds, which usually state the industry that they are thinking of helping, which departments of the company that they will help, the acceptable ways of spending the fund, and how the company will show them that it has spent this money. After providing the funds, the supporting entity makes sure that the funding is used as agreed upon by continuously following up what the company is doing with it and how it is spending it.

If a company desires to apply for another form of support from the same donor, it can do so by following the same process, however, it must have a new idea for development of the previous project or even a new project.

Overall, the company is managing to return to its previous status and working on developing its machinery and employees' skills. Even though the Arab Spring had a direct negative impact on the company at the beginning of the turmoil, the funds and support from external parties have benefitted the company considerably and helped it to survive and develop its production.

C23

A printing and packaging manufacturing company that specialises in plastic bags, plastic containers for ready-made meals, plastic cups, ready meals cork packing dishes and packaging. It was established in 1993. When the company started, it used to work in stationery production but in subsequent years has had to change its products several times. Each factory has its own building but those factories help each other out when needed.

It gets its raw materials from a number of Arabian countries including Saudi Arabia (Mainly Kuwait, and Qatar. C23 continued importing raw materials from those countries as they have not been impacted by the Arab Spring. It imports those raw materials based on annual contracts

among them, but C23 does not have any alternative suppliers in the case of losing any of those suppliers.

It sells its products to some Arabian countries. From 2003-2011 about 10% of its production was for the local market, 80% to Iraq, and 10% to countries of the region, like Saudi Arabia, Qatar, Syria, Yemen, Lebanon, and other neighbouring countries. However, its Iraq market stopped in 2003 due to the Iraqi war and its Syrian and Lebanese markets stopped in 2011 due to the Arab Spring. Also, C23 sometimes sells its products to a few European countries and the USA, however, those are not regular customers but are more likely to place only a few orders and then stop for a long period of time, therefore, C23's owner does not consider those countries as customers.

C23 has faced several pressures throughout its operation, from the start till the present time This company has witnessed a number of disruptions that have had an impact on it and on its operations. Those disruptions have forced it to make some modifications to its business. When the company first started, they used to work in stationery production. Then in 2003, they had to change to manufacturing plastic bags due to the Iraqi war, and in 2008, as a result of the global financial crisis, they added the manufacture of plastic containers for ready-made meals to their production lines, then in 2012 with Arab Spring escalation they added plastic cups production, and finally, in 2014 when the closure of Syrian borders happened they added ready meals cork packing dishes and packaging.

The Arab Spring, which is the disruptive event under study in this research, has impacted C23 in several ways. One of the biggest impacts on C23 has derived from the closure of Syrian borders which stopped exports to Syria and Lebanon and put the company under pressure to find other markets. Therefore, C23 tried to return to the Iraqi market as the start of the Arab Spring in Syria had prevented the Syrian market from exporting to Iraq and the Iraqi market turned to the Jordanian market to fulfil its needs. Hence, C23 was able to rely heavily on exports to Iraq (80% of production) and therefore worked on doubling its factory production.

Another challenge that C23 has faced is the difficulty of entering the European markets. Those markets, according to C23 owner, have very high and hard-to-obtain entry requirements. However, C23 owner was hoping to benefit from the European agreement to facilitate entry to its markets for Jordanian companies in exchange for those Jordanian companies hiring Syrian workers, but C23's owner believes that this agreement was not implemented for manufacturing companies.

Regarding entry into new markets, there has been a slowdown due to the lack of guarantees given by new companies or requests for various facilities that the company may not be able to provide, such as asking for long payment periods at a time when the company has to pay sales tax (16%) on products that they sold but which were not collected. Furthermore, entry requirements for such as the American and European markets are very high.

Another challenge that has faced this company is the decline in cash liquidity among its customers. Those customers were no longer able to pay C23 in time, which also reflected on C23's cash liquidity, especially since any company in Jordan has to pay income tax of 16% even if it has not received payment for the products.

The loss of markets at the beginning of the turmoil and the difficulty of entering new markets led to an excess of products they were unable to sell as well as the inability to operate the factory at full production capacity. C23 used to produce 400 tons/ month and this has declined to 150 tons/ month. This also has led to an increase in the costs borne by the factory.

In addition, the Jordanian labour law sets the percentage of Jordanian labour required in each company depending on the nature of the business and the sector, which has led to the imposing of unqualified Jordanian labour and restriction of the percentage of foreign labour,

Changes in shipping laws in some countries have also had an impact, as exports in Jordan are no longer exempt from export tax. Also, Jordanian shipping vehicles are no longer allowed to enter the Iraqi border which, as described in relation to C22, has increased shipping expenses. Additionally, there is the extra 5% tax on exports to Saudi Arabia.

C23 has had other struggles with regard to shipping; for example, an export vehicle was stolen by al-Qaeda in 2006, with a value equivalent to \$66,000. Furthermore, a container of plastic dishes that was exported to Saudi Arabia was destroyed completely by the Saudi authorities under the pretext of inspection and the vehicle being suspicious. According to their customers, the packaging was within specific standards and specifications.

C23's monthly energy bill cost has increased by the equivalent of 7,000-8,000 dinars per month. Additionally, the machines that were used in the factory were old and consumed a lot of energy and the continuous increase in energy cost put pressure on C23, therefore, it replaced the old machines with newer ones with lower energy consumption. However, even though this investment in machinery has decreased energy consumption, the cost of purchasing the machinery was very high (15,000-20,000 JOD).

Production costs in Jordan, in general, (energy, taxes, operation) are higher than in other neighbouring countries, which impacts C23's ability to compete internationally, especially in European and American markets. Also, some countries, such as Turkey and Iran, provide additional facilitations for their companies that export their products, which challenges their competitors even more.

Hiring employees from Syria and Yemen is considered an advantage for C23 as those employees are found to be skilled employees. However, the total number of employees at C23 has declined from 96 employees to less than 80 due to the general decline in production that this company has faced.

This turmoil has impacted the sales and revenue of this company but C23's owner believes that his company has good financial solvency that protects it from having to rely on loans.

C23 tried to balance the pressure that it has faced by improving its spread in its current markets (i.e. local market and Saudi Arabia market) or entering new markets in countries of the region far from the turmoil, such as Morocco and Algeria. C23 is also trying to open a regional office in Sweden, the official request has been submitted, but C23 is still waiting for a response regarding its request.

According to C23's owner, the Arab Spring has not had any positive impact on his company. Even though this company has managed to obtain support from JEDCO twice, the first amount being 100,000 JOD and the second amount 80,000 JOD.

This company benefitted a lot at the beginning of this turmoil. However, due to the closure of the Syrian borders, the company lost its main markets. Therefore, C23 worked on entering new markets to overcome the lost ones, and even worked on improving its spread worldwide. Additionally, its receipt of external funds has helped C23 to overcome this disruption and gain benefit from it when possible.

C24

A printing and packaging manufacturing company that was established in 2001. It specialises in production supplements: food packages and paint packages. It manufactures all sizes of plastic packaging and caps. It also provides packaging for various food industries and various other industries.

C24's owner believes that its company is the second biggest company in the plastic industry in Jordan. However, he is aiming for and working on his company becoming the market leader in the Middle East.

This company gets its raw materials from Saudi Arabia and the United Arab Emirates, whereas its production machinery is obtained from Turkey. And it continued getting supplies from those countries even after the Arab Spring. Provision of those raw materials is limited to a few suppliers. If for any reason the company could not get those materials from those suppliers they would have to find replacements for them from the European market at significantly higher prices due to the shipping expenses and the nature of the raw materials themselves (Oil).

C24 operates in the local market and sells its products to a number of Arabian countries: Egypt, Libya, Iraq, Saudi Arabia, UAE, Kuwait, Oman, and Qatar. However, some of those markets (Egypt, Libya, and Iraq) have stopped due to the Arab Spring.

Even with the market loss at the very beginning of the turmoil and the need for C24 to stop full capacity production, it eventually managed to increase its production and sales. C24 did not allow this disruption and loss of markets to stop it, as it was able to immediately compensate for the lost markets by expanding in its current markets. This company was not only able to return to full production capacity but also managed to expand its production capacity and its existence in the local market, because companies in the local market who used to export similar products from outside Jordan had no choice but to start dealing with local businesses.

C24 did especially well in the local market as when this turmoil happened it affected some of their competitors' markets and their reach in the Jordanian market, which customers used to rely on. Those competitors had no option but to look for an alternative for their previous providers, which created potential customers for C24 and other companies in the same industry. According to C24's owner, his company did not even need to market itself to reach those new customers, as when those customers were not able to continue with their previous providers they started looking in the market for an alternative and they asked C24 about the possibility of working together. They used to import from Syria, Egypt and Turkey but those customers were no longer able to import or supply to them.

C24 did not try to look for alternative markets as the growth it witnessed in the local market helped to compensate for the lost markets before the year ended. It also helped in increasing C24's production rate as the consumption rate was high and continuously increasing.

The skilfulness of labour could be a challenge for C24, as it believes that Jordanian labour is not sufficiently qualified. Therefore, C24 has worked on hiring the highest allowed percentage of foreign employees. Those employees come mainly from India and a few from Syria and Yemen as, according to C24's owner, they have the required skills and capabilities to do the job, and this company now has just above 50 employees. But C24 does not rely only on manpower as it also has managed to assign some of its production tasks to robots, which increase the production rate, lower production time, reduce the production costs, reduce the production effort on employees, and ensure a level of stability in production quality, all of which eventually helps the company to lower its prices and increase its competitiveness. Hence, C24 produces 15,000 product pieces, while its competitors only make 2,000, all with the same electricity consumption and same salaries.

Continuous change of regulations has also challenged C24. These changes came from Jordan or even from outside Jordan. The Jordanian government imposed a 2% tax on previously exempted goods and a 5% tax on exports. Also, there is an additional 5% tax on exports to Saudi Arabia.

Even though some countries have changed their shipping laws, the impact on C24 was minimal as when this turmoil started it lost its customers in most of those countries, and regarding its supplier, Turkey, it is exporting machinery by sea and has been from the beginning, even before the Arab Spring.

The overall costs for C24 were not affected by this turmoil. While some costs have increased, other costs have decreased. For instance, C24 has started to rely on robots for production, which has lowered production costs and counteracted the rise in shipping costs and energy costs.

This company was able to have a better competitive position and thrive during this turmoil for a number of reasons because, for example, every three years, the company renews its production lines to maintain its competitiveness. C24 also relies on artificial intelligence more than on the skills and competencies of its employees, by using robots to work in the factory.

Additionally, the C24 owner believes that the plastic industry, within the scope of the company's work, in general, does not harm the environment. The new containers weigh 12 g, compared to 20 g in the past, which means that smaller quantities are being recycled. C24 has also worked on increasing the number of employees by 20%, opening additional local and foreign markets, attracting new customers, increasing productivity, purchasing newer machines, and increasing marketing of its products.

The impact of this turmoil on C24 can be seen from several perspectives, for instance, the sudden cessation of foreign markets that C24 depended on for 25% of its business. This led to a surplus in production for customers in those Arab Spring countries as the company had to try to resell the products to other customers and the cost of storing them became greater than their value. Therefore, the company tried to sell some of these goods (when possible) and destroyed the rest. This resulted in an initial loss for the company.

However, C24 was able to compensate for those lost markets in the local market within the same year (2012). The local market not only compensated for the loss of foreign markets, it also helped to increase sales, as local market demand increased by 40%. The increase in demand came from customers who were no longer able to import such products from outside Jordan and from the increase in consumption in the local market due to the increase in population. Therefore, C24 has enlarged its factory and imported new machinery to keep pace with the increased demand for products and to increase the production capacity of the factory. C24 previously had no intention of enlarging its production capacity, but this happened as an outcome of this turmoil.

To improve its financial stability and thus be able to enlarge its factory and improve it, C24 has worked on getting bank loans and also managed to obtain two grants from JEDCO. The first one was in 2018 for 30,000 JOD and the second was in 2019 for 50,000 JOD.

The overall costs for C24 have decreased due to the use of new machinery and robots which increased the production rate dramatically in relation to the fixed costs; therefore, when the fixed costs are divided by the number of products the cost per unit will decline. Also, as a result of using those machines and robots, C24's product quality has significantly improved. Improving the quality, according to C24, was a necessity due to the high competition. Also, this company has witnessed an improvement in its production flexibility and revenue turnover.

The owner of this company believes that there is no such thing as continual loss. Companies might struggle for a while but eventually they get back to gaining profit, or they should leave the market. According to him (C24 owner), if a company does not achieve a profit for several years and there

is no hope for it to compensate for its losses, that company should make the decision to leave the market, to cut its losses rather than adding to them. He claimed that what actually happens is that companies usually misrepresent what they mean by their losses, since different companies tend to look at losses differently. For example, if a company seeks a certain profit rate and a lower percentage is achieved, then the difference is considered a loss, or if it receives purchase orders that exceed its production capacity, which results in being unable to fulfil them, then that company may consider the value of the missed orders as lost value. This means that even if a company says that it is losing money, it does not necessarily mean that it is actually getting a minus profit margin.

C24's owner argues that all companies, not only the ones in the same supply chain, are interconnected. Sectors are also interconnected, therefore, any improvement in any sector will probably lead to an improvement in another sector. He also argues that Jordanian society is considered a consumer society and that if any additional income comes to any individual in those sectors that have witnessed an improvement, he/ she will consume it, which will probably lead to another sector benefitting as well, thus helping the reanimation of the production sector as a whole.

Therefore, C24's owner thinks that the Arab Spring should have happened 20 years ago, as he believes this turmoil has helped companies to thrive and grow. It has also led to companies receiving lots of financial and technical support that has led in turn to the development of those companies' factories and the skilfulness of their employees. And it forced the companies to get out of their comfort zone by entering new markets and expanding in the exciting ones.

C25

A printing and packaging manufacturing company that, when first established, specialised in manufacturing religious rosaries, haberdashery, combs, and sticks. However, they have switched to specialising in nylon bags, patio furniture, bubble roll, and stretch tape. It was established in 1958 in Jerusalem (Palestine).

The owner of the company claims that the founder (his father) was the first to manufacture plastic in the Middle East. When the company first started, only the founder worked there, but by 1967 the company had 114 employees. However, the company was demolished due to the Palestinian war in that year, then in 1971 the founder rebuilt the company in Jerusalem (Palestine) (now closed due to Palestinian war) and added a branch in Amman (Jordan). In later years the company opened a number of other branches in Yemen (now closed due to the Arab Spring), Sudan (struggling due to the Arab Spring), and Egypt (now closed due to the Arab Spring). The Jordanian branch used to have 230 employees and now it only has 190.

It relies on some Arabian countries for its raw materials and for each material C25 has multiple suppliers, since the company has a policy of not relying on only one supplier for each raw material. Those countries are Saudi Arabia (mainly), Qatar, UAE, and Kuwait.

It usually sells its products to the local market in addition to a number of Arabian countries, including Palestine, Saudi Arabia, Syria, Iraq, and Egypt., but due to the Arab Spring exports to Syria, Iraq and Egypt have stopped. However, C25 was able to compensate for the lost markets in the local market, since companies in the local market who used to export similar products from outside Jordan had no choice but to start dealing with local businesses. Even though export to Syria has recently stopped, C25 dramatically increased its sales to Syria during the period of 2011-2018, the export being done through the traditional ways and through the UN.

The market losses due to the Arab Spring forced C25 in the first year to stop its full production capacity. However, the owner of this company worked immediately to compensate for the

production decline until it finally returned to full production capacity and even increased its sales. The increase in competition due to businesses moving to Jordan after the Arab Spring and new businesses opening due to identifying this sector as a thriving one has impacted C25's market share and product prices.

The unqualified Jordanian labour and allowance of only a limited number (percentage) of foreign labour have challenged C25, as the Jordanian labour law states that the percentage of Jordanian labour in each company depends on the nature of the business and its sector. C25's owner believes that today's workers do not have the same corporate loyalty and responsibility as they once did, labour used to be more committed to work and they were willing to work for extra hours and even during weekends and holidays, whereas now labour only work the minimum number of working hours a day and they demand two days off a week.

The Jordanian government has imposed a 2% tax on previously exempted goods and a 5% tax on exports. Also, while previously exempted in Jordan, export is now subject to sales tax (16% of the price), Additionally, the law that granted companies the right to use alternative energy (solar power) was stopped, due to the issuance of a decision to organise the energy in the manufacturing sector in general and not to permit use of governmental lands in the desert for installing solar cells.

Another challenge that has faced C25 is the increase in costs. This increase in costs came from multiple sources. The increase in cost per unit is due to a decline in production since 2019. C25's costs increased by 60% due to the increase in energy and labour costs, the cost of energy and fuel in Jordan for a kilo of electricity is 0.10 JOD, while it is 0.03-0.04 JOD in neighbouring countries. Additionally, there is an additional 5% tax on exports to Saudi Arabia, a general increase in shipping expenses, and an increase in the cost of insurance policies.

Machinery has been another source of pressure for C25, as the machinery that it has at the moment is considered to be old with high energy consumption, however, the new machinery works based on mass production to a level higher than the market needs, which prevents C25 from purchasing it, according to its owner.

Continuing to import to and export from other countries became harder for C25 as those suppliers demanded a financial guarantee to guarantee their rights before supplying to the company and those customers required a guarantee that they would receive their requested products before paying for them. Those guarantees not only impacted suppliers and customers but also impacted the new markets' entry requirements, causing a slowdown in entry to new markets due to the lack of guarantees by the new companies or requests for various facilities that the company may not be able to provide, such as asking for long payment periods at a time when the company must pay sales tax (16%) on the products that they have sold but which have not been collected. Also, this could be due to high entry requirements in such cases as the American and European markets.

C25's owner argues that even the local market is not financially secure. For instance, one of the commercial markets (Arjan Mall), which had six branches and was one of the company's customers, was taking the goods up until March 2019 and then in April 2019 closed its branches and left without warning and without paying its full financial dues. The goods ordered are still stored with C25.

A few practices have helped C25 to overcome the negative impact of this turmoil. C25 has a policy in place of not relying on a single supplier. When the company needs raw materials, it requests most of the quantity from one of its main suppliers and requests the remaining part from another supplier to avoid the risk of not receiving the materials in case the main supplier has any sort of disruption; therefore, for each raw material, the company relies on multiple suppliers. C25 has also started to search for new markets to avoid similar crises in the future, and one of the markets that the company seeks to reach is the African market.

C25 has worked to reduce labour, reduce working hours, reduce expenses and reduce storage in order to lower the risk of leaving the market. One method used to reduce costs is to stop using the company's lorries and to ask customers who own freight cars to send their cars to collect their goods.

C25 also worked to accept requests from more customers, but on the condition that a bank guarantee was provided.

C25's profit in the past was 45-50% annually, then in 2019 the profit declined but, even so, the company is still achieving 20% profit annually. At the beginning of the Arab Spring, exports to Syria increased dramatically, reaching 1,000,000, then stopped completely in 2018. Exports were carried out directly or through the United Nations or associations. The company's sales rose to 17,000,000-18,000,000 per year, and the percentage of exports was 40%, but at present, the company's exports have stopped. The company's sales fell by half. Additionally, it is taking 120-180 days nowadays to get the money from customers for its products (revenue turnover), while previously it used to be 30-60 days. As a result of these positive and negative impacts of the Arab Spring, C25 eventually benefitted from the Arab Spring, especially the one taking place in Syria, but was harmed due to the closure of the borders and the inability to reach the Lebanese market, which was controlled by Iran.

According to C25's owner, the Arab Spring has brought much support into Jordan, especially financially. He believes that Jordan thrives on the misfortunes of its neighbours. Jordan is usually one of the first countries to provide help and, in return, Jordan usually receives lots of external financial support that eventually benefits not only the harmed country's population but also helps the Jordanian population. As for C25, it received a grant from JEDCO for €100,000 another grant from Jump for €70,000, and got a loan from the Turkish government in 2014 amounting to €60,000. The turmoil also brought qualified labour to work in Jordan. But the owner of the company also said even though that he still has lots of ideas for development and growth, he has lost the motivation to adopt them.

C26

A printing and packaging manufacturing company that specialises in cardboard in all its forms, and packaging cartons for industrial products, agricultural products, and food packaging. It was established in 1992 but its actual work started in 1996.

It relies on some Arabian countries for its raw materials, including Syria (25%), Lebanon, and Saudi Arabia. However, due to the Arab Spring in Syria and poor quality of materials from Lebanon, C26 has switched to suppliers in Saudi Arabia (90%), Europe (Great Britain, and Germany), Canada, and America. According to C26, switching suppliers is relatively easy as there are plenty of alternative suppliers of each raw material and the switching cost is relatively low. Nevertheless, C26 prefers to keep dealing with the same suppliers as they have a long-standing relationship that helps in reaching the materials as soon as it needs them, even if the payment to those suppliers takes a longer time, as those suppliers know that they will get paid for their materials.

C26 operates mainly in the local market and it also sells its products to a number of Arabian countries, mainly to neighbouring countries. but its exports to Iraq have stopped due to the Arab Spring, and exports to Iraq used to represent 25% of this company's production. This did not impact C26 as it was able to expand in its other markets, where it not only compensated for the Iraqi market but also managed to improve its sales. Replacing or returning to an export customer is usually harder than with a local customer as usually when an export customer or market is lost

a competitor takes the company's place and the turmoil and border closures make return especially hard.

Continuous change of regulations has pressured C26 as it did with most of the interviewed companies. For instance, the Jordanian government used to exempt companies from some of the existing taxes under its laws: a 2% tax on goods, a 5% tax on exports, and a 16% sales tax. Companies are no longer exempt, which directly impacted the company. Additionally, 5% in tax has been added by the Saudi Arabian government on any products entering the country.

According to C26's owner, not only have the changes in regulation pressured this company but also the Jordanian law does not protect Jordanian industrialists, even though it provides facilities to foreign competitors in the free zones, which makes it even harder for Jordanian industrialists. These facilities include exemptions for a period of ten years from income tax, which is 14% of net income, and from sales tax at 16%.

Legislation for companies in Jordan to obtain facilities or exemptions requires long routine transactions with complicated conditions and procedures, which makes it difficult to apply for and to obtain them.

Other Jordanian legislation that has impacted C26 is that on the allowed percentage of foreign employees, which is 22% for C26. However, according to C26's owner, his company needs more employees with capabilities that the Jordanian employees do not have, as the focus is mainly on the physique required for carrying and loading rather than on knowledge or skills. Likewise, although C26 has employed a few employees from Arab Spring countries, the owner did not consider that the company has benefitted from this turmoil with regard to the employees' skilfulness.

C26 was not able to obtain any financial support or funding even though it has applied. Also, the Ministry of Industry Trade and Supply offers a number of training programmes but C26 does not participate in any of them as it considers that those programmes are not specialised enough for it to benefit from them.

This company was able to monitor the impact of this turmoil as it has a policy of controlling demand by always keeping a stock of raw materials (3 months stock) in order to maintain the workflow even if there is a delay in the arrival of raw materials.

C26 also worked to improve its business and enhance its development by adding new machinery and renewing its existing machinery and adding new lines of business to its production in order to attract new customers or even supply the current ones with more products. This has helped C26 to increase its production capacity to meet the increased demand coming from the Arab Spring.

Additionally, C26's unsold products are taken by recycling companies and used as their raw materials. The owner believes that by doing so they are helping another company to continue its operations and what they pay them in exchange for those materials helps in lowering their overall costs. One of those recycling companies is C22.

This company relies mainly on selling for cash rather than credit, except for a few major companies, and in with accordance to C26's terms and conditions. This has helped it to maintain good cash liquidity and financial solvency. It also avoids C26 having to deal with struggling customers who might be unable to pay for their purchased products or even needing to rely on insurance companies to assure receiving their payment in case any of their customers fail to pay their debts. Therefore, C26 did not have to take any loans to compensate for any financial losses.

Additionally, C26 cares not only about increasing its number of customers but also about customers' ability to pay for their purchases. Therefore, it focuses its attention on customers with

good financial solvency and stability, especially since the number of struggling customers is continuously increasing.

The owner of this company claims that their product is a high-quality product and this company cares and gives quality priority over cost. This helps them to maintain their reputation and improve their customers' loyalty toward them. According to him, C26 never tries to get back any lost customers as those customers usually return after unsuccessfully trying to make deals with their competitors.

C26's net profit was formerly 8-12% of sales but in 2016 net profit was 5-6% of sales, in 2017 the net profit was 1.5% from sales due to the high paper prices globally as a result of forest burning, and in 2018 net profit was 5% of sales. The company's sales fell by half in the first year (2011). Then C26's sales increased due to the increased number of companies opening in Jordan and also because of the closure of some competing markets, such as the Syrian market. The company's sales increased after the Arab Spring, as the company expanded its activities and increased the number of machines in the factory. C26's monthly production rate is equivalent to 600-700 tons. Costs have increased by 15-25% since 2011.

For C26 one of the advantages of the Arab Spring is that Syrian suppliers have moved their factories to Jordan, which has helped to obtain raw materials more quickly and at nearly the same cost. Another advantage of the Arab Spring is that a group of Syrian companies transferred their businesses to Jordan, which led to an increase in demand for packaging materials.

Overall, the Arab Spring had more of a positive impact than a negative impact. The company's production, sales, and profitability have increased. The competition had a low influence on the company as any customer who switched to another company had returned to them due to the high quality that the company provided. This was despite the company applying for external funding and not getting approval for it.

C27

A printing and packaging manufacturing company that specialises in printing and packaging (folding boxes and duplex board), carton industry (corrugated boxes), and printing and packaging for export. It was established in 1989. It is based on three factories: the first for printing and packaging (folding boxes and duplex board), the second for the carton industry (corrugated boxes), and the third for printing and packaging for export, which is a combination of the two previous factories' activities (laminated boxes). It is purely run and operated by family (owners and their relatives).

C27 relies for its raw materials on some Arabian countries in the Middle East (Saudi Arabia, Lebanon, and Syria), and also gets some materials from America, Europe (Germany, Switzerland, and France), and China, depending on the raw material itself and its sensitivity to production. Raw materials imports from those countries were not affected by the Arab Spring. According to C27's owner, replacing a supplier is very difficult, especially when it comes to printing materials, as it is the first interface of the product to the company's customers and their clients. Thus any change will be very noticeable, and if it is not exactly how it used to be it may lead to the loss of customers.

It also sells its products to the local market (95%) in addition to a number of the Arabian neighbouring countries (5%), including Iraq, Palestine, Israel, the Gulf states (Qatar and Saudi Arabia), and Britain. The Arab Spring resulted in the stoppage of the Iraqi market.

C27 has faced a number of challenges due to the Arab Spring. One of those challenges is no longer being able to reach Lebanon by land due to the closure of the Syrian border. Therefore, C27 had to keep dealing with its suppliers in Lebanon by sea, but changing the shipping method has resulted in an increase in costs and shipping time.

Importing raw materials from Lebanon (inks) was affected as a result of the Arab Spring due to the change of method of transporting them from land to sea, but C27 continued importing from there as this is a key material in its production and cannot risk changing it as this might result in losing customers. Also, C27's importing of raw materials (templates) from Syria was not affected, as the Syrian company opened a branch in Jordan. At first, C27 resorted to importing those templates from Egypt for a short period of time, then returned to relying on the Syrian company.

Exports to Iraq have been impacted due to the internal war against ISIS since 2015. Also, exports to Iraq have been impacted by the increase in export costs due to an increase in the number of checking points and the tax that needs to be paid at each one of them, which is equivalent to \$500, and the customers are the ones who bear those costs.

The Jordanian market is an unpredictable market, which makes it hard for companies to operate in. According to this company's owner, it is even harder for their company to predict their level of operation as they are specialised in producing packaging for the finished goods of their customers, which means that they are following the demand of their customers and even those customers are not able to predict their production needs.

The shipping time also pressures C27. It takes approximately two months for the company to receive its raw materials. This puts C27 in a position of having to decide whether to keep a higher level of inventory with all its related costs and uncertainty of needing it, or not to keep a higher level of inventory and risk the loss of purchase orders that require more inventory. This decision is made even harder by having to operate in such an unpredictable market.

Raw materials prices have to be paid within 60-90 days, while production and finished goods payment take a much longer time. This has had an impact on the company's cash liquidity and financial solvency. Another pressure that has impacted C27's solvency is the decline in sales that happened for a short period of time due to C27's customers' decline in production which was a non-direct impact of this turmoil; to balance this, C27's management decided not to pay the annual salary increment for that year.

Improving women's empowerment has been also seen as a challenge for C27 as, according to C27's owners, finding women to work in factories was hard due to the Jordanian society and a mentality which has low expectations of women's potential to work in such jobs. This led the company to issue an internal law specifying the percentage of female workers required in their factories. Another challenge regarding company employees came from the Jordanian government's laws that limit the percentage of foreign labour that companies are allowed to hire, which has impacted this company's ability to hire the most skilled and qualified labour.

The first generation who started running the company were not supportive of applying for product certificates and did not see any benefit from them, but the second generation were supportive of this idea and in order to convince their elders to take it on, they searched for supportive bodies for such certificates, and in the end, the company obtained certificates which allowed them to enter the European market.

The increase in the number of companies that work in packaging has also pressured C27. According to C27's owner, companies that used to work in copying and printing and lost their businesses due to this turmoil have switched to printing and packaging with very low quality and low prices, which has impacted the market share for companies in this sector who operate based on quality and has affected the Jordanian products' reputation. Also, some companies from the

printing and packaging sector in Arab Spring countries have moved their business to Jordan and to reach customers in the Jordanian market they have also lowered their prices, which also impacted the C27 market share.

Additionally, C27 considers that the local market is not looking at the product certificates that the company holds but looking mainly at the prices, apart from companies that export globally, as their customers demand that their packaging complies with specific standards and specifications.

There was a communication between C27 and one of its customers in the Iraqi market, during which this customer alerted C27 about what might happen as a result of the turmoil, but C27 did not take it into consideration as it believes that investors and business owners must take risks, despite the type or the size of the risk or disruption, in order for those businesses to continue working and achieving a return on their products.

To help monitor those challenges C27 has adopted a number of practices. For instance, despite the increase in prices of raw materials, C27 was able to share this increase in prices with its suppliers. Also, C27 bears all the increases in its costs and does not charge them to its customers. This cost sharing with suppliers and customers came as a result of the long-standing relationships through this supply chain and every party in it wanting to keep these strong ties.

C27 has also worked on improving the quality of its products and adding value to them, and every time the company adds new features to a product it offers it to the customer in the first instance for free as a marketing method in order to push those customers to try it and encourage them to start ordering it in the future. The quality has improved due to the continuous reliance on new and improved machinery.

The impact from the Iraqi market motivated this company to start working with the British and American markets. However, those markets have high entry requirements and different product specifications which made it hard to reach them at the beginning, especially since C27's management and owners did not have the knowledge or the experience to enter such markets.

Additionally, C27 participates in international exhibitions in order to improve its chances of reaching new customers from non-traditional markets.

Another strategy that has been adopted by C27 is the establishment of a factory and another branch of the company outside Jordan, in Egypt (2019), as Egypt has the necessary raw materials for production at lower costs, which means production at lower costs and lowering the risk by having the company located in more than one country.

The company's employees number more than 200. C27 employs about 8% who are of Syrian nationality, and considers it a social responsibility to do this. Those Syrian employees have been found to have higher working skills and more loyalty to the company. Therefore, C27 now gives priority to hiring Syrians over hiring Jordanians.

The company has adopted the slogan "*Go green, it's clean*", as it seeks to reduce the negative effects on the environment and it sells the remainder from production to recycling companies and obtains certificates from them that explain what will be done with this waste.

This company owner claims that they have the financial stability that protects them from needing loans with their added interest. He also claims that C27 does not have any local competitors and that it has a preferential value over companies in its sector due to the higher quality and value it provides, however, it has competition from the Lebanese and Saudi markets.

The company's sales decreased for a while due to indirect reasons, as the company's customers who depend on the Iraqi market decreased or stopped selling and thus demand for the company's

products decreased just for that period. However, C27's overall sales have increased and therefore its profitability has increased. And although its revenue turnover has halved, C27's production capacity has increased due to the increase in demand. However, the overall cost has stayed the same as a result of the international decrease in paper costs helping to balance the increase in ink and energy prices.

For C27, the Arab Spring was the motivation to start working with the British and American markets (2016). Also, the support that external entities have provided has been very helpful for improving its operations and production.

The company applied for financial support for auditing (2016), as this was one of the prerequisites for entering the European market. The support covered 60% of the costs of the certificates. The cost of each certificate was 2,000-3,000 JOD, and the company has obtained seven certificates.

The Arab Spring did not have any negative impact on C27. It managed to maintain its level of operation during the early period and recently C27 has even managed to improve its level of operations. Therefore, according to C27's owner, this company benefitted from the Arab Spring, as it helped it to increase production, sales, profits, and entry to new markets. Also, the funding that came due to the Arab Spring helped it to achieve quality certification that will ease its spread into the non-traditional markets.

C28

A printing and packaging manufacturing company that specialises in the manufacture of food packaging materials (disposable materials). The company is based in an industrial complex consisting of 12 different factories, all of which produce disposable materials related to food packaging. C28 was established in 1998.

When this company first started, only the founder worked there, however, now it has more than 300 employees, 98% of whom are Jordanian, and 35% of whom are female, due to the founder trying to give more attention to women empowerment. Additionally, there has been an annual increase in the number of employees of 10-15%.

For its raw materials, C28 relies on European countries for nylon rolls, some Arabian countries for cardboard, and Far East countries for the remaining materials, and this company has at least three suppliers for each raw material, a practice which they started when they obtained certificates such as ISO9001 for quality, 14000 for the environment, and 22000 for food safety. Nevertheless, due to the Arab Spring, importing from Lebanon and Turkey has stopped.

C28 sells some products to the local market (80%) and it exports the remaining 20% to 20 countries, including Arab countries such as Saudi Arabia, Iraq, Lebanon, Yemen, Libya, and Syria. The owner of this company believes that all companies should seek higher diversification in their markets and products, as this helps to overcome potential disruption, reduce the risk of it, and to take advantage of any associated opportunities. Hence, when the Arab Spring stopped exports to Yemen, Libya, and Syria, C28 worked to enter new markets, including Sweden (2013), Germany (2017), Britain (2018), Italy (2019), Holland (2019), and America (2019). C28 aims to increase its export-to-local market ratio to 60:40% by 2023. Moreover, C28 is the only Jordanian company that has the British Retail Consortium (BRC) certificate which allows it to sell directly to ALDI and TESCO.

C28, like other interviewed companies, has lost some of its markets in Arab Spring countries. The loss of those markets made C28 unwilling to take the risk of continuing to deal with those markets. Therefore, it has replaced them with local markets and companies who have started dealing with

local businesses, and has also started to import into non-traditional markets, such as the American and European markets.

According to C28's owner, entering new markets was difficult and required time and effort from the company. For instance, entering the American market required three years, participating in many exhibitions, and hiring a specialised consultant in that market. Entering the American market was the hardest because this market is not accustomed to importing such materials from the Middle East, and had some concerns about dealing with companies in the Middle East. Therefore, C28 had provided all the documents that would help the American market to trust the company's work, to demonstrate that C28 is one of the largest companies in Jordan, C28 is one of the supported companies, C28 has a good financial position, C28 is committed to delivering good quality, and C28 has an excellent reputation. Companies in the American market also sent an investigator from an external company (third-party company) to verify the validity of the information sent and to verify the fact that the company actually exists. Nevertheless, when entering the British market and other European markets, C28 had a similar experience as with entering the American market. However, having some companies in the American market as their customers made the process slightly easier. C28 owner explained this by saying "*Once you have the reference that you are selling to someone in that region or with similar products requirements standards it will be easier to enter other similar markets*".

C28 began working on inventory management to reduce waste and storage costs, as this company sells all its production waste for recycling, and it has signed a support coordination agreement with the Canadian government in order to encourage people to use compostable and biodegradable materials instead of using plastic. The new material degrades within three months, while plastic usually takes 100 years to degrade.

This company has obtained a number of certificates, such as ISO9001 for quality, 14000 for the environment, and 22000 for food safety, and is the only company in Jordan that has British Retail Consortium (BCR) certification.

According to the C28 owner, when this turmoil happened it opened the company's eyes to the importance of having a diversified market and pushed the company to think about and actually enter non-traditional markets. It also increased the company's working volume in the local market. as companies used to only work with the same suppliers, customers, and markets. He believes that usually companies keep repeating what they usually do or what they see others doing, but when this disruption happened it forced them to leave their comfort zone as the Arab Spring helped the companies to see that nothing should be taken for granted and that they have to be always ready to accept and deal with any new situation. At first, this happened for survival, but then companies started to realise what they are capable of doing and the potential that they would reach if they entered non-traditional markets and had a wider spread and more diversified supply chain. That is why he believes that the Arab Spring was a blessing in disguise, as it helped this company and some others to enter new markets, in addition to the company recently being able to return to its previous markets such as the Lebanese, Iraqi and Saudi markets.

The owner of this company claims that the customers prefer C28's products over its competitors' because of the services that it provides.

He also claims that it is one of the few companies in Jordan that exports on behalf of other Jordanian companies as a sign of cooperation and assistance. The company is integrating its work with other Jordanian companies by making agreements with these companies in order to help them export their goods abroad. This has been one of the company's policies since its establishment, as the company believes in the principle that two hands are better than one.

C28's profit margin decreased by 10% during the period 2011-2019 and this was due to the closure of foreign markets and the increase in competition in the local market. Thus companies

resorted to reducing prices in order to increase their market share, and their market share and the number of markets consequently increased, which led to an increase in the overall profitability. C28's costs increased by 2% as a result of purchasing new machines and their depreciation. Revenue turnover for C28 used to take 75-90 days and now it takes approximately 130-140 days, as a result of market pressure on the company to sell in credit instead of selling in cash. C28's production capacity and speed have improved by 10%-50% depending on the production line.

Overall, C28's performance after the Arab Spring is better than before, as a result of the company's vision and its ability to deal with this crisis. Despite this positive impact on performance, C28 owner believes that the harm is currently greater than the benefit, due to the fact that the benefit requires more time to achieve. He also believes that the Arab Spring was a blessing in disguise, as it helped in entering new markets, in addition to enabling return to its previous markets. Also, the funding obtained by the company contributed greatly to the development of its work, helping it to remain in the market and to benefit from the current situation. Another positive effect of the Arab Spring is that the company is thinking broadly and adjusting its future vision, in addition to focusing on global markets that have better stability and growth.

C28 has received support and funding from multiple entities: from the Jordanian Government through support from the Chambers of Industry to participate in the exhibitions, while the Central Bank of Jordan provided concessional loans to the industrial sector with a ceiling of 2,000,000 JOD at a reduced interest rate. C28 obtained this loan in 2015 but did not apply for the full amount. Other funding came from JEDCO for purchasing machines, participating in exhibitions and studying foreign markets. The company obtained three separate funds from JEDCO, equivalent to 120,000 JOD. Additionally, C28 received support from EPRD (a European bank) which helped it appoint a consultant to enter the US market.

C29

A therapeutic manufacturing company that specialises in manufacturing special plastic for the pharmaceutical industry. The parent corporate originally was established in 1978 and has a number of subsidiary companies, one of which was established in 1982 and then this corporate acquired C29 in 1991. The parent corporation is considered an international company and is listed in a number of markets, including the British market. But each branch has financial and managerial independence.

The company claims that it conducts annual development of its infrastructure and machinery to cope with international manufacturing.

It also claims that there are few pharmaceutical plastic companies in the Arab region, as there are differences in standards for plastics manufacturing depending on their use: medicine, food, storage, etc., where plastic used for medicine, for instance, needs to be produced in "*clean rooms*" that meet the sterilisation requirements for each product.

It is one of the first companies to obtain ISO certificates in the Arabian region, and also has a drug master file registered with USA FDA.

The company has a policy of only employing Jordanians and if it wants to employ any other nationality it needs to justify that. The company's employees number about 1,500.

The company claims that customers are aware of the quality of its products and that it competes with American and European companies. This company is listed in the British market among others.

Raw materials for the main manufacturing are sourced from Saudi Arabia, Qatar, and Europe, while other materials such as the Sumi-Finished supplement, which is a ready-made product, must be imported from America and Europe. Medicine packages generally should be classified as food grade as the main category and then the sub-category should be pharmaceutical grade or medical grade depending on the medicine itself and the customer's requirements.

The raw materials for this company require certificates to prove that they can be used for storing pharmaceutical products and the suppliers should be certified and trustworthy according to the international standards for providing those materials. Due to the nature of this industry, changes in raw materials might result in re-conducting research to check that the new material used in the packaging will not affect the medicine itself. Therefore, the company usually signs pledges with its customers to inform them that when it changes any production material it will re-run the tests to check the stability of the new material and whether it might affect the medicine. However, this does not apply to all the materials, for instance, the spoons used for taking cough syrup only need to be pharmaceutical grade or medical grade, so it is not necessary to re-run the tests as the medicine itself does not stay in the spoon for a long period of time. Therefore, the company keeps at all times high inventory of the main raw materials with a high shelf life to avoid material arrival disruptions.

C29 has only one supplier each for half of its raw materials as it is necessary for these industry suppliers to conduct research to ensure that the provided material used in the packaging will not affect the medicine itself. This results in difficulty in changing the supplier or finding an alternative supplier. Therefore, C29 keeps a high level of inventory from those solo suppliers to avoid any disruption in supply and to avoid the need to re-run the tests for new raw materials that would take months to conduct. However, keeping this high level of inventory directly impacts the cash liquidity for C29.

The company sends its production to the local market, some Arabian countries, and other international markets such as Algeria, Egypt, Saudi Arabia, Tunisia, Morocco, Sudan, Portugal, and America, where it mainly operates with the customers of the corporate. It usually deals with those customers through the corporate branch in Jordan. However, recently C29 has started to deal with the American market through the corporate branch in America.

There has been only a minor impact on C29's importing to the Syrian market as C29 had only one customer there, who has moved the business to Ethiopia and ended up ordering higher quantities. The import to Tunisia has been impacted due to the Arab Spring but this did not last for a long period as the turmoil in Tunisia did not last for a long period of time. The Egyptian market has not been impacted by this turmoil as C29 was only in the product registration phase over there when the turmoil happened.

C29's importing to Libya has been impacted by this turmoil, as Libya's laws require product providers to do this through tender with the Libyan government. As an impact of the turmoil, Libya did not have governmental representation for a long period, resulting in C29 losing the Libyan market and not being able to return to it. The Sudanese market has also been negatively impacted due to the fluctuation of currency prices and the absence of bank representation over there. The Yemeni market has faced difficulties related to bank representation and with regard to security and the need to ship to a far port that is considered to be more secure. Meanwhile, the Iraqi market has been impacted by ISIS, which caused delay in shipments and requests for extra taxes, or holding of the shipments would depend on the religious sect of the customer and the person in charge on that day. That led C29 to sell to the factory and make their customers responsible for shipments and any risks coming with them. Also, the Saudi market tender value has declined due to the indirect impact of the Arab Spring that has affected the financial solvency of the Saudis, and therefore the decrease in numbers of orders and the amount of market loss due to the Arab Spring for those countries lasted for 2-3 years.

The Iraqi market has caused a number of disruptions for C29. These include delay on the borders that impacted the expiration date for the products, the checks on the products that caused the opening of products and total loss of shipments as the product has to be kept in a sterilised environment, change in shipping method to avoid ISIS, which directly impacted the shipping cost and time, the external competition that can reach the Iraqi market through Turkey, the taxes on the product even though there is an agreement between Jordan and Iraq on exemption of this type of product from taxes and the fact that the tax amount is not fixed and depends on the judgement of the arbitrator, and finally the decline in bank representation which led C29 to ask for cash payment and thereby put pressure on its customers.

Wars usually lead to higher demand for medicine, however, in the case of the Arab Spring this did not happen due to a decline in purchasing power, difficulty to ship the medicine, and difficulty in distributing it within those countries. Nevertheless, C29 has managed to maintain its sales volume by relying on other markets to compensate for the decline in sales in some markets, especially as, according to C29's owner, the market loss was not sudden but happened as a delay or decline in order value.

Another disruption that has faced C29 relates to the Gamma rays that are used to sterilise one of its products. Gamma rays available in Jordan are at the end of their lifetime, which impacts their efficiency, and the Jordanian government does not have the financial resources to replace them. Therefore, C29 had to decline orders requesting this product and currently is working with the government to find a way to secure new Gamma rays. Another disruption is imposition of an export tax on companies from which they used to be exempt. Also, the continuous strikes in the customs as a result of continued change in governing laws. Additionally, the change in Saudi law on transit shipment of products that requires sealed lorries has doubled the shipping costs.

The corporate overall performance has not been negatively impacted by this turmoil even though some of its branches have been impacted by it, as the branches negatively impacted by the turmoil have relied on other corporate branches to balance the negative impact, which has neutralised the overall impact on corporate performance.

Conclusion

This chapter has presented the information shared during the interviews. The next chapters will go through the information more systematically, linking it to the research variables and previous studies, and present the outcomes of this research and recommendations.

Chapter 5: Analysis and Findings - Manufacturing Industry

5.1. Introduction

In this section, a thematic analysis will be conducted to reveal common characteristics between the 29 companies in the manufacturing sector. Companies will be studied according to these characteristics to see if they have faced turmoil similarly.

The characteristics of the companies that will be studied on this basis will include basic information, general information, disruption events, change in regulations, supply chain resilience practices, drivers, and barriers to applying supply chain resilience, performance, and provided support.

Afterwards, the thematic analysis will be used to compare the companies among different sectors to show how the sector could influence the level of impact and whether such influence is positive or negative.

As mentioned earlier in Chapter 3: Methodology, thematic analysis does not have any constant clear guidelines (Kiger and Varpio, 2020; Nowell et al., 2017; Braun and Clarke, 2006). Alhojailan (2012) thinks that thematic analysis fits any research that is looking for discovery and relies on the researcher's interpretations as it helps in looking into the data in a systematic way. A number of themes have been set based on the research questions from the semi-structured interview. This research adopts an inductive research approach in a field with no previous similar studies, which means there are no previously used themes; therefore, themes were developed based on the collected data. In this chapter, those themes will become more detailed, more focused, and related to the gathered data. Each theme will be studied through a number of codes that will be discussed in more detail section by section.

5.2. Companies General Information

Figure 12 - General Comparison of the Interviewed Companies

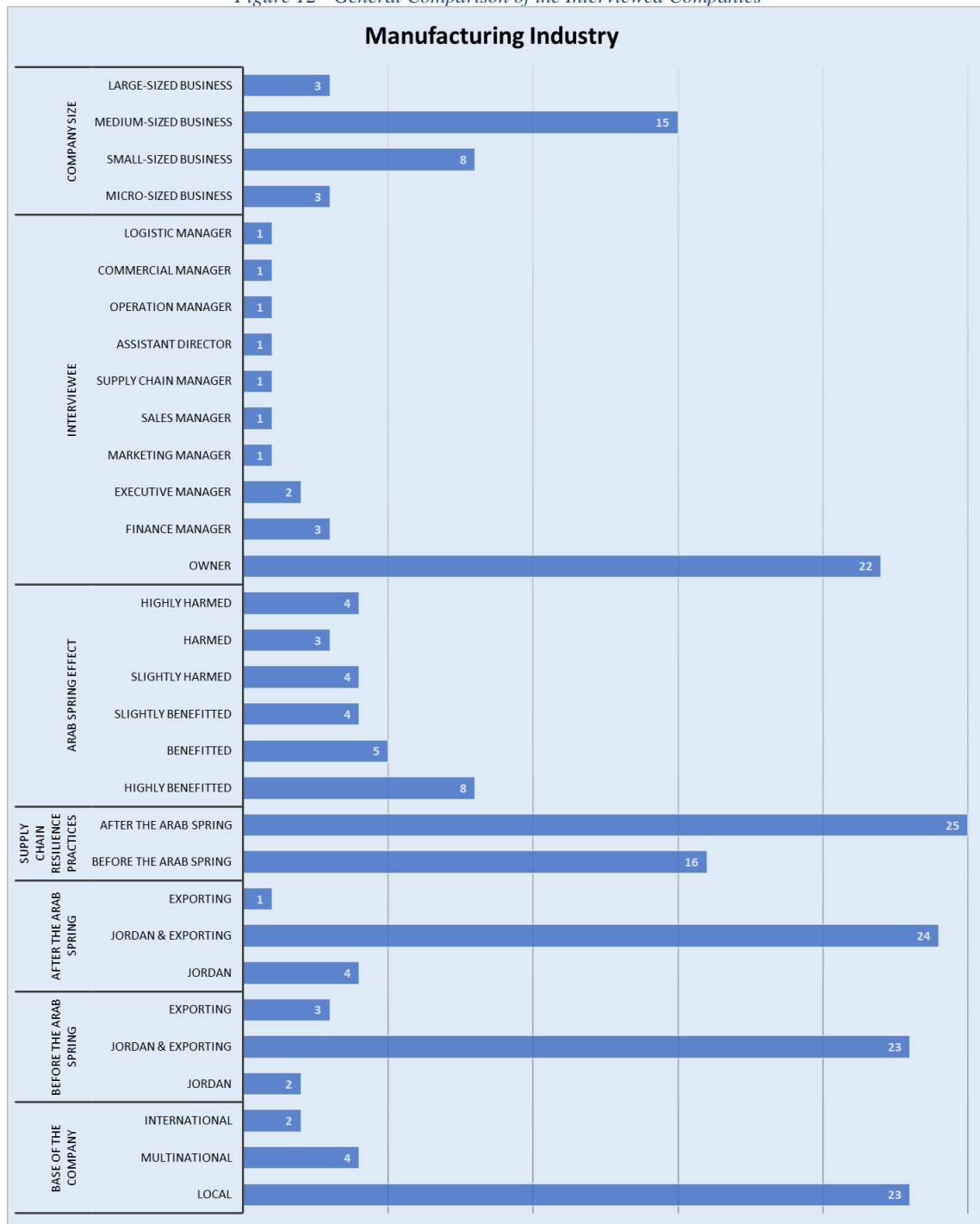


Figure 12 shows a general comparison of the basic information of the interviewed companies. This figure shows that among the 29 companies interviewed, 23 out of the 29 were local companies, 4 out of 29 were multinational, and 2 out of 29 were international companies.

Those 29 companies had to make some adjustments to their market existence as before the Arab Spring two companies used to work only in the local market, while afterwards the number increased to four. Also, before the Arab Spring, three companies used to work only on exporting, while afterwards the number of companies declined to just one. And before the Arab Spring, 23

companies used to work in the local market and export, while afterwards the number increased to 24¹.

The interviews were mainly conducted with the business owners (22 out of the 29), while the other interviews were conducted with managerial parties from the companies. Some of those interviews were conducted with two (3 out of 29) or three interviewees (1 out of 29) at the same time.

Supply chain resilience practices were adopted by 16 out of the 29 companies before the turmoil. Those 16 companies have started to adopt more practices due to the turmoil. Also, an additional nine companies have started to adopt supply chain resilience practices.

The level of effect was determined based firstly on the general impact (Benefitted or harmed), and secondly based on the duration of the impact: high when this impact happened due to the turmoil and it will last for a very long time even when the turmoil is over, benefitted/ harmed when this impact happened due to the turmoil and it will last for a few years but is temporary and will end after those years, and slight when this impact that happened due to the turmoil will last for a very short period of time during the turmoil and in most cases less than three years.

The effect/influence of the Arab Spring varied between the companies. On one hand, 17 of the 29 companies have benefitted from this turmoil to different degrees: 8 companies have highly benefitted, 5 companies have benefitted from the turmoil, and 4 companies have slightly benefitted from the turmoil. On the other hand, 11 of the 29 companies have been harmed by this turmoil to various degrees: 4 companies have been slightly harmed, 3 companies have been harmed by the turmoil, and 4 companies have been highly harmed by the turmoil. However, one of the interviewed companies cannot be placed under any of those categories due to the company being established after the Arab Spring.

Table 7 illustrates that the years of establishment among the interviewed companies varied from 1926 to 2015. They also have a varied range of products. They have obtained the raw materials for those products from the local market, neighbouring markets, or international markets. They have also sold them to the local market, neighbouring markets, or international markets. The product type and import of materials have both been impacted by the Arab Spring, as will be explained in the following sections.

¹ The interviewed companies numbered 29; however, one of those companies was established in 2015 which was after the Arab Spring.

Table 7 - Companies' General Information

Company	Establishment year	Product Type	Raw Materials		Customers		Number of Employees (SSC)	Registered Capital (CCD)
			Before	After	Before	After		
C01	Parent: 1969 Subsidiary: 2009	Manufactures all kinds of cleaning materials, including laundry materials, home cleaning materials, personal hygiene materials (Laundry care, home care, personal care) and all cleaning products.	Half from China and the other half from Europe.	Same	Local Market, Yemen, Libya, Iraq and Saudi Arabia.	Stop: Yemen, Syria and Libya.	104	2,600,000
C02	2006	Mixing materials/ Pharmaceutical materials; over-the-counter (OTC) creams to treat skin diseases. In the year 2013, the company began working on medicines for scabies and lice.	Local market and China, Spain, India and Italy.	Mainly local market, especially concerning the products of the Dead Sea.	Saudi Arabia	Mainly, Saudi Arabia and Iraq. Also, America and Europe (Spain, Italy, Germany, and Bulgaria).	37	5,500
C03	Parent: 1999 Subsidiary: 2002	Agricultural fertilisers	Most of the raw materials are available in Jordan	Same	Local Market (Through one of its customers), Tunisia, Saudi Arabia, Syria, Lebanon, Iraq, Egypt, China, and some European countries.	Stop: Tunisia (2011-2014), Yemen (2016-2017), Syria (2011-2012), Turkey (2015), Iran (2017-2018), and Libya. European markets (Netherlands, Spain, Italy, and others).	29	30,000
C04	Parent: 1987 Subsidiary: 1987	Was working on architectural paints, but now it is working on adhesive, sealant, construction chemicals and waterproofing membrane.	Local market 60%, 30% Gulf countries (Saudi Arabia and the UAE), and 10% are European countries (Britain and Germany).	Same	Local market 15%, Syria 50%, Iraq 20%, and Yemen 15%.	Start: Saudi Arabia. Stop Syria (2011), Iraq (2013), and Yemen (2014).	70	605,000
C05	1990	Liquid detergents. Household sanitisers, hand sanitisers, clothes fresheners and shampoos.	Local market and India.	Same	Iraq and Egypt.	Start: local market and Libya. Stop: Egypt.	1	100,000
C06	2005	Chemical adhesives for construction and maintenance.	Several countries, including Turkey, Italy and Germany.	Partially stopped: Turkey. Start: European countries.	Local market (30%), Saudi Arabia, Syria, Iraq and Egypt (70%).	Stop: Syria.	12	30,000
C07	Parent: 1992 Acquisition: 2000	Specialised in the iron industry; Melt shop and rolling mill.	Melt shop: mainly from the local market, some materials from Germany, Turkey, China, Italy, and the Gulf (at very low rates). Iraq (1992-2009) Rolling mill: mainly from Melt shop. China, Saudi Arabia, Iran, and Egypt.	Stop: Egypt	Local market (80-90%) and Palestine (10%).	Same	278	32,165,176
C08	1960	Used to produce voice and satellite recorders. Now they produce household electrical appliances; refrigerators, washing machines, freezers, microwaves, televisions, air conditioners and water coolers.	The raw materials mainly come from East Asia from China, South Korea and Vietnam, the packing materials come from Saudi Arabia and the packaging materials come from the local market.	Same	Mainly, Iraq, Syria, Palestine, and Lebanon. Also, Egypt, Saudi Arabia, Yemen, Libya, and Algeria.	Partially stopped: Lebanon Stop Syria, Iraq, Yemen. Algeria, Libya, and Saudi Arabia.	137	4,935,690
C09	1950	Chocolate	Europe, Netherlands and West Africa	Same	27 countries and local market	Stop: Syria, Iraq, Libya, Egypt, Algeria, Morocco, Tunisia, Lebanon	104	221,000

C10	1926	Tahini, thyme, powders, and herbs	Ethiopia, Sudan, Saudi Arabia, Syria, Turkey, Saudi Arabia and Lebanon	Stop: Sudan, Turkey and Lebanon	30 countries and local market including USA, Europe, Russia, Australia, Malaysia, Singapore, Palestine, Gulf countries, Qatar, Egypt, Iraq, Kurdistan, Iran, and Libya	Same	143	500,000
C11	1995	Chocolate	Belgium, the Netherlands, Italy and Turkey	Same	Local market, Palestine, Qatar, Saudi Arabia, Canada, Germany, Libya and Iraq	Stop: Libya and Iraq	14	80,000
C12	2002	Dairy, cheese and their derivatives	Denmark, Germany, America, Turkey and local market	Stop: Turkey	Local market	Same	72	160,000
C13	1980	Canned materials and seasoning	Canada, Argentina, Turkey, Australia, Britain, Egypt and local market	Stop: Turkey	Local market(% 70), Germany, Netherlands, France, Spain, America, Canada, Syria, Iraq, Palestine, Lebanon, Libya, the Gulf, and most of the neighbouring countries.	Addition: America, Canada Stop: Syria, Lebanon, Iraq, and Libya	92	150,000
C14	2015	Crisps	N/A	Jordan, Lebanon, Egypt, Malaysia, America, Dubai, Netherlands, India and Turkey	N/A	Germany, Sweden, Belgium, Qatar, Palestine, Saudi Arabia, Dubai and Bahrain	71	450,000
C15	1969	It started in woodworking. Now, specialising in wood industries, decorative materials, curtains and accordion doors, contracting, and interior design.	Syria, Turkey, Europe, Saudi Arabia, China and India.	Stop: Syria and Turkey	Local market	Same	12	113,000
C16	1982	Education-related materials; white writing boards, projection screens, engineering furniture, and interactive whiteboards. Also, manufactures the filling of educational panels, doors and furniture (Anyvan paper).	Belgium, Korea, and China (front panel), and Saudi Arabia (aluminium frame panel).	Stop: Italy and Germany. Start: China.	50 countries including mainly the Middle East countries where Saudi Arabia is the largest market. Also, to European and African countries, Afghanistan and Pakistan.	Stop: Tunisia (2011), Egypt (2011), Syria (2011), Libya (2014), Iraq (2015), Lebanon (2015), Yemen (2016-2018), Algeria (2018), and Morocco (2018).	46	2,000,000
C17	1993	The company started producing plastic boxes for agricultural products. The company has shifted to producing furniture (220 products); chairs and tables, then household items, and then storage tools. The company is now producing complete home solutions from plastic.	Raw materials such as plastic granules are imported from Saudi Arabia and the UAE.	Same	30 countries including the main markets which is the local market (25%), Iraq, Saudi Arabia, Palestine, and Kuwait. Also, USA, African countries such as Gabon, Angola, Tanzania and Morocco, plus Panama and Malta (75%).	Stop Iraq (2015-2018).	100	800,000
C18	2008	Specialised in the manufacture of fabrics, linens, duvets, bedspreads, school uniforms and Shemagh (Traditional Middle Eastern Headdress).	China, India, Thailand and Indonesia.	Same	Local market (80%), Egypt and Algeria (20%).	Local market (95%), Iraq, Saudi Arabia, Egypt and Algeria (5%).	5	78,000
C19	1992	Started out making blankets from scratch. Then made only sewing blankets and in partnership with a carpet factory. Now, mainly leasing hangars for other factories.	Indonesia, India or Turkey.	China	Local market, Syria, Iraq and Egypt.	Stop: Syria, Iraq and Egypt.	1	2,000,000
C20	Parent: 1972 Subsidiary: 1994	Construction chemicals	Raw materials from the local market (sand, silica and cement), also from India, Germany, Dubai, Saudi Arabia, and Egypt (Epoxy	Same	Jordan branch: Local market, Iraq, Syria, Lebanon, and Palestine.	Stop: Syria, Lebanon, and Iraq.	58	500,000

			production, Powders, Flooring, Admix).					
C21	1978	Manufacturing Infrastructure Plastics: UPVC, HDPC, PVC.	It adopts supply and demand principles, however, currently Saudi Arabia, Europe and America.	Same	Local market (Mainly), Iraq, Saudi Arabia and Ethiopia.	Same	19	176,000
C22	1979	Carton packaging and recycling	Local market; Waste of printing presses, newspapers and magazines	Same	Mainly Syria and Iraq	Start: local market. Stop: Syria and Iraq.	35	40,000
C23	1993	Plastic bags, plastic containers for ready-made meals, plastic cups, ready meals cork packing dishes and packaging.	Saudi Arabia (Mainly), in addition to Kuwait and Qatar	Same	From 2003-2011 about 10% to the local market, 80% to Iraq, and 10% of it to the countries of the region (Saudi Arabia, Qatar, Syria, Yemen, Lebanon, and neighbouring countries).	Stop: Iraq (2003), Syria and Lebanon (2011)	76	49,990
C24	2001	Production supplements; Food packages and paint packages	Raw materials: Saudi Arabia and the United Arab Emirates.	Same	Local market, Egypt, Libya, Iraq, Saudi Arabia, UAE, Kuwait, Oman, and Qatar	Stop: Egypt, Libya, and Iraq	53	30,000
C25	1958	Nylon bags, Patio furniture, Bubble roll, Stretch Tape.	Saudi Arabia (mainly), Qatar, UAE, and Kuwait	Same	Local market, Palestine, Saudi Arabia, Syria, Iraq, and Egypt	Stop: Syria, Iraq and Egypt	190	780,000
C26	1992	Cardboard, and Packaging cartons (industrial, agricultural and food packaging).	Syria (25%), Lebanon, Saudi Arabia	Saudi Arabia (90%), Europe (Great Britain, and Germany), Canada, and America.	Mainly local market and export to neighbouring countries.	Stop: Iraq.	58	2,100,000
C27	1989	Printing and Packaging (Folding boxes and duplex board), Carton Industry (Corrugated boxes), Printing and Packaging for export.	America, Europe (Germany, Switzerland, and France), the Middle East (Saudi Arabia, Beirut, and Syria) and China.	Same	Local market, exports are made to ten of the neighbouring countries: in the Middle East (Iraq, Palestine, and Israel), Gulf (Qatar and Saudi Arabia) and Britain.	Stop: Iraq.	216	160,000
C28	1998	Specialised in the manufacture of food packaging materials (Disposable materials)	European (Nylon rolls), Arab (cardboard), and the Far East countries.	Stop Lebanon, Turkey.	Local market (80%) and exports (20%) to 20 countries, including Saudi Arabia, Iraq, Lebanon, Yemen, Libya, Syria	Stop: Yemen, Libya, and Syria.	308	9,000,000
C29	Parent: 1978 Subsidiary: 1982 Acquisition: 1991	Manufactures special plastic for the pharmaceutical industry.	Primary manufacturing raw materials from Saudi Arabia, Qatar and Europe. Raw materials for manufacturing supplements from America and Europe.	Same	Local market, Algeria, Egypt, Saudi Arabia, Tunisia, Morocco, Portugal, America (3 factories) and Sudan, in addition to its scientific offices in every country where its products are registered from Arab, African, European, American and Far East countries.	Partially stopped: Sudan and Libya.	1498	3,513,135

5.2.1. Product type

The interviewed companies produce a wide range of products. Some of those products are for daily use, others are luxuries, or could be considered as a once in a lifetime product. *“The company must remain present in front of its customers at all times as if it disappears from the market, even if it is for a short period, a competitor will come and take its place and its customers. It must also have new ideas on an annual basis, since any idea that enters the market will be imitated by competitors who will thus take the company's customers if it does not find new ideas to maintain them”* C17 owner (2019).

Each company's products are listed above in Table 7. The product type or usage influences the production environment and method. For instance, seven companies (C17, C21, C23, C24, C25, C28, and C29) use plastic in their production. However, there are differences in standards within the plastic industries production depending on the nature of the use of their products as they have different standards for manufacture. For example, C17 and C25 use plastic for the production of furniture, therefore they would look at aspects related to the product's ability to carry weight and items, but they will not be concerned about the cleanliness of the production environment or production materials. In addition, C21 uses plastic for infrastructure products and is therefore concerned about the plastic being strong enough and not cracking over time. Meanwhile, C23, C24, C25, and C28 use plastic for food-related products, therefore it should be classified as safe to use on food. Finally, C29 uses plastic for medical usage and cleanliness of production is essential. According to the C29 owner: *“Pharmaceutical plastics must be manufactured in an environment called the clean room, where it is 100,000 class or 10,000 class depending on the level of the drug”*.

5.2.2. Import of Raw Materials

Raw materials are the base for any product. A change in the raw materials would directly influence production and the product itself. For instance, delay of raw materials will delay the entire production, while lower quality of raw materials often causes the overall quality of the product to be lower, and similarly, higher costs of raw materials would increase product prices and reduce profit margins.

C06 Owner (2019) thinks that *“The company's capacity in terms of planning, skill and others is fixed, but its financial or purchasing power is changing. Therefore, intelligence at present is not selling, but buying and this intelligence is only achieved with money. Where if they order a bigger quantity, they would be able to have a better negotiation on the purchasing prices and therefore have a higher profit margin”*.

Regarding the interviewed companies, as shown in Table 7, more than half of them (17 out of 29) have continued working with the same suppliers. Mainly this is because their suppliers are not from countries that suffered from the Arab Spring and its consequences, or they could not find an adequate replacement, so they had to stay with the same suppliers.

Figure 13 shows how the shipping path has changed due to the Arab Spring (as explained during the interviews). In some cases (3 out of 29), changing the supplier was due to the quality or the prices, not the Arab Spring. The remaining companies had to make some modifications to the sourcing of their raw materials, either by increasing their dependence on one of their current sources or finding a new source.

According to C12 owner (2019): *“Companies must rely on local business for their required production raw materials in order to keep the major currency from leaving the country, also in*

order to increase employment rate". He believes that "80% of any company inputs for manufacturers must be from the local market so that production won't be affected or stopped in the event of border closure or any other external disruption". Therefore, "There are associations established by the manufacturers themselves in order to increase communication between manufacturers and help them increase cooperation between them, increase intra-trade, reduce imports, and reduce the trade balance deficit (between the exporter and the importer)" C12.

5.2.3. Export to Customers

Individuals or businesses who will buy the company's product are the primary targets for any company, as they represent the completion of the supply chain and are profit providers for the company. Therefore, companies focus on having the biggest possible market share and try not to lose it. However, C04 owner (2019) thinks that *"Obtaining a market share during the Arab Spring has become like a battle or like a tooth extraction process"*.

As for the C01 owner, he believes that *"Penetration of any market is done by one of two methods, either fast penetration or slow penetration; Slow penetration is done by convincing the customer that the offered product is one of the best in the market, and rapid penetration is by saturating the market with the product, and the price is the only reliable factor in convincing the customer to buy the product, since the purchasing power of the consumer has decreased due to the economic conditions and therefore penetration according to the price of the product is easier"*. In particular, *"The market is the customer's market, not the seller's, as the customer is the one who sets the conditions and the seller must abide by them, otherwise he will lose this customer, especially with the increase in competition and companies' quest for survival"* (C04 Owner, 2019).

Some companies think of the Arab Spring as a good event with regard to their customers. For example, C04 thinks that due to the turmoil *"The population of Jordan has increased, and thus demand and sales have increased"*. C24 owner agrees with him as he thinks *"The population of Jordan has increased, and consequently, consumption has increased, which led to an increase in sales"*. On the other hand, other business owners think of it as a bad event. According to C09, *"Relying on a particular market or a particular country is very dangerous in the event of any disruption and may lead to a huge loss that may lead to an exit from the market"*. Meanwhile, C10's owner thinks that *"The main nerve for any factory is the local market, but even this has been affected by the external competition that moved to Jordan"*. However, the C08 owner thinks *"The local market alone should not be relied upon, even if it was good for some time"*. Therefore, *"The company must continue to search for new markets in case it has to overcome similar crises in the future"* (C08 Owner). That is why *"The king of Jordan has encouraged merchants to enter new and non-traditional markets such as the markets of Kenya, Tanzania and Singapore"* (C12 Owner).

"The Jordanian economy was completely dependent on the Iraqi market. But this matter faced two problems, the first is the security (Are the companies able to send their product to a place without the assurance that their clients will receive it and they will receive their money?), and the second is closure of the borders", according to C14 owner. C05 owner agrees with him since "Many of the Jordanian companies were affected as a result of the loss of the Iraqi market due to the closure of the borders". C15 owner confirms that "Jordan was most affected by the Iraqi market, as Jordanian factories were working only for the Iraqi market". According to the C12 owner, "The largest provider for the Iraq market was Syria, but production in Syria almost stopped, while Jordan did not take advantage of this until late in the last year". He also believes that "Jordan also did not benefit from what happened in Libya and its neighbouring countries, due to political, logistical and geographical issues. Neither did Jordan benefit from what happened in Qatar when the blockade took place; in the event, Turkey benefitted from that and

started to export food products to Qatar daily by air". C16 owner thinks that the loss of those markets could become permanent as "Even at the end of the Arab Spring, the Syrian market will not return to buying from the Jordanian market, given Jordan's political stance towards Syria. The same applies to Iraq". Also, C03 believes that "One of the indirect influences of the Arab Spring was the loss of customers to their customers as a result of the markets being stopped or the inability to reach them, and thus their weak desire to improve their crops by purchasing from the company's products".

Most of the companies believed that the market loss has been both sudden and complete, with no hope for them to return to those markets, and the company must work to compensate for the loss of those markets as soon as possible. However, C29 saw that *"The impact of the Arab Spring was not sudden or complete from all countries, rather the market loss was gradual through delaying demand, reducing prices or reducing quantities".*

Companies' reliance mainly on the local market and neighbouring countries has put them under pressure to find alternative markets due to the loss of those markets or to bear more expenses and risks in order to keep dealing with their current customers. In Table 7 companies' customers are listed with the changes in their markets. Only five companies (C07, C10, C12, C15, and C21) managed to stay with the same customers, and only two of those (C10 and C12) used to work with Arab Spring countries and therefore had to change their shipping path, as shown in

Figure 13. Only two companies have managed to add to their current markets (C02 and C18). Four companies managed to add new markets while losing other markets (C04, C05, C13, and C22). And 17 companies (C01, C03, C06, C08, C09, C11, C16, C17, C19, C20, C23, C24, C25, C26, C27, C28, and C29) had to stop working with some of their customers. C03 owner thinks that *"A smart company can always find alternative ways. As no market has stopped completely, but companies must work to find a way to return to their markets".*

Figure 13 - Import/export to Arab Spring Countries

Import/ export to Syria before Arab Spring



Import/ export to Syria after Arab Spring



Import/ export to Lebanon before Arab Spring



Import/ export to Lebanon after Arab Spring



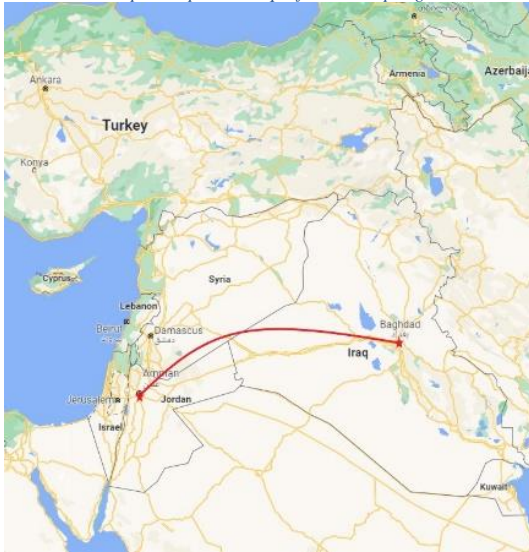
Import/ export to Iraq before Arab Spring



Import/ export to Iraq after Arab Spring



Import/ export to Iraq before Arab Spring



Import/ export to Iraq after Arab Spring



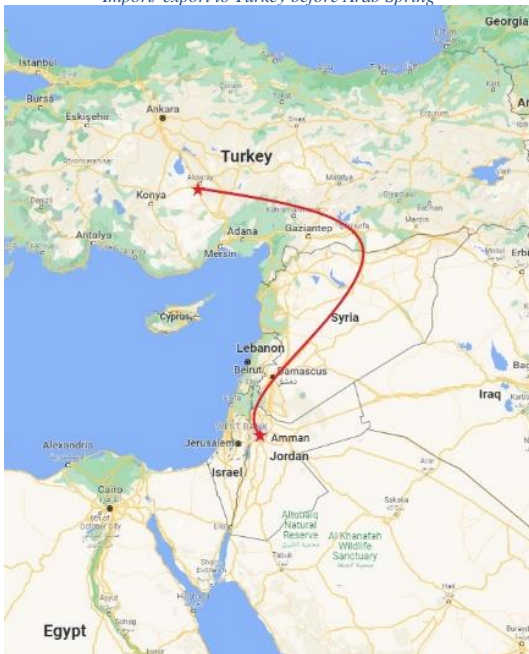
Import/ export to Qatar before Arab Spring



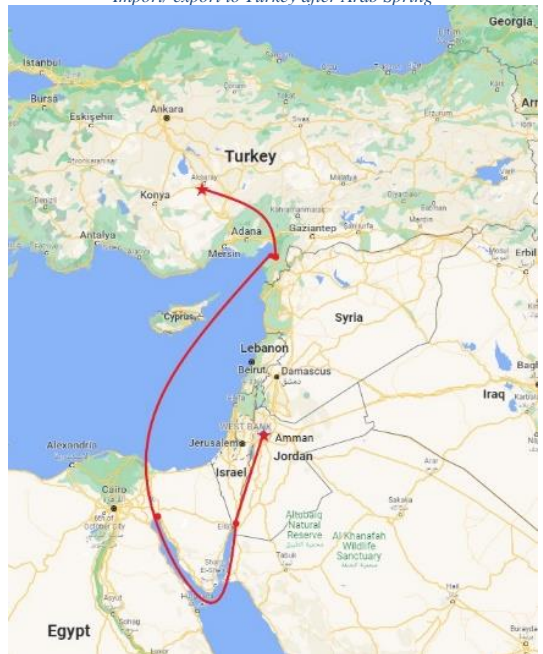
Import/ export to Qatar after Arab Spring



Import/ export to Turkey before Arab Spring



Import/ export to Turkey after Arab Spring



5.2.4. Company Size

The company size is usually determined by the company’s owned assets, company sales, or the number of employees. However, due to the confidentiality of those companies’ financial details related to their owned assets or sales and not being able to get such information through official entities in Jordan or even from the companies themselves, the company size is determined based on the number of employees. Information related to the number of employees (From Social Security Corporation (SSC) and the companies themselves) and those companies’ registered capital (From the company control department (CCD)) has been used as an indicator for the company size. Details about each company can be found in Table 7. According to the Organisation for Economic Co-operation and Development (OECD), companies’ size can be classified using four common categories based on the number of employees: 1) Micro-sized business: less than 10 employees. 2) Small-sized business: 10-49 employees. 3) Medium business: 50-249 employees. 4) Large-sized business: more than 250 employees (OECD, 2020). According to this classification, interviewed companies can be classified as shown in Table 8.

Table 8 - Companies Size/ # Employees (OECD & SSC)

Company Size	Micro-sized business			Small-sized business								Medium-sized business										Large-sized business							
Company	C18	C05	C19	C16	C02	C22	C03	C21	C11	C06	C15	C27	C25	C10	C08	C01	C09	C17	C13	C23	C12	C14	C04	C20	C26	C24	C29	C28	C07

Table 8 shows that among the interviewed companies there are three micro-sized businesses, eight small-sized businesses, fifteen medium-sized businesses, and three large-sized businesses. However, if the number of employees and the company’s registered capital are compared it can be noted that it is not necessarily the company that has the biggest number of employees that has the highest capital, which is mainly because both criteria are influenced by the nature of the business itself.

For instance, C19 used to be considered a large company but because it has been struggling in the past years it no longer has a large number of employees. In the past, it had 300 employees but nowadays it has only one employee, which makes it a micro-sized company, but this does not change the fact that its registered capital amounts to 2,000,000 JOD. Quite the opposite happened with C02, which used to be considered a micro-sized company and had the lowest invested capital among the interviewed companies (5,500 JOD), but while its operations thrived in the past years, that was not reflected in the registered capital, and it is now considered as a small-sized company.

The interviewed companies were of various sizes. The companies’ size did not have any significant impact on them while facing the Arab Spring. The following sections will go through the different disruptions that companies have faced due to this turmoil, changes to governing regulations, practices that have been implemented by those companies, and how this turmoil has impacted those companies' performance.

5.3. Disruptions

Geo-political disruptions are usually sudden and hard to predict and have a high impact when happening. C16 owner agrees with this as he believes that “*War is like death; it cannot be foreseen*” (2019). Therefore, it is more important to know how to overcome it rather than trying to predict it. C09 owner believes that “*The most difficult challenges come at the beginning of the disruption, but the size of the problem facing the company is determined based on the way that the company deals with it and according to the speed of response in order to solve it*”. Hence, C06 owner considers that “*In the event of any disturbance, regardless of its nature or source, the*

company must act calmly and in accordance with logic. In the event of any disturbance, the company must first realise that there is a problem and work to find solutions to adapt to the situation according to the available circumstances, as the company cannot create an atmosphere for itself that differs from the prevailing general atmosphere”.

C13 thinks that *“The company was able to withstand the pressures it faced in the previous period, but it now believes that it has reached the maximum endurance, which may affect the continuity of the company in the future”*. C16 owner agrees with him by saying: *“In the event of any other disturbances or failures in the near future, this may lead to the collapse of the company and its exit from the market”*. Those owners believe that they managed to overcome this turmoil, however, they have reached the limit of their stamina and at the moment they will be unable to handle anything new. C12 looks at this disruption from a different perspective as he thinks that *“The Arab Spring has become more of a siege of Jordan than a window into new markets. Whereas, instead of Jordan benefitting from the conditions of neighbouring countries and supplying these countries with its products, the closure of the borders came as an obstacle to prevent it from exporting even to the countries that it was exporting to in the past”*. C22 agrees with him that *“Jordan's size and potential play a role in influencing the production capacity of the factory, as the factory cannot produce large quantities without the presence of markets in which to dispose of them”*. C23 claims that *“One of the effects of the turmoil is a strong recession in the market”*, and *“When a global recession occurs, the price of materials falls”*, according to C24. From C15's point of view, *“The disruption is impacting on Jordan concerning grants and the World Bank, as the government is putting pressure on the people who do not have anything to offer the government”*.

C04 owner is afraid that *“The Arab Spring produced an abnormal way of thinking in the market. Where customers were expecting the fall of protecting laws, which led them to stop paying for the purchased products”*. C25 has faced the same problem with one of its customers which led it to believe that *“The local market is not secured from a financial point of view. One of the commercial markets which had 6 branches and was one of the company's customers has closed its branches and left without warning and without paying the full financial dues”*.

As Figure 14 and Table 9 show, a number of disruptive events have affected the interviewed companies due to the Arab Spring and these are grouped into themes based on their similarities. Even though some of those events might have affected other interviewed companies, Figure 14 and Table 9 only show what has been explicitly mentioned by the interviewees. This means that it is possible that some of those events have impacted other interviewed companies but either that the impact was not significant enough for them to mention it or they did not think that the impact on them of those events was related to this turmoil.

Figure 14 - Manufacturing Industry - Disruption Events

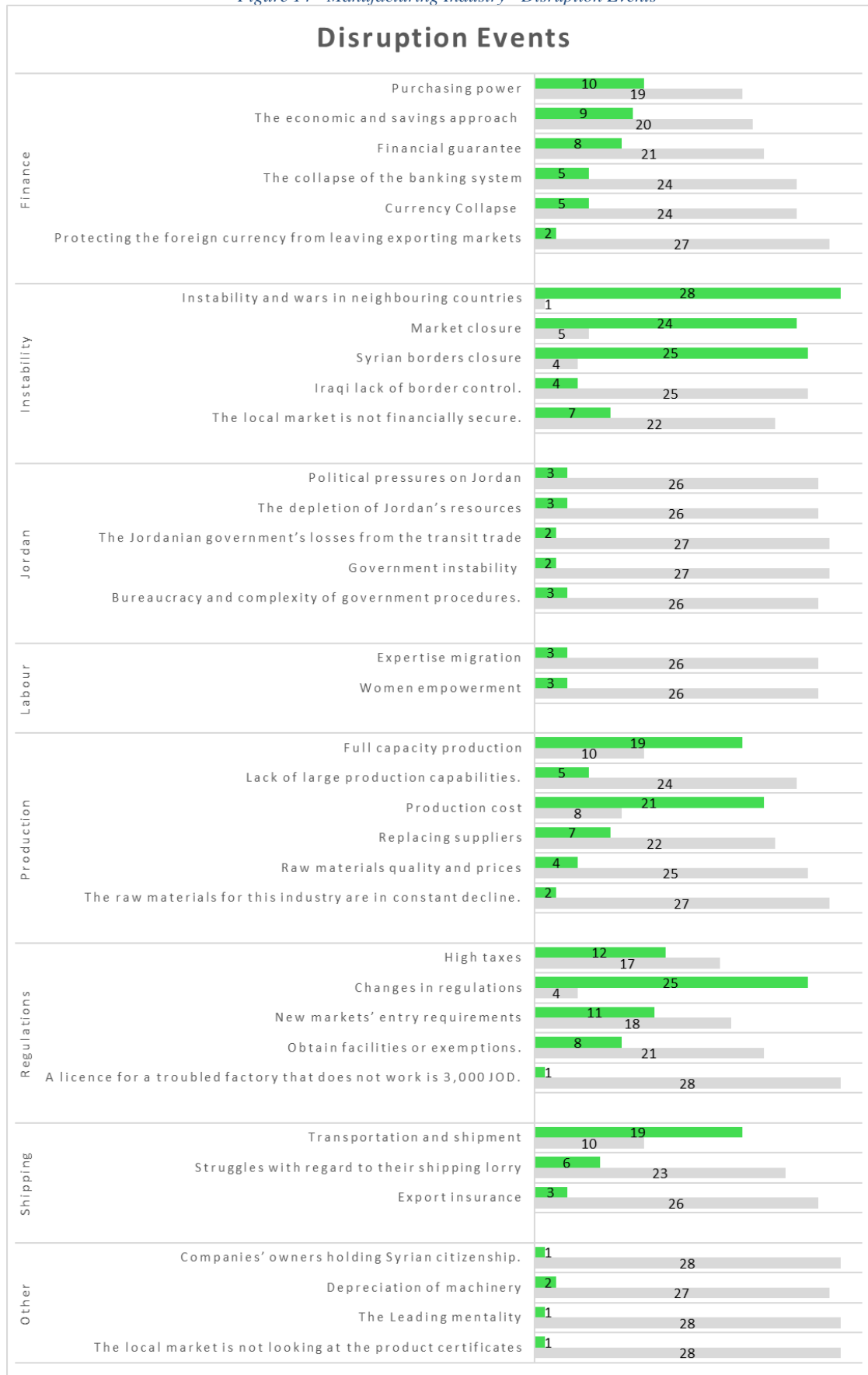


Figure 14 shows the number of companies that were affected by each of the identified disruptive events. Some of those events have affected the majority of the companies, while other events have only influenced one company. Those events vary in their impact based on whether they are related to import, export, or even the company. This could be due to many reasons, such as the company sector, the raw material's nature and source, the product nature, the customer type and location, and how the company is being managed. More details about this can be found in Table 9.

Table 9 - Manufacturing Industry - Disruption Events

Theme	Disruption	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	
Finance	Purchasing power	✓	✓	✗	✗	✗	✗	✓	✓	✗	✗	✓	✓	✓	✗	✗	✓	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	
	The economic and savings approach	✗	✓	✗	✗	✗	✗	✗	✗	✓	✗	✓	✓	✗	✓	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✓	✗	✗	✓	✓	
	Financial guarantee	✗	✗	✓	✓	✓	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	
	The collapse of the banking system	✗	✗	✓	✓	✗	✗	✗	✗	✗	✓	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	
	Currency Collapse	✗	✗	✗	✓	✗	✗	✗	✗	✓	✗	✗	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓
	Protecting the foreign currency from leaving exporting markets	✗	✗	✗	✗	✗	✗	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Instability	Instability and wars in neighbouring countries	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	
	Market closure	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	
	Syrian borders closure	✗	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	
	Iraqi lack of border control.	✗	✗	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	
	The local market is not financially secure.	✗	✗	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✓	✗	✓	✗	✗	✗
Jordan	Political pressures on Jordan	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
	The depletion of Jordan's resources	✗	✗	✗	✗	✗	✓	✗	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
	The Jordanian government's losses from the transit trade	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
	Government instability	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
	Bureaucracy and complexity of government procedures.	✗	✓	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗
Labour	Expertise migration	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
	Women empowerment	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗
Production	Full capacity production	✗	✓	✓	✗	✓	✗	✓	✓	✓	✗	✓	✓	✓	✗	✓	✗	✗	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✗	
	Lack of large production capabilities.	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	✗	✗	✗	✓	✗	✗	✓	✗	✗	✗	✗	✗	✓	
	Production cost	✗	✓	✗	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗	✓	
	Replacing suppliers	✓	✗	✓	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	✓	
	Raw materials quality and prices	✗	✗	✓	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	
	The raw materials for this industry are in constant decline.	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✓
Regulations	High taxes	✓	✓	✗	✗	✓	✗	✓	✓	✓	✗	✗	✓	✗	✓	✓	✗	✗	✗	✗	✗	✓	✗	✗	✓	✗	✗	✗	✗	✓	
	Changes in regulations	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	
	New markets' entry requirements	✗	✓	✗	✓	✗	✓	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✓	✗	✓	✓	
	Obtain facilities or exemptions.	✗	✓	✗	✗	✓	✗	✗	✓	✗	✗	✓	✗	✓	✗	✗	✗	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗
	A licence for a troubled factory that does not work costs 3,000 JOD.	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	
Shipping	Transportation and shipment	✗	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓	✗	✓	✓	✗	✗	✗	✗	✗	✓	✗	✓	✓	✓	✓	✓	
	Struggles with regard to their shipping lorry	✗	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✓	

Table 9 lists the disruptive events faced by the interviewed companies and those companies which have reported being affected by them.

Finance

A few disruptive events have had a financial impact on the interviewed companies, which is shown through 1) customers' purchasing power, 2) customers' savings approach due to tough economic conditions, 3) lack of bank guarantees in case customers fail to pay for what they have taken, or even 4) the banking system no longer exists due to political instability, 5) the collapse of countries' currency, also due to the political instability, which also 6) leads those countries to introduce new laws to protect the foreign currency from leaving their countries and avoid a more catastrophic situation if that were to happen. Details about each one of those financial disruptive events can be found in the following few paragraphs.

Purchasing power: due to inflation, the increase in expenses, and taxes that the Jordanian citizens are facing, their ability to buy products has dropped to a level where they have to look at the importance of the product to their survival before buying it, especially as all those factors have affected their living expenses but their income has not changed. It also affected the ability of companies and some customers to pay on time so they always request payment extensions and lower prices.

The economic and savings approach: due to the poor state of the economy and the reduction in the purchasing power, customers started to neglect quality and focus only on the price. Customers also started to buy only what they needed for survival, without having any extras. They also started to focus on saving because they feared what might happen in the future. This indicates that customers started to prioritise their purchasing and only buy the necessities as they were no longer able to buy all commodities that they used to be able to afford. Additionally, an indirect effect is that due to changes to Saudi Arabia's residence law, the spouses of international workers have returned to their home countries to cut costs, and those spouses were among the target customers for the companies.

Financial guarantees: this factor has affected the companies which export to Arab Spring countries and can no longer obtain guarantees that customers there will pay for the products, especially when such countries have lost their financial/ bank representation. It also means that insurance companies no longer cover missed payments from war zone countries or they lower the cover for such events. Companies have also been faced with this issue when importing from non-Arab Spring countries which are requesting guarantees due to Jordan being in a war zone area, to ensure receiving their payments or products on time.

The collapse of the banking system: due to this turmoil some countries no longer have bank representation or banks in those countries no longer have international accreditation. For instance, the Yemeni market stopped due to the inability to send remittances for products, Iraq and Libya do not have bank representation to make remittances, and the banking system in Sudan imposes restrictions on payment. Additionally, the Iranian market's bank credit has been suspended due to the political situation and the placing of restrictions on companies engaging in any commercial or financial dealings with this market.

Currency Collapse: cash devaluation is one of the main concerns for the companies in the market, therefore, some companies have started to request immediate cash payments rather than credit payments. Also, the currency collapse that happened in Egypt has influenced Jordanian companies heavily as this has caused an increase in the competition due to the prices of the Egyptian products becoming lower than those of Jordanian products. This has also applied to Sudan. Below, Table 10 lists some countries that have faced Arab Spring or its consequences and shows the value of their currencies before the turmoil (2010) and their recent (2022) value in

comparison to £1. From this table, it can be noted that Egypt, Yemen, Syria, and Sudan are countries that have faced a significant impact on their currencies' value.

Table 10 - Countries' currencies' value in comparison to £ £1 (OANDA, 2023)

	Tunisia	Egypt	Yemen	Bahrain	Libya	Syria	Sudan
Dec 2010	2.29	9.07	335.93	0.59	2.00	74.62	3.76
Dec 2022	3.91	29.50	0.59	0.46	5.91	615.14	687.00

Protecting foreign currency from leaving exporting markets: countries such as Egypt have imposed laws to prevent foreign currency from leaving their markets and are only allowing industrialists to import raw materials for their production. Countries such as Egypt have witnessed a significant currency collapse and have started implementing stricter rules to prevent their foreign currency leaving their market.

Instability

A few disruptive events have had an impact on the interviewed companies' stability and working environments, such as wars in the neighbouring countries which they were afraid might reach them at any point in time, the closure of their import or export markets which in most cases were their major markets, Syrian border closure which has added to closures of markets, affected the transit trades, and affected the exports consultations that used to happen before. Also, ISIS control of the Iraqi borders and the continuous conflict and changes in regulation between what they impose and what the government imposes, the instability in the area that has led the customers to start issuing non-covered cheques, believing that they might get away with it. Although all the disruptions discussed in this section of the chapter are in some way related to instability caused due to the Arab Spring, those listed in this sub-section are directly linked to instability. Details about each of those stability disruptive events are presented in the following few paragraphs.

Instability and wars in neighbouring countries: this turmoil has caused disturbance in Jordan which has been reflected in importing and exporting, since countries were worried about their products' safe arrival, in addition to worrying about receiving their payment. Even though Jordan has not faced this turmoil directly, other countries and businesses still consider it to be a country in a war zone and that it could become an Arab Spring country at any point.

Market closure: this is one of the major disruptions faced by the companies in Jordan and has influenced the continuity of their supply chain. Companies started to lose suppliers and customers, some of those losses were temporary, while the rest became permanent losses. Therefore, companies who faced this disruption had to look for an alternative, when possible, to overcome this supply chain detachment which directly affected those companies' sales and profitability.

Syrian border closure: the turmoil not only stopped trade with the Arab Spring countries' markets that Jordanian companies used to import from or export to through those borders, but the closures caused by the Arab Spring also affected countries that are not directly linked through the Jordanian Syrian border. Additionally, Jordan has lost a lot of the transit trade from the countries/ businesses that used to send products through Jordan after/ before passing through Syria.

Iraqi lack of border control: four companies seem to have faced this disruption. Control of Iraqi borders by ISIS has caused several problems, such as delay of shipments and requests for extra and multiple taxes. Holding of the shipments would depend on the religious sect of the customer and the person in charge on that day, or the shipment could be destroyed if was thought that the customer might use it for other purposes. This significantly increased the risk, cost, and time of shipping to Iraq and therefore increased the competition from other markets such as the Iranian market.

The local market is not financially secure: one of the main financial disruptions that the companies faced is returned cheques and companies thinking that they can get away with this. Some of the companies found that when they tried to collect payment of cheques, the cheque issuer did not have sufficient balance to cover the cheque amount, and the Jordanian banks provide no financial protection against this problem. The only way to collect payment is by going to court and if the person claims that they do not have the money they will go to jail, but still the manufacturer will not receive the money. Also, at the beginning of the turmoil, some customers were expecting Jordan to have an Arab Spring and that there would be no law to force them to pay for the products that they ordered, therefore they refused to pay their dues. Furthermore, customers' lack of cash liquidity has delayed the companies' cash flow cycle.

Jordan

Some disruptive events have had an impact on the interviewed companies because they work in Jordan; for example, the political pressures Jordan faces to take a certain stance, the depletion of Jordan's resources by the refugees, not only during the last turmoil but on several other occasions over the years, the loss of transit trade through Jordan, continuous changes in Jordan's Cabinet which have led to continuous changes in laws, and government bureaucracy that requires visits by the company's representative to the public entities to provide the numerous required documents and follow lengthy standard procedures. Details about each of those Jordan-related disruptive events can be found in the following few paragraphs.

Political pressures on Jordan: three companies claimed that there has been external political pressure on Jordan which forced Jordan to take a certain stance with regard to the turmoil or it would lose the grants awarded to it. Those companies reported that this influences their current and future customers and markets as its current market is having to accept Jordan's current political stance and this will impact decisions by countries and future markets when considering signing future trade agreements.

The depletion of Jordan's resources: three of the interviewed companies believe that Jordan can be considered as a poor country that lacks resources, and that the arrival of the refugees caused extra depletion of the country's resources, for which even all the external help and grants cannot compensate. Therefore, there was no option for the Jordanian government but to increase taxes in order to address the depletion of its resources.

The Jordanian government suffered loss of transit trade: the Jordanian government lost out on trade agreements based on passage through Jordan in addition to all the related taxes. Jordan's location gives it an advantage in terms of benefitting from transit trade; however, due to this turmoil and related events, Jordan is no longer able to benefit as before.

Government instability: two companies believed that due to the continual changes in the Cabinet in Jordan, laws have kept on changing and there is no clarity or good understanding of those changes. New regulations are not necessarily better than the old ones and usually they do not cover the legal loopholes in previous laws and regulations. Also, there is general instability in the country. It should be noted that in Jordan from Dec-2010 until Dec-2022 there were 9 new Cabinets in addition to 20 personnel changes to those Cabinets (The Prime Ministry, 2022).

Bureaucracy and complexity of government procedures: three companies complained about the complexity of procedures in the governmental entities. They reported that even though those entities claim to be doing everything to simplify procedures, when it comes to applications, they either require numerous documents or the systems/apps provided are not working. This problem is becoming more complex as continuous checking and follow-up are required even for simple procedures and a company representative has to attend in person despite the government offices being located far away from the companies' locations. Companies are also not able to get further

information or inquire over the phone as those entities either do not pick up the call or do not give a clear answer.

Labour

Some disruptive events have had an impact on the companies' working labour s, such as the migration of experts, since there are no positions that are proportional to their qualifications, and women's empowerment has also been affected since the society and the women themselves tend not to believe that women should work in the manufacturing industries. Details about each of those disruptions to labour can be found in the following paragraphs.

Expertise migration: A huge number of educated and qualified people in Jordan are looking for work, which forces them to work in jobs for which they are over-qualified and with lower salaries than they deserve. This has created an imbalance in the job structure in Jordan, which usually leads them to believe that they have no chance of developing their skills and knowledge in those current position and they lose their work motivation. In addition, after working for a short period of time in the Jordanian market, these skilled workers are attracted abroad by lucrative opportunities in foreign markets. This affects the efficiency of work in general and the efficiency of other workers who could have benefitted from mentoring by those skilled workers. Also, the qualified Syrian labour tend to migrate to Saudi Arabia, Egypt, and United Arab Emirates as they consider these as stronger business markets that provide better benefits for their employees.

Women's empowerment: only three companies seemed to take this into consideration. Finding women to work in factories was hard as society considers and expects women not to work in such jobs as they might be too physically demanding and might require them to work long hours, in off-desk duties, and away from the city. Even those companies that wanted to increase their ratio of men to women would find it hard to find the right candidates with the required qualifications who are willing to fill those positions.

Production

Some disruptive events have had an impact on the companies' products. These include producing at full capacity no longer being applicable, or not having enough production capacity to satisfy demand, changes in the production costs which have increased for some companies and decreased for others, having to stick with certain suppliers due to the complication of replacing them or because those suppliers have control over the raw materials; also, changing the raw materials could have an impact on the quality and price of the final product, or even sometimes those raw materials could be in constant decline. Details about each of those financial disruptive events can be found in the following few paragraphs.

Full capacity production: companies' production rates have been influenced due to this turmoil, with some of them increasing their production capacity (C02, C20, C23, C24, C25, C26, C27, and C28), while others have had to lower it (C03, C05, C07, C08, C12, C13, C18, and C19). The reasons behind these opposite impacts will be shown later in this chapter. When a company experiences a change in its sales level that leads to a change in its production level it should consider whether this change will be permanent or just temporary. In unpredictable and turbulent markets it is essential to have production flexibility as it helps companies to have better control over market share loss, production cost and inventory level (Kumar et al., 2018).

Lack of large production capabilities: some companies that have a very large market find that their production capacity is not sufficient to meet the market demand. Having a bigger production

capacity might have helped them to benefit more from the turmoil. Those companies were hence receiving customers' orders that they could not fulfil.

Production cost: has been influenced due to the turmoil. For 18 companies this cost has increased, reflecting materials cost increase, fixed cost increase, additional taxes, changes to taxes, labour cost increase, or even shipping cost increase. For three companies (C14, C19, and C24) this cost has decreased. This decrease resulted from either pushing the suppliers to decrease prices in order to continue operating with them (C14), changing the supplier and raw materials to keep material prices competitive (C19), or reliance on more advanced machinery that increased the production rate for the same fixed costs, resulting in lower costs. And for the remaining eight companies the overall cost stayed the same due to the company cutting some costs to overcome the increase in production costs.

Replacing suppliers: if there is only one supplier for the raw materials in the region and the only replacements are in the European countries, with higher prices and higher shipping expenses, that not only affects the time taken to receive those materials but also the materials' price. Having a limited number of suppliers around the world makes it extremely hard to replace them and makes companies vulnerable if they face any disruption, especially if those materials are the main component for production. Alternative suppliers will not necessarily provide the same quality as the old suppliers, which is especially important when those materials directly affect the quality of the finished product. Maybe the product's nature will not allow the company to keep changing the raw materials, therefore, there is not even the option of changing suppliers without the consent of their customers. Also, long-term relationships with established suppliers are hard to replace, as such relationships usually allow a more flexible way of operation between the parties with regard to the material, time, payment, and others.

Raw material quality and prices: production-related materials have a direct and strong impact on the product and its quality; any changes to those materials might result in losing customers if the quality is not the same or better than that of the previous material. This could lead companies to purchase materials at higher prices to ensure their quality is not negatively impacted, which directly reflects on the production cost and profit margin.

The raw materials for this industry are in constant decline: only two companies seem to have faced this disruption. This is considered as a major disruption for them as the absence, shortage, or ending of those materials will eventually mean the company losing its customers, who will start looking for alternative products, or it means that the company will leave the market as it will no longer be able to continue its operation. Usually, companies would try to find an alternative way to keep operating; however, if no alternative could be found that company would go out of business.

Regulations

Some disruptive events regarding regulations have had an impact on the interviewed companies, such as the rapid and constant increase in taxes, constant change in governing laws, when those laws are not even clear, different markets having different entry regulations, exemption being dependent on a particular company's situation, and the cost for struggling companies of obtaining a factory licence. Details about each one of those disruptive events can be found in the following few paragraphs.

High taxes: according to the interviewed companies, taxes in Jordan in particular and the Arab region in general are considered to be high. Even so, there has been an additional significant increase in tax rates during the last period. Moreover, Jordan used to have an investment encouragement law that provided tax exemption for companies exporting from Jordan; however, the Jordanian government has stopped this privilege, which has directly impacted companies.

Changes in regulations: there have been many changes in laws, within and outside Jordan, due to the Arab Spring that have affected how companies operate and what they should do if they want to keep operating in those markets. Those changes are listed in the next section 5.4.

New markets' entry requirements: 11 of the interviewed companies have faced this disruption, especially when entering non-traditional markets such as the European markets, since their entry requirements vary from those of the regional markets and are stricter with regard to the products and their certificates. The laws in those countries and in countries with traditional markets to prevent external competition from harming the local businesses make it even harder to reach those markets and keep operating in them.

Obtain facilitation or exemptions: companies try to get some facilitation from formal entities in Jordan to make their operations easier, with lower competition, and more profitability. For instance, some companies can afford to import raw materials from abroad as they are exempt from tax due to being export related. Other companies have asked for more protective laws to prevent competition. While most companies have been influenced by the re-imposition of tax on exporting.

A licence for a troubled factory that does not work costs 3,000 JOD: one company seems to have faced this problem. This company has suffered losses for the past few years and, even so, is still required by the law to pay for its operating licence or shut down the business. This means that companies have to keep paying for the licence in order to operate in the market.

Shipping

Some disruptive events have had an impact on the interviewed companies' shipping, such as having to change their method of transferring their product to the customers or receiving raw materials, problems with the shipping lorries, or companies no longer being able to insure their shipments, or the insurance premium has increased with lower coverage. Details about each one of those disruptive events can be found in the following few paragraphs.

Transportation and shipment: companies have faced increases in shipping and transporting costs. This was due to several factors: increase in fuel prices worldwide, changing shipping paths mainly from land to sea and air, Having to change shipping methods from lorries to multiple lorries, ships, or even aeroplanes, changes in shipping laws regarding shipping method specifications and product specifications, and new taxes on importing or exporting imposed by Jordan or other countries.

Struggles with regard to their shipping lorries: six companies have faced obstacles while shipping to other countries. In most of the cases, it was due to a change in regulations in importing countries, for example, they had to change lorries at the border, with damage caused to the products while transferring them from one lorry to the other, or change to the shipping path. In other cases, disruption was due to security and checking at the borders, where the products were found to have been defiled and to be no longer usable. In all those situations companies have faced huge losses equivalent to the total price of those shipments.

Export insurance: three companies have claimed that this has influenced them. Those companies pay insurance in case the customers do not pay for the products. But insurance companies stopped insuring war zone countries and classified the countries in the area as orange and red zones, which forced the companies to stop exporting to those countries, pay extra to get insurance that does not even have the same coverage as before, or to take the risk of exporting without a guarantee of receiving payment for their products.

Other

Some of the disruptive events needed to be placed under the “Other” category. These events include Syrian business owners being unable to carry on with business agreements due to businesses not wanting to take the risk of dealing with Syrians who might have connections with Iran. Also, depreciation of machinery that is considered as part of the company’s investment and which at the beginning could have been of high cost for the company. Such machinery is considered part of the production cost until it reaches full depreciation, at which point the production cost will decline significantly and this will have a positive influence on the profitability. In addition, there was influence from the mentality of the leading parties in the company, especially those who do their business based on their personal judgement rather than studies and research, and finally, the value of obtaining certificates for the company and its products was not clear to everyone. Details about each of those disruptive events can be found in the following few paragraphs.

Companies’ owners holding Syrian citizenship: only one company owner from the interviewed companies has Syrian citizenship. This company has faced this disruption due to international laws preventing dealing with Syrian citizens, even though the company itself is considered a Jordanian company and has been dealing with those suppliers and customers for years. Customers and suppliers stopped dealing with Syrian business owners to avoid any risk under the imposed international law called the Caesar Act which attempted to hold the Syrian government and its allies accountable for war crimes. Therefore, those customers and suppliers decided to stop any interaction with Syrians to avoid possible association with the Syrian government.

Depreciation of machinery: a company’s machinery is considered as part of its investment that depreciates over the years. This disruption to companies’ investments seemed to have affected two of the interviewed companies. In the case of C19, the machines have fully depreciated, and the factory is no longer operational, therefore they are not interested in renewing them. In any case, the cost of renewal would not be covered by the company’s extremely low sales level. On the other hand, C28 have bought expensive machinery with high depreciation which is considered as an added production cost. They believe that their current levels of production and sales justify the high depreciation and cost of the machinery.

The Leading mentality: seems to be a factor affecting only one company, whose first generation leaders are only concerned about production and selling in the regional markets, while the second generation leaders are looking at obtaining production certificates and entering European markets. The first generation (founders) believe in carrying on working in the same way, which they think other companies are also doing, while the second generation believe in research and development and investigating business methods and strategies to help them run their company. The second generation also believe that their company, employees, and products should acquire certificates to enhance their operations and market spread.

The local market does not look at the product certificates: only one company has mentioned this. Getting such certificates requires lots of effort and time on the company’s part, and is costly; however, the local market does not seem to give much attention to whether or not a company has such certificates, unlike foreign markets such as the European market.

5.4. Regulation changes

All companies except four (C6, C15, C19, and C21) have claimed that changes to the governing law in Jordan and abroad due to the Arab Spring have affected their operations. Some companies believe that the Jordanian government pressurises them instead of encouraging them. For instance, C25 thinks “*The government looks at the industrialist as if they are a cash cow*” and C04 thinks that “*Jordan’s government looks at the industrial sector as a high commitment, as*

they are the sector with the highest energy consumption". Some companies believe that the governing laws in Jordan are not fair, for instance, the C18 owner said: *"Working in the Special Industrial Zones in Jordan (i.e., Aqaba) qualifies for a work permit and is semi-exempt. When we asked the Ministry of Interior to reciprocate, we were told that they are considered as areas outside Jordan and its jurisdiction"*.

The way that the government is directing the manufacturing industry has led the C12 owner to believe that *"The government has a weak vision. It wants to get better but doesn't have the know-how to do it"*, therefore, he thinks that *"It is necessary to change the economic policy in order to prevent the collapse of companies and the economy in the country"*. Also, the C20 owner believed that this has caused some companies to manipulate the law by *"Closing their companies, as a result of the high taxes, and opening companies with new trade names in order to obtain a tax exemption for a period of 5 years"*.

Figure 15 - Manufacturing Industry - Regulation Change



As shown in Figure 15, there have been several changes to the regulation due to the Arab Spring. Each change has influenced less than half of the interviewed companies. Those changes are explained in more detail in Table 11 below and in the following sub-sections.

Table 11 - Manufacturing Industry - Regulation Change

Theme	Regulations that have Changed	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	
Export Barriers	Suspension of bank credits to some exporting markets.	x	x	✓	✓	✓	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	✓	
	Iraqi borders are controlled by ISIS.	x	x	✓	x	x	x	x	x	✓	✓	x	x	x	x	x	x	✓	x	x	✓	x	x	x	x	x	x	x	✓	x	✓
	The Caesar Law.	✓	x	x	x	x	x	x	✓	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Inability to return to Iraqi market due to its withdrawal from the Arab trade zone.	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Certificate of conformity for Iraq and Saudi Arabia	x	x	x	x	x	x	x	x	✓	✓	✓	✓	✓	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Export to Gulf countries	x	✓	x	✓	x	x	x	✓	x	x	x	✓	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	✓
Labour	Unqualified labour	✓	x	✓	x	x	x	✓	✓	✓	x	x	x	x	x	x	✓	x	✓	x	x	x	x	x	✓	✓	✓	✓	✓	x	x
	Foreign labour residence issuance cost.	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x
	Refugees' working rules and regulations.	x	✓	x	x	x	x	✓	✓	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Continuous increase of companies' bearing percent of employee's social security.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x
Production Laws	New laws regarding importing raw materials with explosive nature.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x
	Jordanian continuous change of regulations	x	x	x	x	✓	x	x	✓	✓	x	✓	✓	✓	✓	x	✓	✓	✓	x	x	x	x	✓	✓	✓	✓	x	x	✓	
	Suspending the law that granted companies the right to work with an alternative source of power.	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x
	Jordan Standards and Metrology Organization (JSMO) changing laws.	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Registration for all materials that go into production not only the final product.	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓
Protection Laws	The governing laws of Aqaba port.	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	✓	✓	✓	x	x	x	x	x	x	x	x	✓	x	x	✓
	Egypt and Iraq product and currency protection	x	x	x	x	x	x	✓	x	✓	✓	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Saudi changing laws on investment opening.	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Inability to export to Syria due to the government's decision to reciprocate.	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Shipping Laws	Changes in shipping laws	x	✓	x	x	✓	x	x	✓	x	✓	✓	x	x	x	x	x	✓	✓	x	x	x	✓	✓	✓	✓	✓	x	✓	x	✓
	Additional shipping expenses	x	✓	x	x	✓	x	x	✓	✓	✓	✓	x	x	x	x	x	✓	x	x	x	x	✓	✓	✓	✓	✓	✓	✓	x	✓
	Israeli shipping laws	x	x	x	x	x	x	x	x	x	x	x	✓	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Table 11 lists the change in regulations faced by the interviewed companies and those companies which have been affected by them. Those changes have been grouped based on themes, however, those themes might slightly overlap due to those changes being interrelated, as can be seen in this section's explanation. For instance, protection laws could lead to export barriers and could also influence shipping laws.

According to the C18 owner: *“There is no fair competition between the industrialist and the merchant. As the government imposes on the industrialist a tax of 16% in addition to the visible costs of production and labour costs, at the same time only a tax of 16% is imposed on the merchant who imports their finished goods without incurring similar costs”*.

Export Barriers

Changes in the working environment that affected the interviewed companies came in a number of forms, such as barriers to exporting. Those barriers include bank representation in some of the countries to which they export no longer being valid, ISIS control of some areas including critical areas such as borders, Iraq no longer being part of the Arab trade zone and its market being saturated with Iranian products, the Caesar Act that forced companies to stop dealing with some Syrian companies and eventually to stop dealing with any Syrian company, conformity certificates requested by some countries and for the same product in the same shipment several times if this product is packed different sized packages, and Saudi Arabia's control over exporting to Gulf countries. More details can be found in the next paragraphs.

Suspension of bank credits to some exporting markets: *“The banking system is the basis of international trade”* (C10 Owner, 2019). The Yemeni market stopped due to the inability to send remittances for products, Iraq and Libya do not have bank representation for making remittances, and the banking system in Sudan imposes restrictions on payment. Additionally, the Iranian market's bank credit has been suspended due to the political situation and restrictions have been placed on companies that have any commercial or financial dealings with this market.

Iraqi borders controlled by ISIS: control of Iraqi borders by ISIS has caused several problems, such as delay of shipments and requests for extra and multiple taxes. Holding of the shipments would depend on the religious sect of the customer and the person in charge on that day. Or the shipment could be destroyed if it was thought that the customer might use it for other purposes.

Inability to return to the Iraqi market due to its withdrawal from the Arab trade zone: according to C08, it is difficult to return to the Iraqi market as a result of its withdrawal from the Arab trade area and the high customs, and the problems concerning exporting to Iraq.

The Caesar Act: *“Congress authorized severe economic sanctions to promote accountability for brutal acts against the Syrian people by the Assad regime and its foreign enablers. As of today, the sanctions provisions of the Caesar Act are fully in effect. Anyone doing business with the Assad regime, no matter where in the world they are, is potentially exposed to travel restrictions and financial sanctions”* (U.S. Department of State, 2020). This law has impacted the continuity of supply chain operations with Syrian companies or any party that might be involved in dealing with them, which had an impact on companies' exports to companies that might be considered to have associations with the Syrian government.

Certificate of conformity for Iraq and Saudi Arabia: Saudi Arabia and Iraq recently (2019), due to the Arab Spring, required all Jordanian companies to issue a certificate of conformity for export through conformity companies that have very high fees and whereby the product is examined to ensure compliance with specifications for each shipment and per weight. The time and cost required to obtain these certificates when considered in relation to the product's nature and the

profit margin might impact the feasibility of whether Jordanian companies can keep operating in those markets or not.

Export to Gulf countries: export to the Gulf countries must be done through Saudi Arabia, which controls the specifications of the products exported to the Gulf countries. One of the changes in the laws from the Saudi government is that it used to allow re-exporting, but it set several conditions for the approval of re-export, including the value of the investment. The Saudi market was affected due to the prevailing conditions (in terms of residence and living expenses), the expatriates there returning their families to their countries, and the decrease in the purchasing power of individuals. This has led to a decrease in the segment that buys the companies' products and consequently the companies' sales have decreased due to the financial deficit. Saudi Arabia began to reduce the value of bids, quantities and items, which reduced the companies' sales. The bids that were offered from Saudi Arabia applied to the entire Arab Gulf region and were of high value and in large quantities, hence the Gulf countries began to rely on manufacturing there instead of relying on other countries. The Saudi budget for education was 25% but it has now decreased to 10%.

Labour

Changes in regulations on labour have affected the interviewed companies in a number of ways, for example, being forced to deal with unqualified labour and not being able to rely on the qualified ones as there are nationality restrictions on hiring employees, the rapid increase in the cost of residence permits for the allowed percentage of foreign labour, hiring refugees is even more complicated due to the number of regulations, and for all hired labour (Jordanian and foreign) companies have to pay a percentage of their employees' social security subscription, and the percentage to be paid by the company to the Social Security Corporation is also increased annually. More details can be found in the next paragraphs.

Unqualified labour: There are no trained Jordanian workers and there is no support from the Ministry of Labour, the Ministry of Interior, or even the Amman Chamber of Industry, to help with training. On top of that is the imposition of unqualified labour from Jordanian's labour force and prevention of use of foreign labour, with the Jordanian labour law stating that the percentage of Jordanian labour in each company will depend on the nature of the business and the sector. When the allowed percentage of non-Jordanian workers is reached, the company can no longer issue work permits for other non-Jordanian workers.

Foreign labour residence issuance cost: drivers for transport lorries were of Syrian nationality, and after the Arab Spring, the cost of residence became six times the previous cost. Also, the cost of work permits for expatriate workers rose from 275 JOD to 650 JOD.

Refugees' working rules and regulations: the presence of limitations from the Ministry of Labour on the jobs that Syrians can perform. The Syrian workers were getting support from European authorities and were afraid of losing it if they worked with companies in Jordan and the possibility of this affecting their chance of immigration. The regulations and instructions do not allow refugees to live outside the camps and there is the difficulty of transferring refugees from the Zaatari camp to the company on a daily basis, in addition to the security measures that must be complied with before leaving or entering the camp, which takes approximately 5 hours a day.

Continuous increase of companies' bearing percent of employees' social security: the continuous increase in the social security rate that the company has to pay for its employees.

Production Laws

Changes to production laws that have affected some of the interviewed companies include new restrictions and guidelines for material of an explosive nature due to the fact of being in a war zone area, the continuous change in regulations or removing of facilitation and exemptions by the Jordanian government, stopping of permits to use alternative sources of power like the solar system, new JSMO regulations regarding manufacturing and energy use, and now some companies have to register all the materials that go into production rather than just the final product. More details can be found in the next paragraphs.

New laws regarding importing raw materials of an explosive nature: importing raw materials such as gunpowder and explosives for production, which are substances used in the manufacture of weapons. Given the political situation in the neighbouring countries and the fear of misuse of these materials, there is greater monitoring from the government of importing and using such materials. A policeman comes to the company every time such materials are imported to ascertain where they are placed, how they are used, and everything related to them. The company has to provide a room for these materials, which needs several keys, each key is kept by a different employee and the primary key is kept by the company's management in order to impose control over these materials and ensure that they are not misused. Even though some companies used to import those materials before the turmoil, worry over their misuse or even that those companies could become a target for someone else who might misuse them has led the Jordanian government to impose this regulation.

Jordan's continuous change of regulations: there have been frequent changes in the governing laws in Jordan that have impacted companies' operations. In order to reduce the economic impact of the Arab Spring on the country, the government had to increase taxes and electricity costs, imposing a 2% tax on previously exempted goods, and imposing a 5% tax on exports. Previously in Jordan, export was exempted from sales tax, but now it is subject to tax at 16% of the price. Any change to the law affecting the population in Jordan (Customers) will influence their purchasing power. All those changes in regulations have directly impacted the production cost and companies have followed different paths to deal with this cost increase, as will be explained in the next section 5.5 of this chapter.

Suspending the law that granted companies the right to work with an alternative source of power: due to the issuance of a decision regulating the energy sector in general. The cost of producing solar energy was equivalent to 12 piasters and rose to equivalent to 1.5 piasters, and if everyone resorts to using alternative energy this may cause a financial problem for the government because energy is one of its sources of income. Relying on solar energy requires large areas for placing these cells. In addition, the government does not allow their placement in desert areas.

Jordan Standards and Metrology Organization (JSMO) changing laws: they set basic conditions concerning energy efficiency in 2014. And they set conditions concerning the manufacture, import and export. The sector succeeded in postponing the imposition of these conditions until 2016, with companies taking advantage of these two years to sell what parts they owned of devices that did not comply with the terms and standards and to modify their production lines to conform to the new standards.

Registration for all materials that go into production, not only the final product: C03 reported that European markets (Netherlands, Spain, Italy, and others) imposed new procedures and conditions for registering all the materials that go into production, not only the final product. C29 reported that the company's raw materials must have certificates proving that they can be used for drug storage. The supplier must be approved according to international standards, have a good reputation and hold certificates.

Protection Laws

Changes to countries' laws to protect their businesses have also affected some of those interviewed companies, including Aqaba being considered a free trade zone and not being governed by the Jordanian laws, some countries protecting their foreign currency from leaving their markets and adding restrictions on entry for anyone from outside this market, some companies now have to register all the materials that go into production, reciprocal treatment with other countries to avoid mistreatment and negative impact on Jordanian business. More details can be found in the next paragraphs.

The governing laws of Aqaba port: workers in Qualifying Industrial Zones in Jordan are semi-exempt from having work permits, and they are considered areas outside Jordan and the scope of their powers. The Jordanian law does not protect Jordanian manufacturers, but it provides facilities for foreign competitors in free zones, such as tax exemptions for a period of ten years from income tax, which is 14% of net income, and from sales tax at 16%. This policy presents obstacles for companies in Jordan; for example, the Aqaba region is a special economic zone and can easily import from any region outside Jordan, especially since it does not have to follow the Jordanian laws and taxes in terms of industry and economy. The Aqaba market is no longer considered part of the Jordanian market. Another obstacle for companies in Jordan is that shipping costs from the port of Aqaba to Amman are equivalent to shipping costs from Shanghai to Amman (600 JOD/ truck). The cost of transporting a container from China to Aqaba is \$1,000, and the cost of transporting it from Aqaba to Amman is \$3,000. The cost of shipping goods from any country to Aqaba port is double the cost of shipping them to the Dubai port since countries avoid shipping to Aqaba due to its mismanagement, delays that occur to ships, continuous strikes, and other related problems.

Egypt and Iraq product and currency protection: Egypt put in place a new law to protect Egyptian products and to prohibit imports, except for factories, to prevent control by traders. Iraq did the same, which means that exporting to Egypt and Iraq has become impossible because of the impediments to protect their product or to protect foreign currency (\$) from leaving their markets.

Saudi Arabia's changing laws on investment opening: as a result of the Arab Spring and the Syrians and Yemenis transferring their production to Saudi Arabia, Saudi Arabia began to change its regulations and laws that allowed the opening of companies to operate in it without prior notice. Each year the registration licence must be renewed and under more difficult conditions than in the previous year. For instance, the Saudi government used to allow factories to be opened inside Riyadh, but now factories have to be 80 km away from Riyadh for the development of remote areas.

Inability to export to Syria due to the government's decision to reciprocate: the decision to apply reciprocity with Syria came as a result of the industrial sector's demand, as the process of importing from Syria had a negative impact on local industrial products. The trade exchange with Syria should be on an integrative basis according to the principle of (win-win), so the goods needed by the Jordanian market are imported, while the goods needed by the Syrian market are exported without harming one party at the expense of the other.

Shipping Laws

Changes to shipping laws that have affected interviewed companies include addition of an export tax and changes to the specifications for the shipping trucks; also, added expenses for shipping coming from changes in shipping methods or shipping requirements, and specifications for shipping by the Israeli government. More details can be found in the next paragraphs.

Changes in shipping laws: Added export tax of 5%: the export tax exemption was suspended, and export support has been discontinued. The Saudi government requires closed trucks for transiting shipments through its territory to other countries; the cost of shipping was equivalent to 950 JOD and rose to equivalent to 1,500-2,000 JOD. Limits have been imposed on the quantities exported to Iraq through Saudi Arabia and it is necessary to change trucks at the Iraqi borders.

Additional shipping expenses: export to countries by sea instead of land. for example, export to Iraq by land used to cost \$1,000 but now export is via the sea and the cost has risen to \$7,000-8,000. There is the extra cost of using different trucks at the Iraqi border. The additional cost is a result of the additional tax from Saudi Arabia (5%). In the Lebanese market, after the borders were reopened, the customs imposed increased to 12%. And a new customs tax of 12% was imposed on the Palestinian market.

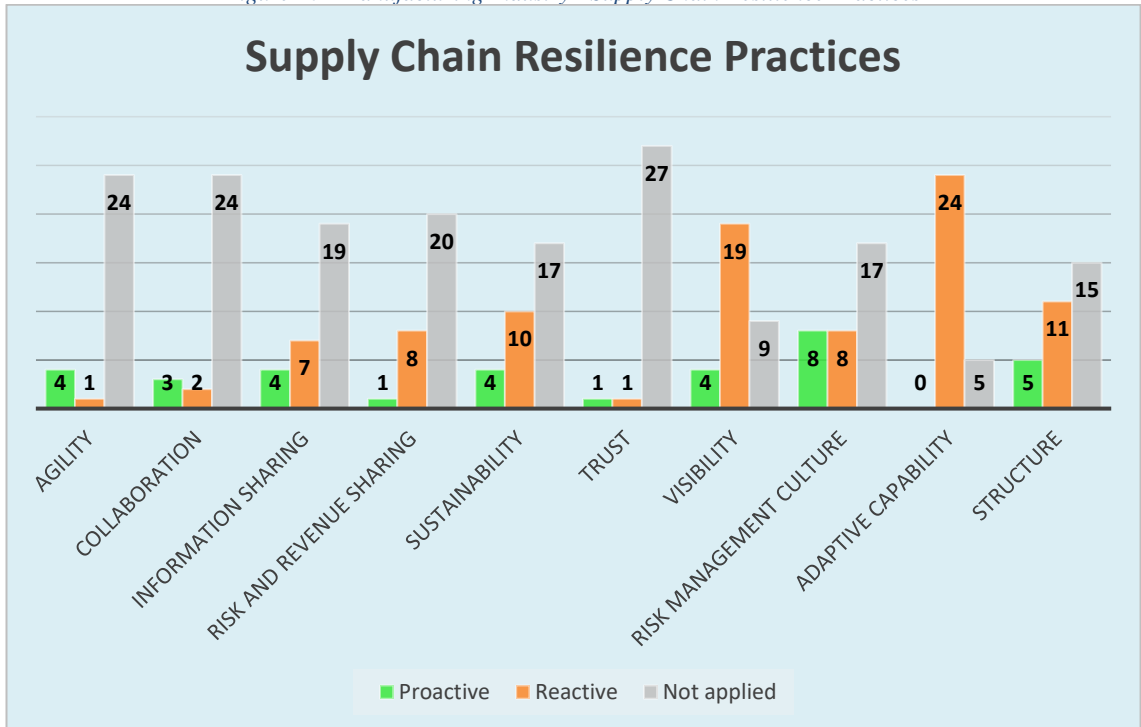
Israeli shipping laws: Exports to Palestine are limited due to the existence of agreements with Israel that place limits on the quantities of such exports, also there are conditions on the height of the trucks, which reduces the number of boxes shipped.

5.5. Supply chain resilience practices

Supply chain resilience is the ability of the company to return to its original place after facing a disruption, in a reasonable time. This includes its ability to overcome the disruption or even try to take advantage of it and reach a better place. According to the interviewed companies, working in Jordan is hard as it is hard to predict what might happen in the future. C02 owner thinks: *“Working in Jordan makes you work on a daily basis because it is hard to predict what might happen in the future”*. C28 owner agrees that *“The Arab Spring helped the companies to see that nothing should be taken for granted all the time and that they have to be always ready to accept and deal with any new situation”*. This has caused C10 to believe that *“Policies and corporate philosophy are growing slowly and must be flexible in order to survive, where every year a small development takes place to push the company forward”*. Moreover, *“Administrative work involves diligence as each company has its own nature and requirements according to its sector”*. However, some companies might choose practices that would increase the pressure on them. For instance, C12 sees that *“Currently, companies salute their companies by overburdening them (loans). As if you are currently in the middle of the sea, you cannot go back, and you cannot carry-on”*.

Companies' ability to react or adjust to any situation increases their ability to overcome risks, especially for those companies who work on markets with unstable demand (Kumar et al., 2018).

Figure 16 - Manufacturing Industry - Supply Chain Resilience Practices



As shown in Figure 16, it is noticeable that the companies tend more toward not adopting supply chain resilience practices than adopting them. Moreover, when adopting supply chain practices, companies are more likely to be reactive than proactive. The most adopted practice before the Arab Spring was risk management culture. The most adopted practice after the Arab Spring is adaptive capability. The range from the most adopted practice to the least adopted practice is: Adaptive Capability (24), Visibility (22), Risk management culture (17), Structure (16), Sustainability (14), Information Sharing (11), Risk and Revenue Sharing (9), Agility (5), Collaboration (5), Trust (2).

Table 12 - Manufacturing Industry - Supply Chain Resilience Practices

SCR Practices	Agility	Collaboration	Information Sharing	Risk and Revenue Sharing	Sustainability	Trust	Visibility	Risk management culture	Adaptive Capability	Structure
C01	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied
C02	Proactive	Not applied	Not applied	Reactive	Not applied	Not applied	Reactive	Not applied	Reactive	Not applied
C03	Not applied	Proactive	Reactive	Not applied	Not applied	Not applied	Proactive & Reactive	Proactive & Reactive	Reactive	Not applied
C04	Not applied	Not applied	Reactive	Not applied	Not applied	Not applied	Reactive	Not applied	Reactive	Reactive
C05	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Reactive	Not applied	Not applied	Not applied
C06	Not applied	Not applied	Not applied	Reactive	Not applied	Not applied	Not applied	Reactive	Reactive	Not applied
C07	Proactive	Not applied	Proactive & Reactive	Not applied	Proactive & Reactive	Reactive	Reactive	Not applied	Reactive	Proactive & Reactive
C08	Not applied	Not applied	Not applied	Not applied	Reactive	Not applied	Reactive	Proactive	Reactive	Reactive
C09	Not applied	Not applied	Not applied	Not applied	Reactive	Not applied	Reactive	Proactive	Reactive	Reactive
C10	Proactive	Not applied	Not applied	Reactive	Reactive	Not applied	Proactive & Reactive	Proactive	Reactive	Proactive
C11	Not applied	Not applied	Reactive	Reactive	Not applied	Not applied	Reactive	Not applied	Reactive	Not applied
C12	Not applied	Reactive	Reactive	Not applied	Not applied	Not applied	Not applied	Reactive	Reactive	Not applied
C13	Reactive	Not applied	Not applied	Reactive	Reactive	Not applied	Reactive	Not applied	Reactive	Reactive
C14	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied
C15	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied
C16	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Reactive	Not applied
C17	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Reactive	Proactive	Reactive	Reactive
C18	Not applied	Not applied	Not applied	Not applied	Reactive	Not applied	Not applied	Not applied	Reactive	Reactive
C19	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Reactive	Proactive
C20	Proactive	Proactive	Proactive	Proactive	Proactive	Proactive	Reactive	Proactive & Reactive	Reactive	Proactive
C21	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied
C22	Not applied	Reactive	Not applied	Not applied	Proactive & Reactive	Not applied	Reactive	Not applied	Reactive	Reactive
C23	Not applied	Not applied	Not applied	Reactive	Not applied	Not applied	Reactive	Reactive	Reactive	Proactive & Reactive
C24	Not applied	Not applied	Reactive	Not applied	Reactive	Not applied	Reactive	Reactive	Reactive	Not applied
C25	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Reactive	Proactive & Reactive	Reactive	Not applied
C26	Not applied	Not applied	Not applied	Not applied	Reactive	Not applied	Proactive	Proactive	Reactive	Not applied
C27	Not applied	Not applied	Proactive	Reactive	Proactive	Not applied	Reactive	Not applied	Reactive	Reactive
C28	Not applied	Proactive	Reactive	Not applied	Reactive	Not applied	Reactive	Proactive & Reactive	Reactive	Not applied
C29	Not applied	Not applied	Proactive	Reactive	Not applied	Not applied	Reactive	Proactive	Reactive	Reactive
Cells Colour:		Proactive		Reactive		Proactive & Reactive		Not applied		

Above, Table 12 lists each company, which practices it has adopted, and whether proactive, reactive, or not applied. This section will provide more details about each and every one of those practices, what practices were been adopted prior to the Arab Spring, what practices have been adopted due to the Arab Spring, and which companies have failed to adopt any of the supply chain resilience practices. However, it is noticeable that some of those practices adopted by companies can be considered to reflect more than one supply chain resilience practice. For instance, multinational companies have adopted some of those supply chain practices due to having mutable branches that are sharing information, sharing resources, sharing knowledge, and dividing risk right across the company. Therefore, some practices adopted by some companies can be mentioned in multiple places as they are relevant to more than one supply chain resilience practice.

In looking at the previous Chapter 4: Interviewed Companies and linking the findings to the discussion in Chapter 2: Literature Review, this research relied on the criteria set out by Soni et al. (2014) as they were considered more comprehensive.

5.5.1. SCR Practices Proactive Adoption

Proactive supply chain resilience can be defined as companies' ability to structure their companies in a way that helps them to predict and overcome any sudden or unpredicted disruption that they might face and in a way that would help them to maintain control over their function and if possible to have a better position in the market which could lead to gaining a competitive advantage (Ponis and Koronis, 2012).

5.5.1.1 Agility

C02 has adopted agility from the very beginning of the company's establishment. This company owner is the person in charge of creating the mixtures for the products, which relies on her ability to study the possibility of change and apply it in an easy and fast way. As the responsible person for mixtures, she can modify them to enable the company to cope with any changes and requests driven by its markets or customers. This helps the company to adapt to all the requests for different products and to enter new markets with new products based on those markets' requirements. This happened when the company entered a European market based on Dead Sea products that it had never produced before, to overcome the loss of the Iraqi market.

C07 relies heavily on the efficiency of its employees and considers that it has many competencies working in the company that help the company to decide quickly on the modifications needed when facing disruptions. Relying on its employees' capabilities helped the company to stay in the market as, since the beginning of 2018, the company has been holding periodic meetings to work on the exit plan from the market. It was expecting to exit the market within a month or two, and every time it found an alternative initial solution to stay in the market, but until this moment has found no real solution to overcome the crisis.

C10 has adopted agility, which also could be due to its experience in the market. This company has relied heavily on building a strong relationship with its customers, a relationship that is based on trust and loyalty through continuously providing them with the best quality product in the market at reasonable prices and the product being always available on the shelves. This strong relationship helps the company to keep its markets, as even with some markets being in red and orange zone countries the company refused to cut those markets and preferred to keep its working chain. Its customers appreciate this

relationship and tend not to switch to a lower price competitor and even trust the company sufficiently to transfer the price of the products before they are shipped from Jordan. C10 claims: *“One of the things that helped the company overcome this crisis is the quality of the product, the company's long history and customer loyalty”*. Having this kind of relationship had helped C10 to react to and overcome the upcoming delay for raw materials and the consequent delay in production and shipping. Also, their customers can trust that even with all those obstacles the company will manage to continue dealing with them, it might just require more patience from their side. C10's ability to keep the same supply chain (supplier and customers), when most of the other companies found it to be impossible, helped it to shortly get back to its original place despite the disruption.

C20 applies agility by relying upon all its branches. If any branch in any country faces a disruption, this branch gets the needed help from other branches in order to keep working. For instance, if any branch faces a problem finding a raw material supplier, this branch can request those raw materials through another branch.

5.5.1.2 Collaboration

Due to the difficulties with global competition and the availability of raw materials in Jordan, C03 company worked to attract international companies and to urge them to manufacture through the company, where the raw materials are located and at a cost less than exporting and producing them in their countries. C03 started with a Canadian company, which was exporting two containers annually to Jordan, then the company's production rose to 300-400 containers annually through the Jordanian company's licences. After the success of the Canadian company cooperation, the same idea was applied with other international companies (12 companies) in different countries, including Italy and China (it was unusual for a country to export to China since most countries import from it). Also, C03 does not operate locally due to the stiff competition from international products in the local market, in addition to the fact that a number of these competitors are the customers of the company and it should not compete with them. Therefore, as C03 did not want to lose the local market, it engaged in cooperation with one of its customers (a commercial company) to produce fertilisers under their commercial name and sell them to them at a preferential price, then this company would market and sell this product by adding a profit margin to it. Additionally, sometimes the company ships the goods to the customers of its customers, as a kind of facility provided by the company to its customers, according to the agreement concluded between it and the customer.

C20 purchases its raw materials through its branches in other countries because it has 16 branches all over the world. The company branch purchases the raw materials and supplies them to the required branch after adding a small profit margin, as intercompany raw materials purchasing. Additionally, C20's policy is to distribute exports among its company branches by region. This engages C20's multiple branches in communication with suppliers, from whom they also might be able to negotiate better prices when ordering a larger quantity, and it helps in dividing customers' orders efficiently, and means they can run the production in a way that prevents branches from having over or under capacity production.

C28 is one of the few companies in Jordan that exports goods for other companies as a sign of cooperation and assistance. The company is integrating its work with other Jordanian companies by making agreements with these companies in order to help them export their goods abroad. This has been one of the company's policies since its first establishment, the company believing in the principle that two hands are better than one.

5.5.1.3 Information Sharing

C07 had communication with the Ministry of Public Works & Housing which indicated to C07 that payment on a project would be suspended, although to prevent work on the project stopping, the exact date of suspension was not given. Therefore, while the company knew about it, because they did not know the date of suspension, they had to continue working until the funding stopped.

There was an information-sharing policy within C20's supply chain. For example, suppliers would tell the company about the possibility of future shortages in raw materials so that the company could have enough time to either purchase and store them until needed or search for an alternative supplier.

C27 had communication with one of the customers in the Iraqi market, who alerted the company about what might happen as a result of the turmoil, but the company did not take it into consideration as it believes that risks must be taken in business, despite the threat of disruptions, in order to continue working to achieve a return on the product.

C29 signs a pledge to its customers that in the event that it changes any of the manufacturing materials, it must inform the customer and conduct a complete re-examination to ensure the integrity of the packaging and avoid affecting the drug's interaction with it. Discussions regarding successful and unsuccessful practices and advising and counselling exist only at the company group level and are not discussed with any other company in the sector. In addition, the group is always working on accessing as much information as possible from customers to try to predict the future of the company in terms of the demand. There was also cooperation within the group on searching for common strategies across departments in order to reduce costs for the company and find ways to increase its sales.

5.5.1.4 Risk and Revenue Sharing

C20's policy is to distribute exports among its company branches according to the region. The company also did not need to take out any financial loans, as the company's branches support each other.

5.5.1.5 Sustainability

C07 was established from the very beginning to support the idea of sustainability; its smelting industry is green as it is based on the recycling principle.

C20 specialises in construction chemicals and creates solutions for construction companies in order to achieve the most ideal construction in terms of purpose and form, which helps them to avoid wasting materials or energy.

C22 has from the very beginning concentrated on sustainability; it uses all the waste from the presses, which is placed in the mixers to be turned into fibres and then turned into egg dishes, apple dishes and fruit dishes.

C27 has adopted the slogan "*Go green, it's clean*" as it seeks to reduce the negative effects on the environment and sells the waste from the production to recycling companies and obtains certificates from them that explain what will be done with this waste.

5.5.1.6 Trust

C20 has an internal system (2007) (ERP System/ DACs Life) that enables any department from any branch to access the information of other branches of the company under its management.

The company is also working on developing the company's website so that customers can share their opinion of the company's products in order for all product managers to share all this information and use it in the future.

5.5.1.7 Visibility

C03 does not stock any products and only manufactures based on demand, which may differ from time to time in terms of specifications or packaging; hence, the preparing time is equivalent to the waiting time (the time taken to finish orders for other customers) in addition to the production time.

C10, in the case of packing materials, must maintain a fixed stock (reserve) in addition to the necessary quantity for the period from the time when the goods were ordered to their arrival. This made it hard to continue trading with Turkey, as storing all these quantities of packing materials constitutes a burden on the company in terms of storage volume, storage conditions and cost. This forced the company to resort to using Jordanian factories to produce storage containers. Maintaining a level of inventory at the company at all times protected C10 from production pausing when its suppliers faced disruption that might have impacted their ability to supply C10 with the needed materials and gave C10 time to find alternative ways to reach its suppliers or even find new ones.

C26 has a policy of always meeting demand, as it always keeps a stock of its raw materials (3 months stock) in order to maintain the workflow even if there is a delay in the arrival of raw materials.

To reduce the risk deriving from reliance on sole suppliers for raw materials, C29 keeps a high stock of these raw materials to avoid the risk of losing access to these materials and to give the customer time to obtain new approvals in order to exchange one of the materials and to re-analyse in the event of losing this resource.

5.5.1.8 Risk management culture

C03 usually buys raw materials from multiple suppliers in order to reduce the risk of losing supplies, even though some suppliers might be more expensive, and ensures that it maintains good communications with all its suppliers.

C08 has a corporate strategy whereby the company must always prepare for the tough times, even in the good times. The company always looks at its future plans and strategies in advance and does not wait until it faces a problem and is forced to act.

C09 addresses this by having multiple suppliers and multiple customers to reduce the influence of losing any of them and the delay that this might cause. It has at least two suppliers for each raw material used and on the customer side has 27 customers/ countries, so if a customer is lost the others will compensate.

C10 has 30 customers/ countries so if they lose a customer the others will compensate; as the owner of C10 described it: *"Not to put all your eggs in one basket"*. C10 continued to export to Yemen to ensure that the market was not completely lost, first sending the goods to Saudi Arabia and then making two invoices for the goods due to the presence of two governments in Yemen, each invoice representing half the value of the goods.

C17 has conducted sales analysis on a monthly basis from the beginning, which helps it to predict the loss of markets.

C20 is concerned primarily with public safety. The company also has the highest levels of Quality in Health and Safety, which means that every person must, before entering the company, receive information related to public safety, and every person must wear appropriate/special clothing before entering the factory.

C25 has a company policy of not relying on a single supplier. When the company needs raw materials, it requests most of the quantity from the main supplier and requests the remaining part from another supplier, to avoid the risk of not receiving the materials in case the main supplier has any sort of disruption; therefore, for each raw material, the company relies on more than one supplier.

C28 has three suppliers for each raw material and started with this practice when it obtained certain certificates, including ISO9001 for quality and 22000 for food safety.

5.5.1.9 Adaptive Capability

Some of the interviewed companies adopted this practice in the previous disruptive event that they faced before the Arab Spring. However, this study only looked into practices concerning disruption caused by the Arab Spring.

5.5.1.10 Structure

C07 was established in 1992, but it was faltering until the parent company acquired it and put it back in business in 2000. This acquisition transformed C07 from a small independent company to part of a larger company with a better position in the market. This helped C07 to avoid exiting the market and to keep operating with the help of all the companies under its parent company. All those companies under the parent company, including C07, work together to help if any of them face disruption.

C10 has developed a horizontal spread through diversifying its field of operation, and hence does not depend on one country or one market for its raw materials or its sales.

In the case of C19, when Chinese goods entered the local market (2006) and the cost of importing rolls became much cheaper than producing them, the company was no longer able to compete, therefore, the company started just to cut and sew the items and then sell them. C19 also had a partnership with a carpet factory. But this factory stopped working 10 years ago. This company found that closing the factory, selling its machines, and renting the land yielded a greater profit than continuing with its previous operations.

C20 is a British international company that operates in 16 countries so far, including Britain, Jordan, Indonesia, Malaysia, Dubai, Saudi Arabia, Kazakhstan, and others. The parent company is continually looking to open new branches in different locations and all those branches work together to overcome any disruption that they or even their supply chain may face. For them, the greater their worldwide spread, the stronger they believe they will get.

When C23 was founded, its activities were in stationery (erasers, pencils, and school supplies). In 2003, its activity shifted to the manufacture of plastic bags. In 2008, a second factory was opened to manufacture plastic containers for ready-made meals. In 2012, a third factory for plastic cups was opened. In 2014, a fourth, a cork factory, was opened for ready meals (packaging dishes).

5.5.2. SCR Practices Reactive Adoption

Reactive supply chain resilience can be defined as a company's ability to respond to and recover from disruption after it happens, in a way that helps it get back to its previous status or a better one with minimum losses in the shortest possible time (Chowdhurya, and Quaddus, 2017).

5.5.2.1 Agility

C13 restructured its supply chain, trying to be more agile. It has done this by entering richer markets such as the European markets that can afford higher selling prices, which will help the company to compensate for any additional costs, now or in the future. This will help it to overcome any disruption that might affect the region's markets or any issues related to the prices in the future.

5.5.2.2 Collaboration

There are associations established by the manufacturers themselves (C12 is one of the founders) in order to increase communication between manufacturers and help them increase cooperation among them, increase intra-trade, reduce imports and reduce the trade balance deficit (between exports and imports). An exhibition was held through this association for the printing and packaging industries. One of the observations was the astonishment of some manufacturers at the level that the Jordanian factories had reached in this sector in terms of making a product of high quality and specifications. The establishment of the association encouraged industrialists to share ideas and practices that would help them to survive and thrive in the market and to increase cooperation among them.

In 2012, C22's factory was closed due to the Arab Spring, and the machines were sold to a Saudi company. An agreement was reached with the Saudi company for C22 to share its know-how, provided that the entire production of the Saudi factory would be sent to C22 for selling in the markets. In return, the Jordanian company provides raw materials for industry and chemical materials, in addition to expertise on how to manufacture or maintain equipment.

5.5.2.3 Information Sharing

One of the strategies that C03 has adopted in order to reduce the negative impact of the Arab Spring is to present a field day (Open day) for its customers to show them that it is still able to work and produce and that it is able to introduce new products if they desire them.

C04 worked on spreading awareness that implementing the correct practices in order to overcome crises and reduce the negative impact was essential to the company, which was one of the reasons behind the establishment of the East Amman Industrial Investors Association. As this association is an individual activity of industrialists, the Ministry of Industry had no role or relationship in its establishment.

C07 has also engaged in information sharing. C07, in cooperation with the Ministry of Public Works & Housing, reduced the import of iron from abroad by spreading awareness of the preference for iron in Jordan.

C11 has started to use information sharing. It did this through its sales representatives who were made responsible to determine the exact market need in order to avoid materials shortage or surplus, also they were responsible to decide which customers to work with or not to work with.

C12 communicates with the supply chain through sales representatives who anticipate the market need or any disruption that may occur or the position of competitors in the market.

C24 has advised other industrialists on adopting practices that it implemented successfully, to preserve their companies and expand the scope of work, but some of these industrialists are afraid of expanding the scope of their work due to what may happen in the future (cowardly capital).

C28 provides advice to other manufacturing companies regarding the practices it has carried out and the extent of their negative or positive impact on the company.

5.5.2.4 Risk and Revenue Sharing

C02 reduced its prices and bears the increase in taxes to maintain its competitiveness due to the high costs on its customers.

A portion of C06's increased costs is being shared by customers. C06 owner believed that his company is not responsible for any increase in costs. Therefore, all the additional costs have been added to the production cost, leading to higher prices. C06's customers had no choice but to pay the higher prices due to low competition in the market and lack of alternative product providers.

C10 kept its prices the same despite the increase in the costs. It did this to help its customers to continue dealing with it and to help them to avoid facing extra costs, realising that this economic instability is affecting everyone. C10 believed that handling part of the increasing costs for its customers would likely keep them with C10 for a longer period of time. It also covered some additional costs such as the certificate of origin as not doing so might affect the possibility of continuing in the Saudi and Iraqi markets.

C11's suppliers shared some costs with the company to help it overcome the increase in costs due to the turmoil, since the company was at risk of leaving the market due to not being able to cover the increased cost, especially with the additional issue of losing markets. This cost sharing helped the company to recover, in particular at the beginning of the disruption, and to be able to compensate for the lost markets. Through this strategy the suppliers reduced their profit margin but they did not lose all of it.

C13 also lowered its profit margin in order to cover the additional costs and avoid raising its prices so it could retain the same customers.

C23 expected all its factories to bear any loss or decline in order to reduce its impact. C23 has four separate factories that under normal circumstances operate separately, however, under any sort of disruption those factories start to work together to help reduce the negative impact of that disruption on any one of them.

C27's suppliers have shared the increase in costs for raw materials with the company. Also, C27 did not charge this increase in raw material cost to its customers.

The Iraqi customers of C29 changed the shipping method to avoid the obstacles of land freight, and shipping was instead done via sea freight through Turkey, with the company working to share these costs and risks with its customers by reducing prices.

5.5.2.5 Sustainability

C07 has added to this practice by using solar energy in the factory but it has not been used for all parts of the factory because the factory is not operating at its full production capacity at the present time. Also, C07 is currently conducting experiments on the use of alternative energy generated

from wind (wind energy). This energy is used in Turkey, but it is the company's policy to train the workforce to work on its production and develop their skills. C07 is currently searching for ways to benefit from production using waste instead of getting rid of it; for example, it sold iron waste to another company which in turn mixed it with building cement to make it stronger and more durable for construction.

C08 made adjustments to the gases used in the devices produced in order to reduce their environmental risk through a governmental grant from the Ministry of Environment in 2014 that is worth €160,000.

C09 is implementing a solar energy system to reduce the continuous increase in energy unit costs.

C10 has also implemented a solar energy system to reduce the continuous increase in energy unit costs.

This turmoil prompted C13 to prepare for the future within their industry by developing and using modern technological methods and investing better in their sector in the hope that the future will be better, and that the company's readiness will be better with regard to the markets.

C18 worked to reduce costs by reducing the number of workers and reducing electricity consumption. C18 also submitted a request to implement solar energy.

C22 has continued to add to its sustainability practices through applying to the Ministry of Energy for a loan of 350,000 JOD (support for industrialists) for 5 years, without bank interest, in return for reducing energy consumption, based on the submission of a feasibility plan and implication plan showing how it would work (JREEEF, 2021). The company presented a study on newer machines than the ones currently used that would offer better production with a higher production capacity and less energy consumption, to use for work on re-production of egg dishes in Jordan. C22 also submitted a request to convert to use of solar energy in order to reduce costs, and is waiting for approval.

C24 believes that the plastic industry within the scope of the company's work, in general, does not harm the environment. The new containers weigh 12 g compared to 20 g in the past, which means that smaller quantities go for recycling.

C26's remnants from production are taken by recycling companies and used as their raw materials.

C28 recently (2019) signed a support coordination agreement with the Canadian government in order to encourage people to use compostable and biodegradable materials instead of using plastic. The new material degrades within three months, while plastic usually takes 100 years to degrade. C28 also obtained several certificates, including 14000 for the environment.

5.5.2.6 Trust

C07 has speeded up its decision making by introducing less formal methods of communication and discussion, one of which is to use groups on WhatsApp according to various categories, to shorten the time needed for consultation through e-mail. Also, the company has worked to delegate more powers to the employees to increase the flexibility and speed of work.

5.5.2.7 Visibility

Currently C02 exports to Iraq via the sea. Closure of the Syrian border forced the factory to search for new markets and customers; therefore, the company participated in exhibitions to market its

products in order to enter the European and American markets, one of which was held in Bologna, Italy, the other one in Las Vegas, USA. However, since these markets do not buy the traditional preparations, the company provided products that are unique to Jordan, namely Dead Sea products.

C03 started shipping goods to Iraq via Turkey through Turkish companies who ship goods to Iraq, or by shipping directly to Iraq, but only with a few companies that can bear the procedures and shipping costs. This came as a result of two separate shipments being sent to the Iraqi market, each one at the equivalent of \$40,000, but the Iraqi army kept the goods because they were fertilisers and potentially explosive materials, with the company incurring all these losses. After all, the customer did not receive the goods.

C04 exports to Iraq via indirect routes: first to Saudi Arabia, then to Kuwait, and then to Iraq through Safwan. C04 worked to double the fleets and salesmen to increase the market share.

C05 also exports to Iraq indirectly via Saudi Arabia, then Kuwait, and finally to Iraq through Safwan.

C07's raw materials that are used in the manufacture of reinforcing steel (coal) were imported from Egypt, and as a result of the Arab Spring this stopped but materials continued to be imported from Syria through the port of Tartous, also Saudi Arabia became one of its suppliers. Additionally, C07 worked on marketing campaigns and organised exhibitions for contractors in order to expand the circle of customers and find products that would meet new customers' needs in order to compensate for the lost markets.

C08 is maintaining its export market as much as possible; its Lebanese market still exists, but in a small way, and exports are carried out by sea. Regarding exporting to Egypt, the company tried to keep this up, but after a short period the costs became very high and the export stopped.

C09 was shipping to Lebanon by sea, but this was an inefficient method as it took 18 days instead of 3, in addition to the shipping and storage costs, so 25% of the product price was eaten up by logistics expenses.

In order for C10 to keep importing to its markets, it started, for instance, to import to Yemen by importing to Saudi Arabia and then shipping the goods on from Saudi Arabia to Yemen. Also, goods were shipped to the Iraqi borders and then transferred from Jordanian trucks to Iraqi trucks. In addition, export to Iraq was shifted to sea transport, which led to the transportation of goods first to Aqaba, then Saudi Arabia, then Aden, then to Basra, and then to Baghdad.

C11, in the past, used to order raw materials when needed and they would arrive at the company within 3-5 days from Syria or Lebanon, but due to the disruption, the company has no choice but to purchase large quantities that are sufficient for a year and then store them.

C13 raised liquidity in its company in order to keep the level of work as before by keeping a larger inventory to meet the customer's need on demand. The cessation of import or export to countries that suffered from the Arab Spring and its consequences was expected by the company based on its assessment of the events. Nevertheless, work and demand continued until trade was forced to stop as a result of the closure of the borders, which led the company to export the ready orders by sea, especially since they were private label products. C13 managed this by increasing its inventory level so it would not have any material shortage that might deter acceptance of new deals or customers.

C17, when shipping to Iraq, needs to ship first to the Iraqi borders and then use Iraqi trucks to ship to the customer. C17 was no longer able to supply Qatar by land through Saudi Arabia, and it had to ship by sea, incurring higher costs and a longer period of time (the previous 3 day journey

became 30 days). Also, the Lebanese market was affected as a result of the Arab Spring, forcing the company to ship by sea and when the borders were reopened, the customs imposed by the Lebanese market increased to 12%. The company has adopted a new marketing policy, which is to increase its reliance on social media to market its products and expand its scope of work. The company has also participated in many exhibitions (including in Germany), and this has helped it reach customers all over the world. The company is currently working on a study to enter the U.S. market through a free trade agreement, as the cost of exporting a container is 3,500-4,000 JOD, which is equivalent to the cost of exporting to neighbouring countries.

C20's policy is to distribute exports among the company's branches according to the region. Therefore, the company's branches in other countries worked to find new markets for the company by informing it of the locations of projects around the world, and in the event that the company was unable to export directly, it would export through its branches.

C22 made an agreement with a Saudi company for the entire production to be distributed throughout the region.

C23 opened new markets far from the countries of the region involved in the turmoil, such as Morocco and Algeria. C23 is also attempting to open a regional office in Sweden, and the official request has been submitted, but until now there has been no response regarding the request.

C24's orientation to the local market led to an increase in its sales to a degree that compensated for the loss of foreign markets, in addition to increasing sales. The local market demand increased due to local companies that used to import from Syria, Egypt and Turkey no longer being able to import and having to resort to the local market. C24 is working to increase the number of employees, open additional local and foreign markets, attract new customers, increase productivity, purchase newer machines, and increase marketing for its products.

C25 stopped using its own distribution cars and asked companies that own trucks to send their cars to receive their goods.

C27 started to work with the British and American markets (2016) after its problems in the Iraqi market. C27 also participates in international exhibitions in order to improve its chances to reach new customers from non-traditional markets.

C28, as a result of the suspension of exports to its main markets of Iraq and some Arab Spring countries, turned to new markets such as European markets and America. C28 also increased its focus on the local market to compensate for the export loss. Additionally, C14 began working on inventory management in order to reduce waste and storage costs.

C29's method of shipping to Iraqi customers has been changed to avoid the obstacles to land shipping, and shipping has become maritime through Turkey, with shipments taking 4-6 weeks instead of 6 days. In addition to logistical problems, the company ships to the farther port because it is safe, but this makes it difficult for the customer to transport and access the shipment. Also, the company has worked to introduce new products to the market in order to reach the required profitability through these new products that have not yet faced competition. One of the factors that helped the company compensate for the loss in markets was that it worked on adding new projects in order to expand its scope of work and increase its sales.

5.5.2.8 Risk management culture

C03 started implementing a policy of distributing sales sources as a result of the Arab Spring, whereby it develops a sales value plan for the year and identifies the main customer to reach this value of sales.

C06's exports to Syria stopped due to the Arab Spring. The suspension was a result of the company not offering products and the customer not ordering, in order to avoid taking risks in the face of the current situation and the unknown obstacles.

Another company that has started to use a risk management culture is C12. It did this by lowering its prices to even lower than cost (starting from 2017) as a result of the high competition in the dairy sector, as it otherwise could have lost all its sales in the market.

In the case of C20, any influence of the Arab Spring was monitored and covered by the parent company in the Dubai branch.

C23 has developed a risk management culture through first-hand compensation for the lost markets. This means that the losses incurred as a result of the turmoil that occurred are compensated for in a timely manner and with almost the same efficiency as previously.

In the case of C24, every three years the company renews its production lines to maintain its competitiveness. C24 also relies on artificial intelligence more than on the skills and competencies of its employees, which it has done by purchasing robots to work in the factory.

Meanwhile, C25 has also started to search for new markets to avoid similar crises in the future, and one of the markets that the company seeks to reach is the African market.

C28 stopped its exports to countries that suffered from the Arab Spring definitively and directly as soon as the Arab Spring began in these countries to avoid any risk, loss of products, or change in regulations.

5.5.2.9 Adaptive Capability

Some of C02's raw materials are imported from abroad due to local traders having stopped keeping inventory of these materials. The company started to import them directly and thus reduced its costs as it does not pay customs on these goods because they are considered as production inputs.

The influence on C03 was only in the short term, as sales decreases were compensated for by other markets, in addition to the introduction of new products and new credence. Although the Syrian market stopped in 2011-2012, it returned in an indirect way.

C04, as a result of the increased competition after the Arab Spring, when many companies became competitive on prices, sold at cost or a very low-profit margin. Also, C04 has competed on the time needed to process the order, as it used to take the company 72 hours from request to delivery, and this was reduced to 24 hours from request until delivery, otherwise, the order will be cancelled. C04 also changed a lot of its methods of dealing with payment and tried to stay away from credit, as there was a fear of devaluation of the currency (cash devaluation).

Sometimes C06 sells at cost price only to retain customers and maintain market share. C06 still exports to Egypt and Iraq, but to compensate for the loss of some of its markets, the company focused on the local market more and better than before.

In the case of C07, in order to reduce the impact on the smelting price, the production capacity of its plant has been reduced to avoid filling the market with factory products, which will negatively affect the prices of the products. Production capacity in the previous period ranged between 30% and 80%. The company is starting to make a smaller circle of iron and allowing smaller orders; instead of selling 1000 tons, it is willing to sell 500 or 400 tons. C07 has added special features to its product in order to increase competition, including adding other elements to iron to give it other shapes or facilitate its assortment, as such features are not present in the local market or

even in neighbouring markets, with the exception of Israel. C07 also requested the Jordanian government to provide protection for the local industry, knowing that the addition to the local economy from the local industry is much greater than the investment coming from abroad in terms of income, employment, activating the economy, and others. C07 was able to get some protection in 2017, as the government used to allow the import value of 3000 tons, in addition to the exempted projects, however, now it has changed to 3000 tons, including the exempted projects. Moreover, cancellation of work during peak hours (3 hours) avoids a fine of 20,000 JOD.

One of the practices that C08 has undertaken to mitigate the impact of the Arab Spring is to work on the local market and double its market share in it as a result of the closing of export markets, with an increase from 20-25% to 50%. Other practices carried out by C08 include reducing the profit margin to limit the entry of new competitors to the market and to increase competition with existing companies. Also, to reduce costs within the factory as much as possible the company requested tenders from suppliers for raw materials in order to get the best prices and the lowest costs. The company also worked to maintain the quality of its products and focus on after-sales service. In addition, the introduction of new production lines and products helped it to become one of the leading companies in developing production lines.

C09 worked on finding alternative markets, focusing on the markets that have the potential to expand, and reducing its advertising costs.

C10 has shown adaptive capability by appointing very experienced Syrian workers as maintenance manager and maintenance officers, which helped significantly in the work development. Also, payment was previously made through bank intermediation with what is called cash against documents; however, in countries that experienced the Arab Spring the banking system that used to allow the withdrawal of credits had collapsed, which led to the demand for customers to be able to pay in advance into the company's account through methods like Western Union.

In the case of C11, it started to cut what it called unnecessary costs, such as any employee who was not adding any additional value to the company, stopping the product lines that were not popular and cutting the supply to any customer who failed to pay on time. It also started to develop short-term goals (12 months) to help guide and monitor the company's performance.

C12 worked on increasing its advertising in order to increase its sales, and also on developing its packaging materials to make them catchier. It decreased the number of employees to reduce costs and finally it reduced the frequency of periodic checks from daily to weekly; however, this last practice had a direct and very negative impact on the product quality that led to the company losing customers and it was forced to go back to the daily checks.

C13 also worked on finding alternative and new markets; however, it tried to find non-traditional markets such as the European market and it worked on finding new product lines that would match these markets' needs and expectations. In the past, the company sometimes imported packaging materials from Turkey, but due to the high costs as a result of the Arab Spring, the company began to rely entirely on local factories for packaging materials. Also, as a result of the crisis, the company focused on the quality of its product so it could compete in the market based on quality.

C16 is trying to find raw materials at a lower cost and of lower quality to reduce production costs in order to stay in the market. It did import gum from Italy and now it is imported from China, while aluminium and foil were imported from Germany and now they are also imported from China.

C17 is working on finding products to meet all the customers' needs throughout the year. It also seeks to make prices suitable and affordable for all classes of society to ensure survival in the market and to increase its sales.

C18 worked to reduce costs by reducing the number of workers and reducing electricity consumption.

C19 did not close its headquarters because the benefit of keeping it at a loss and using it as a centre for renting hangars is greater than closing it. The company has no intention of developing the factory's work and is satisfied with the current simple manufacturing as all its machinery has fully depreciated and it has reduced its costs to the minimum.

C20 is working on developing the machinery which it operates, as there is a prediction that there will be an increase in demand for the company's products in the near future, especially with reconstruction when the turmoil is over.

C22 started developing its adaptive capability by searching for supportive bodies like JEDCO who would offer grants to work on developing the factory in order to increase competitiveness and improve productivity by bringing in more advanced mechanisms to the factory and into Jordan and also in order to reduce dependence on other countries.

The machines that were used by C23 in the factory were old and consumed high energy, but due to the high energy prices, they were replaced by newer machines with lower energy consumption, which helped to reduce the unit cost, but the company's costs increased generally due to the costs of the machines themselves (15,000-20,000 JOD the price of the machine).

Meanwhile, C24 has worked on increasing the number of employees, opening additional local and foreign markets, attracting new customers, increasing productivity, purchasing newer machines, and increasing marketing of its products. It has increased the number of employees to adapt to the increase in production.

C25 has attempted to reduce labour, reduce working hours, reduce expenses and reduce storage in order to increase its opportunity to continue in the market. Another method used to reduce costs is to stop using the company's lorries and ask companies that own freight cars to send their cars to receive their goods. The decrease in the employees' number was due to the owner's belief that this will help in lowering the company costs. C25 also worked to accept requests from more customers, but on the condition that a bank guarantee was provided.

C26 adopted capabilities in the forms of business development and new lines of business in order to attract new customers.

On the part of C27, every time the company adds new features to its product it offers it to the customers for the first period for free to push them to try it and encourage them to start ordering it. This reflects its focus on the quality of the product and adding value. C27 has faced some internal pressures as a result of declining sales, with costs and obligations remaining on the company, which led to the suspension of salary increases for workers for that year.

Meanwhile, C28 increased its focus on the domestic market to compensate for the export loss; it trained employees and focused on marketers (Salesforce programme) in order to strengthen the local market. The company also gave training courses in production (Lean manufacturing) and began to work on the Japanese method (KAIZEN method) for the development of production processes, as well as working on Inventory management to reduce waste and storage costs.

In the case of C29, Yemen, as a result of the Arab Spring, has joined the list of dangerous countries, which has affected its bank credits from Yemeni customers, and therefore payments

are transferred through remittance offices and personally instead of through banks. Also, as a result of the high competition, the company worked to reduce the prices of its products in order to preserve its customers. One of the factors that helped the company compensate for the losses in 2018 was the occurrence of a problem in the Saudi seaport which led to the request for all their needs to be supplied from the Jordanian market as the arrival of these goods takes only three days via land freight. Another factor that helped the company compensate for the losses in 2018 was that all local suppliers were also subjected to external pressures, which led to a reduction in their prices in order to maintain their customers and thus helped the company to reduce its costs.

5.5.2.10 Structure

C04 was working on Architectural Paints, now it works on adhesives, sealants, building chemicals and waterproofing materials (sealant, adhesive, construction chemicals, waterproofing membrane), with the company selling several brands to the same customer instead of only one. C04 realised that it needed to work at spreading its structure vertically for it to survive this disruption. Its owner believes that this company needs to improve its existence in the market to improve its sales level.

In the past, C07's trading was done directly between factories and countries, but due to the low volume of demand the company started to deal directly with the agents, as the agent supplies to more than one customer in the same country. Additionally, C07 expanded the range of suppliers to reduce the impact of disruption on the company.

C08 had a branch in Saudi Arabia, but it closed due to the Arab Spring and continuous change in regulations.

C09 undertook restructuring and reallocation of jobs and laid off the unneeded roles.

C13 worked harder to prevent losing the markets that it already has by adding more lines on a continuous basis to fill the market with a variety of its products instead of sticking to a limited number of items.

In order to mitigate the impact of the Arab Spring, C17 has introduced new products and new designs on its production lines.

C18 was forced to close some production lines due to the lack of labour to operate them.

C23 is attempting to open a regional office in Sweden, and the official request has been submitted.

C27 established a factory and another branch of the company outside Jordan, in Egypt (2019), to obtain the necessary raw materials for production at lower cost and less risk than having only one branch in one country. Although expanding the company will result in a higher overall risk, they think it will still be lower in the case of a disruption that could result in losing the whole business.

C29 used to work with the American market indirectly (through the parent company), but then it started to deal directly with the parent company located in America. Also, in 2016, the company studied opening another branch in Egypt in order to reduce the risk, but when the Egyptian currency was devalued, the company reversed its decision due to the suspension of the Egyptian market.

5.5.3. Did nothing

Only four of the interviewed companies (C01, C14, C15, and C21) have not adopted any supply chain resilience practices. The main reason behind this was the lack of knowledge about such practices. Those companies relied on their judgement and, accepting that they are facing disruption and they are going to have some losses, they did not try to find a solution or do research on how to work their way out of this.

5.5.4. Conclusion

Previous sub-sections have looked into supply chain resilience practices, which companies have adopted them, when they adopted them, and how they have helped companies manage the impact of this turmoil. Eventually, most of the companies have adopted some supply chain resilience practices. It was clear to the interviewer that almost all of them did not know about those practices from a scientific or even research point of view, and have adopted those practices based on experience from previous events, trial and error, imitating other companies, or even guessing what they should do.

Companies seem to have some disagreements on sharing information about what practice to use and how. For instance, C04 owner claims that *“Spreading awareness regarding the right practices in order to overcome crises and reduce the negative impact was essential for the company and was one of the reasons behind the establishment of the East Amman Industrial Investors Association. This is an individual activity of industrialists, the Ministry of Industry had no role or relationship in its establishment”*. But another industrialist disagrees, as for C07 *“There is no communication between companies about the most appropriate practice to avoid crises or about the practices applied. Also, companies do not agree to tell their competitors for fear of increasing competition between them or those competing companies will take customers from them”*. Similarly, C11’s owner stated that *“The companies are not open to each other, there is no concept of sharing plans, ideas or practices with other companies, whether in the same sector or other sectors”*. Finally, C26 said that *“The companies do not provide any advice about the successful applications used and each company has its own status and conditions”*. Assuming that C04 is telling the truth, not only are companies not aware of those practices from a scientific view they also are not aware that other companies are sharing their experience and helping companies in the industrial sector.

It also was noticeable that the interviewed companies were less likely to adopt practices related to sharing critical details about their companies, such as trust, information sharing and collaboration, as they were worried that such information could be misused by others, help companies in their supply chain to acquire them or become a competitor, help competitors to have a better market position or even formal entities to use those details to implement new laws or regulations that might negatively impact them. That is why companies were more likely to implement practices related to coping with the new situation, such as adaptive capability and visibility.

5.6. Factors that led to adopting supply chain resilience practices

A number of companies from the Jordanian market were studied to try to address how those companies have been impacted by the Arab Spring and to find out the extent to which those companies have adopted supply chain resilience practices and how this impacts on their performance. Additionally, other variables have been studied, like the company product, sector,

or base, to determine whether they have any impact on the degree of performance influence from the turmoil. This section summarises the results found from this study.

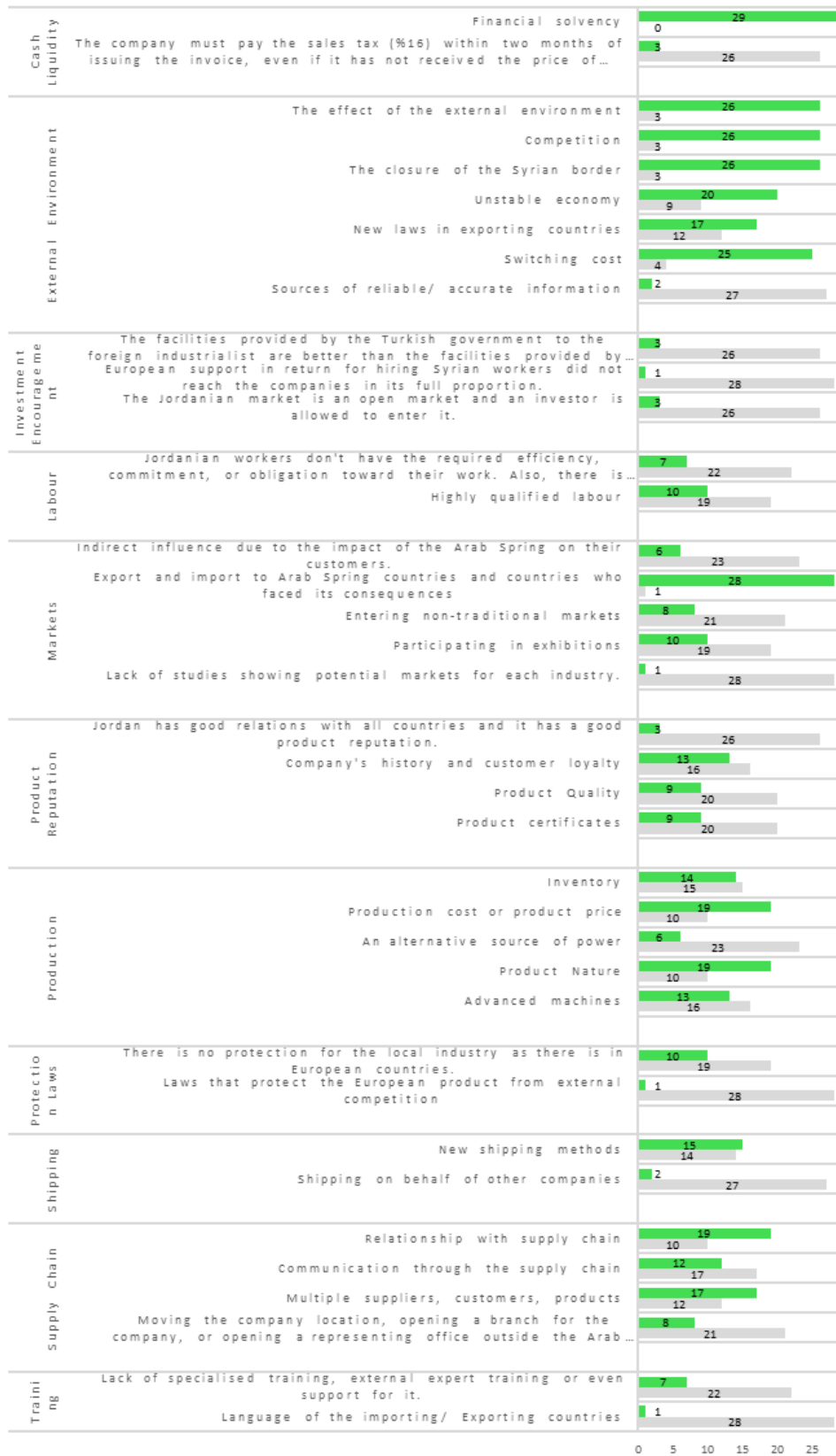
Any companies dealing with countries that have faced the Arab Spring or faced any of its consequences have experienced a great hit, especially since it came as such a sudden event. This turmoil has led to immediate loss of supplies or markets where most of the companies have been under pressure to take immediate actions or get out of the business. Even though the influence of the Arab Spring, whether positive or negative, varies from one company to another or even from one sector to another, companies agree that they have been influenced by it in one way or another.

As discussed in the previous section 5.5.1, not all the interviewed companies have adopted supply chain resilience practices and those who adopted them have adopted different practices. This section will go through the factors that helped (drivers) or prevented (barriers) adoption of supply chain resilience practices.

Figure 17 below lists the drivers and barriers faced by the interviewed companies and the numbers of companies that have been affected/ not affected by them. It is noticeable that some of those factors have affected all or most of the companies, while a few factors have affected only one, two, or three companies.

Figure 17 - Manufacturing Industry - Supply Chain Resilience Drivers/ Barriers

Supply Chain Resilience Drivers/ Barriers



Some factors have led to adopting (Driver) or not adopting (Barrier) supply chain resilience practices. Table 13 shows which factors have affected which companies; in most of the cases each factor has influenced the adoption of one supply chain practice or more (proactively or reactively) as shown in Looking at Table 13 and comparing it to the previous section 5.5 it can be noted that even though interviewed companies have been affected by those factors, it was not always the case that the effects would lead them to actually adopt supply chain resilience practices to overcome their influence (Barrier) or to benefit from them even more (Driver). Some companies have faced those factors but they did not implement any practice as a response to them (as will be seen in Table 14), in some cases, it was due to them not knowing about those practices, in other cases it was that they thought they should not or even could not do anything about them.

One of the reasons that prevented companies from adopting practices, even when facing a barrier, was that they have no control over a particular driver or barrier. For instance, trust and sharing sensitive information might be considered helpful in understanding the situation and what might happen. However, C03's owners stated that *"Due to the nature of the turmoil being political, the supply chain companies were not able to deal with each other transparently, fearing that the methods of communication would be under surveillance and that this would lead to legal accountability in the event of transferring similar information to other countries"*.

One of the main challenges that faced the interviewed companies was that they do not think that the government is running this sector in the optimal way. C12 owner believes that *"The private sector should be the one who manages the government sector, especially when they need to make decisions with regard to industry, trade, or investment, as the private sector is more successful, like what happened with potash or phosphate"*. He thinks that the private sector is more capable to do it as it is closer to the industry and knows what are the needs, requirements, and capabilities in the market and how to actually help in making this market thrive. The C16 owner agrees with him with in regard to the government not running the sector in the right way as he thinks that the *"Jordanian government's economic policies are very bad and there is no clear economic system except for getting the highest amount of money"*. This usually affects the way that the companies are operating because they have no clear vision of what might happen or what drivers or barriers they might face and eventually makes it harder for their continuity as, for instance, C13's owner claims that *"The industrialists find it difficult to continue in the market in the absence of the dream they seek to reach"* and this continuous uncertainty prevents them from having a clear vision.

Table 13 - Manufacturing Industry - Supply Chain Resilience Driver/ Barrier

Theme	Driver/ Barrier	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	
Cash Liquidity	Financial solvency	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	The company must pay the sales tax (%16) within two months of issuing the invoice, even if it has not received the price of these products yet.	x	x	x	x	✓	x	x	✓	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	
External Environment	The effect of the external environment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	x	✓	x	✓	✓	✓	✓	✓		
	Competition	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓		
	The closure of the Syrian border	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	x	✓	✓	✓	✓	✓	✓		
	Unstable economy	x	✓	x	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	x	x	x	x	✓	✓	✓	✓	✓	✓	✓		
	New laws in exporting countries	x	x	✓	✓	x	x	✓	x	✓	✓	✓	✓	✓	✓	x	✓	✓	x	x	x	x	✓	✓	✓	✓	✓	✓	x	x	
	Switching cost	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓		
	Sources of reliable/ accurate information	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	
Investment Encouragement	The facilities provided by the Turkish government to the foreign industrialist are better than the facilities provided by the Jordanian government to the foreign industrialist.	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x		
	European support in return for hiring Syrian workers did not reach the companies in its full proportion.	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
	The Jordanian market is an open market and an investor is allowed to enter it.	x	x	x	✓	✓	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Labor	Jordanian workers don't have the required efficiency, commitment, or obligation toward their work. Also, there is not enough labour.	✓	x	✓	x	✓	x	x	x	x	x	✓	x	x	x	x	x	x	✓	x	x	x	x	x	x	✓	x	✓	x	x	
	Highly qualified labour	x	✓	x	x	✓	x	✓	x	x	✓	x	x	✓	✓	x	x	x	x	x	x	x	✓	✓	✓	x	x	✓	x	x	
Markets	Indirect influence due to the impact of the Arab Spring on their customers.	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	✓	x	x	x	x	x	x	x	✓	x	✓	
	Export and import to Arab Spring countries and countries who faced its consequences	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	
	Entering non-traditional markets	x	✓	x	x	x	x	x	x	x	x	x	✓	x	x	x	✓	x	x	✓	x	x	✓	x	✓	✓	x	x	✓	✓	
	Participating in exhibitions	x	✓	✓	x	x	x	✓	x	✓	x	✓	✓	x	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	✓	✓	x
	Lack of studies showing potential markets for each industry.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Product Reputation	Jordan has good relations with all countries and it has a good product reputation.	✓	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	
	Company's history and customer loyalty	✓	x	✓	x	x	x	x	x	✓	✓	✓	✓	✓	✓	x	✓	x	x	x	x	x	x	x	x	x	✓	✓	✓	✓	x
	Product Quality	✓	x	✓	x	x	x	x	✓	x	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	✓	✓	✓
	Product certificates	✓	x	x	x	x	x	x	x	x	✓	✓	x	✓	✓	x	x	✓	x	x	x	x	x	x	x	x	x	x	✓	✓	✓
Production	Inventory	x	x	✓	x	x	x	x	x	x	✓	✓	✓	✓	✓	x	x	x	x	x	x	✓	x	x	✓	✓	✓	✓	✓	✓	
	Production cost or product price	x	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	x	x	x	✓	x	✓	x	✓	✓	
	An alternative source of power	x	x	x	x	x	x	✓	x	✓	✓	x	x	x	x	x	x	x	✓	x	x	x	✓	x	x	x	x	x	x	✓	
	Product Nature	x	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	✓	x	✓	✓	✓	x	✓	✓	✓	✓

	Advanced machines	x	x	x	x	x	x	✓	x	x	x	✓	x	✓	x	x	x	✓	x	✓	✓	x	✓	✓	✓	✓	x	✓	✓	✓	
Protection Laws	There is no protection for the local industry as there is in European countries.	✓	x	x	x	✓	x	✓	x	x	x	✓	x	✓	x	✓	x	✓	x	✓	✓	x	x	✓	x	x	x	✓	x	x	x
	Laws that protect the European product from external competition	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Shipping	New shipping methods	x	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	x	✓	x	x	x	✓	x	x	✓	x	x	x	✓	x	x	x	✓	✓	
	Shipping on behalf of other companies	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x
Supply Chain	Relationship with supply chain	✓	x	✓	✓	x	✓	✓	✓	✓	✓	✓	x	x	x	x	✓	x	✓	✓	x	✓	✓	x	✓	x	✓	x	✓	✓	✓
	Communication through the supply chain	x	x	✓	x	x	x	✓	x	✓	x	✓	✓	x	x	x	x	✓	x	x	✓	x	✓	x	✓	x	x	✓	✓	✓	✓
	Multiple suppliers, customers, products	x	x	✓	✓	x	✓	✓	✓	✓	✓	✓	x	✓	x	x	x	✓	✓	x	x	x	x	✓	✓	✓	✓	x	✓	✓	✓
	Moving the company location, opening a branch for the company, or opening a representing office outside the Arab Spring region.	✓	x	✓	x	x	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	✓	x	x	✓	x	x	x	✓	x	x	✓
Training	Lack of specialised training, external expert training or even support for it.	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	✓	✓	✓	✓
	Language of the importing/ Exporting countries	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x

As can be seen in Table 14 below, those factors are listed along with the supply chain resilience practices to show which practices have been adopted for each factor and which companies have actually used these practices.

Table 14 Manufacturing Industry - Supply Chain Resilience Driver/ Barrier and Practices

Theme	Driver/ Barrier	SCRP	Agility		Collaboration		Information Sharing		Risk and Revenue Sharing		Sustainability		Trust		Visibility		Risk management culture		Adaptive Capability		Structure	
			Proactive	Reactive	Proactive	Reactive	Proactive	Reactive	Proactive	Reactive	Proactive	Reactive	Proactive	Reactive	Proactive	Reactive	Proactive	Reactive	Proactive	Reactive	Proactive	Reactive
Cash Liquidity	Financial solvency		-	-	-	-	-	-	C20	C11	-	-	-	-	-	C13	-	-	-	C04, C10, C11, C19, C25, C27, C29	-	-
	The company must pay the sales tax (%16) within two months of issuing the invoice, even if it has not received the price of these products yet.		-	-	C03	-	C29	-	-	C02, C06, C10, C11, C13, C27, C29	-	C18	-	-	-	C03, C09, C13, C17, C25, C28, C29	-	C12	-	C02, C06, C07, C08, C11, C12, C16, C17, C18, C19, C23, C25, C27, C28, C29	C19	C09, C27

External Environment	The effect of the external environment	-	-	-	-	-	C04, C24, C28	-	C11	-	-	-	-	-	-	C02, C03, C04, C05, C07, C08, C09, C10, C11, C13, C17, C20, C24, C28, C29	-	C06, C12	-	C06, C07, C20, C29	-	C07	
	Competition	-	-	C03	C12, C22	-	-	-	C02	-	-	-	-	-	-	C24, C28, C29	-	C12, C24	-	C04, C07, C08, C13, C22, C29	C19	-	
	The closure of the Syrian border	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C02, C03, C04, C05, C07, C08, C09, C10, C11, C13, C17, C24, C28, C29	-	C06	-	C03	-	-	
	Unstable economy	-	-	-	-	C27	C24	-	C10	-	-	-	-	-	-	-	C08, C17	-	-	-	-	C23	-
	New laws in exporting countries	-	-	-	-	-	-	C10, C11	-	-	-	-	-	-	-	C03, C17	-	-	-	C09, C10, C11, C12, C13, C22, C27, C28	-	-	
	Switching cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C24	-	C12	-	C22	C19	-	
	Sources of reliable/ accurate information	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Investment Encouragement	The facilities provided by the Turkish government to the foreign industrialist are better than the facilities provided by the Jordanian government to the foreign industrialist.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European support in return for hiring Syrian workers did not reach the companies in its full proportion.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	The Jordanian market is an open market and an investor is allowed to enter it.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Labour	Jordanian workers don't have the required efficiency, commitment, or obligation toward their work. Also, there is not enough labour.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Highly qualified labour	C07	-	-	C22	-	-	-	-	-	-	-	-	-	-	-	-	-	C10	-
Markets	Indirect influence due to the impact of the Arab Spring on their customers.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C02	-
	Export and import to Arab Spring countries and countries who faced its consequences	-	-	-	-	-	-	-	-	-	-	-	-	-	C02, C03, C04, C05, C07, C08, C09, C10, C11, C13, C17, C24, C28, C29	-	C03, C06, C28	-	C03, C06, C08, C13, C28, C29	-
	Entering non-traditional markets	-	C13	-	-	-	-	-	-	-	-	-	-	-	C02, C17, C20, C23, C24, C27, C28	-	-	-	C13, C24	-
	Participating in exhibitions	-	-	-	C12	-	C03, C07	-	-	-	-	-	-	-	C02, C07, C17, C27	-	-	-	-	-
	Lack of studies showing potential markets for each industry.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Product Reputation	Jordan has good relations with all countries and it has a good product reputation.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Company's history and customer loyalty	C10	C13	-	-	-	-	-	-	-	-	-	-	-	C09, C10, C25, C28	-	-	-	-	-
	Product Quality	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C08, C12, C13, C27	-

	Product certificates	-	-	-	-	-	-	-	C10	-	C28	-	-	-	-	C28	-	-	-	-	-
Production	Inventory	-	-	-	-	C20	-	-	-	-	-	-	-	C03, C10, C26, C29	C11, C13, C28	-	-	-	C25, C28	-	-
	Production cost or product price	-	-	-	-	C07	-	-	-	-	-	C20	-	-	-	-	-	-	-	-	-
	An alternative source of power	-	-	-	-	-	-	-	-	-	C07, C09, C10, C18, C22	-	-	-	-	-	-	-	-	-	-
	Product Nature	C02	-	-	-	C29	-	-	-	C07, C20, C22, C27	C07, C08, C24, C26, C28	-	-	-	C24	C20	-	-	C07	-	-
	Advanced machines	-	-	-	-	-	-	-	-	-	C13, C22	-	-	-	C24	-	C24	-	-	C19, C20, C22, C23, C24	-
Protection Laws	There is no protection for the local industry as there is in European countries.	-	-	-	C12	-	C07	-	-	-	-	-	-	-	-	-	-	-	C07, C22	-	-
	Laws that protect the European product from external competition	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shipping	New shipping methods	-	-	-	-	-	-	-	C29	-	-	-	-	-	C02, C03, C04, C05, C07, C08, C09, C10, C11, C13, C17, C24, C28, C29	-	-	-	C03	-	-
	Shipping on behalf of other companies	-	-	C03, C28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Supply Chain	Relationship with supply chain	C10	-	C03	-	C20, C27, C29	C03, C11, C12	C20	C10, C23, C27	-	-	C20	C07	-	C04, C20, C22, C25	-	C20	-	C08	C07, C19, C20	C07

	Communication through the supply chain	-	-	-	-	C20, C27, C29	C03, C11, C12	-	-	-	-	-	C20	C07	-	C07, C17, C22, C24	C03	C20	-	C09, C12, C24, C27, C28	-	C29
	Multiple suppliers, customers, products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C29	C03, C09, C10, C25, C28	C03, C23, C24, C25	-	C03, C06, C08, C09, C11, C13, C17, C24, C25, C26, C28	C10	C04, C07, C13, C17, C18
	Moving the company location, opening a branch for the company, or opening a representing office outside the Arab Spring region.	C20	-	C20	-	-	-	-	-	-	-	-	-	-	-	C20, C23	-	-	-	-	C20	C08, C23, C27, C29
Trainee	Lack of specialised training, external expert training or even support for it.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C28	-	-
	Language of the importing/ Exporting countries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	The company faced a driver/ barrier		The company did not face a driver/ barrier																			

5.7. Performance

Performance is what companies usually look at in order to evaluate themselves, to compare themselves with their competitors, and to check how they have been affected by any surrounding event. They do this by looking at any practices that they have been adopting to respond to those events and how those practices are affecting them and whether to continue using them, modify the way that they use them, or stop implementing them. Kumar et al. (2018) believe that it is essential for firms to measure the outcomes of their supply chain risk practices and they can do this by relying on the performance measures.

Companies tend to reach better performance in different ways. For instance, *“The company must always have a competitive advantage”* is how C13’s owner thinks it can be achieved. This will help it to maintain its market share while trying to overcome any disruption it might face. While C13’s owner thinks that *“The company should not produce a product with a high profit margin, as this margin will tempt others to enter the market and compete with you, thus losing the entire profit margin. Therefore, the company must search for a product with a reasonable profit margin that enables it to stay in it and achieve a reasonable profit while making it difficult for others to enter the market and compete with it within this margin”*.

For companies to enhance their performance they should not only look at what helps them to do this, but they also should look at what would prevent them from enhancing their performance. Usually, the costs that companies bear play a main role in this. Where C17’s owner claims that *“The cost of the industrial sector is greatly affected by three factors: First, energy. Second, the cost of labour. And third, transportation”*. Based on a study conducted by C08’s owner, *“For the period between 1/1/2011 and 1/1/2015, electricity costs increased by 93%. In addition to the doubling of the prices of petroleum derivatives despite the floating of petroleum derivatives in 2013. All these costs had a direct impact on production costs”*. Meanwhile, C07’s owner believes that *“Jordan has a surplus of electricity, but does not benefit from it, it should be given to factories at cost instead of them bearing the cost without benefitting from it”*.

Findings ways to achieve revenues while trying to reduce costs is what companies usually do. The higher the difference between those two the higher the profit that a company is generating. However, when a company faces a disruption this will probably be impacted. Therefore, *“The company tries not to reach the point that its costs are equal to its revenues (break-even point) even if its profits decrease for a period of time. Because reaching this stage may force the company to stop looking at the company's image and development, but rather to search for any way to earn profits, even if it is instantaneous profit and affects the quality”* (C13 Owner, 2019).

According to the interviewed companies, product appearance in the market also might have some influence on companies' performance. C13 thinks that *“The more a commodity is available in the market, the lower its profitability”*. Therefore, C28 thinks, *“Whenever the company has a higher diversification, whether in markets or products, this helps it to overcome difficulties and take advantage of any situation it is subject to and reduces the degree of risk that falls on the company's shoulders”*. That is why the interviewed companies believe that any company should try to maintain its products' market appearance at all times and avoid saturating the market with them.

Figure 18 - Manufacturing Industry – Performance

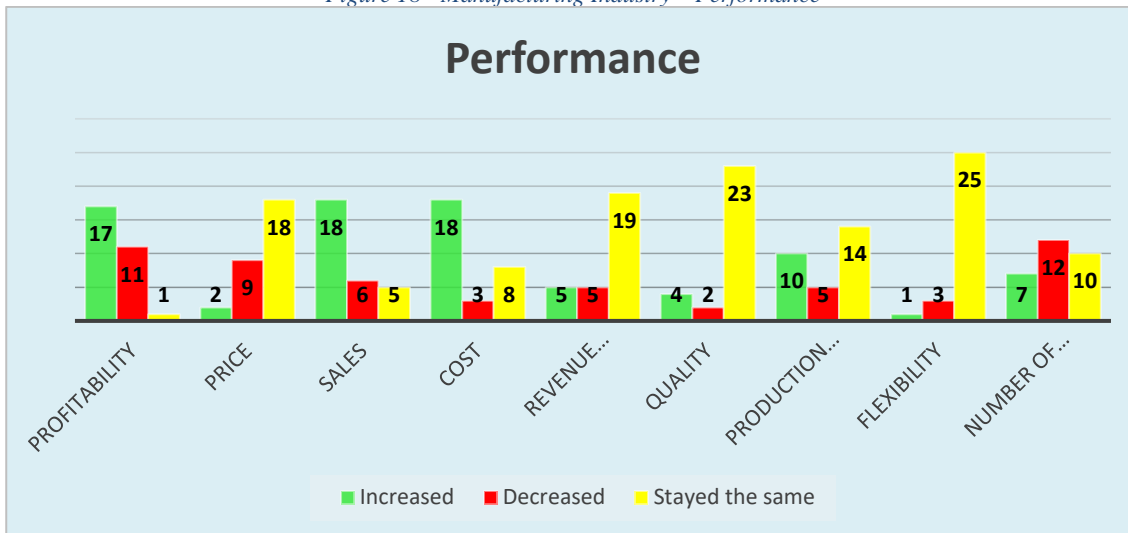


Figure 18 shows how the performance of the interviewed companies has been affected due to the Arab Spring. It is noticeable from Figure 18 that more than half of the companies (17 companies) have increased their profitability, 11 companies have registered a decline in their profitability, and only one company claimed not to have been influenced:

Eighteen companies have kept their prices stable, only 2 companies had to increase prices, while 9 companies managed to decrease their prices.

Eighteen companies have managed to increase their sales, 6 companies were forced to decrease sales, while the rest (5 companies) kept the same level of sales.

Eighteen companies have faced an increase in costs, 3 were able to decrease costs, and 8 were able to keep them to the same level.

Company revenue turnover has increased for five companies, decreased for the same number of companies, and stayed the same for the rest of the companies (19).

Only 4 companies have managed to improve the quality further than the usual improvement rate, while 2 companies had to reduce their product quality, and 23 companies have maintained the same level of continuous improvement.

Companies' production capacity has increased for 10 companies, decreased for 5 companies, and did not change for 14 companies.

Work flexibility has improved for only 1 company, worsened for 3 companies, and remained the same for 25 companies.

The number of working employees has increased in 7 companies, decreased in 12 companies, and remained unchanged in 10 companies.

Table 15 -Manufacturing Industry - Performance

Performance	Profitability	Price	Sales	Cost	Revenue turnover	Quality	Production capacity	Flexibility	Number of employees
C01	Decreased	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Stayed the same
C02	Increased	Decreased	Increased	Increased	Decreased	Stayed the same	Increased	Stayed the same	Increased
C03	Increased	Increased	Increased	Stayed the same	Decreased	Stayed the same	Increased	Stayed the same	Increased
C04	Decreased	Decreased	Increased	Increased	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Decreased
C05	Decreased	Stayed the same	Decreased	Increased	Stayed the same	Stayed the same	Decreased	Stayed the same	Decreased
C06	Increased	Stayed the same	Increased	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Stayed the same
C07	Decreased	Decreased	Stayed the same	Increased	Stayed the same	Stayed the same	Decreased	Stayed the same	Decreased
C08	Increased	Stayed the same	Increased	Stayed the same	Increased	Stayed the same	Stayed the same	Stayed the same	Stayed the same
C09	Decreased	Increased	Decreased	Increased	Stayed the same	Stayed the same	Stayed the same	Decreased	Decreased
C10	Increased	Stayed the same	Increased	Increased	Increased	Stayed the same	Stayed the same	Decreased	Stayed the same
C11	Increased	Stayed the same	Stayed the same	Increased	Stayed the same	Increased	Stayed the same	Stayed the same	Stayed the same
C12	Decreased	Stayed the same	Decreased	Increased	Increased	Stayed the same	Decreased	Stayed the same	Stayed the same
C13	Increased	Stayed the same	Increased	Increased	Stayed the same	Stayed the same	Increased	Stayed the same	Stayed the same
C14	Increased	Decreased	Stayed the same	Decreased	Stayed the same	Increased	Stayed the same	Stayed the same	Decreased
C15	Increased	Stayed the same	Increased	Increased	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Decreased
C16	Decreased	Decreased	Decreased	Stayed the same	Decreased	Decreased	Stayed the same	Stayed the same	Decreased
C17	Increased	Stayed the same	Stayed the same	Increased	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Decreased
C18	Decreased	Stayed the same	Decreased	Increased	Stayed the same	Stayed the same	Decreased	Stayed the same	Decreased
C19	Decreased	Decreased	Decreased	Decreased	Stayed the same	Decreased	Decreased	Stayed the same	Decreased
C20	Increased	Stayed the same	Increased	Increased	Stayed the same	Stayed the same	Increased	Stayed the same	Stayed the same
C21	Increased	Stayed the same	Increased	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Increased
C22	Increased	Stayed the same	Increased	Increased	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Stayed the same
C23	Decreased	Stayed the same	Increased	Increased	Stayed the same	Stayed the same	Increased	Stayed the same	Decreased
C24	Increased	Decreased	Increased	Decreased	Increased	Increased	Increased	Increased	Increased
C25	Decreased	Stayed the same	Increased	Increased	Increased	Stayed the same	Increased	Decreased	Decreased
C26	Increased	Stayed the same	Increased	Increased	Stayed the same	Stayed the same	Increased	Stayed the same	Increased
C27	Increased	Stayed the same	Increased	Stayed the same	Decreased	Increased	Increased	Stayed the same	Increased
C28	Increased	Decreased	Increased	Stayed the same	Decreased	Stayed the same	Increased	Stayed the same	Increased
C29	Stayed the same	Decreased	Increased	Increased	Stayed the same	Stayed the same	Stayed the same	Stayed the same	Stayed the same
Cells Colour:			Increased		Decreased			Stayed the same	

There has been a fluctuation in most of the companies' performance during the past period (2011-2019). For each of the performance measures most companies have faced an increase or decrease throughout this period. Therefore, in Table 15 and for the purpose of comparisons, each measure has been considered as increase, decrease, or stayed the same based on the general influence of the Arab Spring on the company, or, in other words, on the dominating influence during 2011-2019.

5.7.1. Profitability

More than half of the companies (17 companies) have increased their profitability. This increase came as a result of an increase in sales, whether from expanding in current markets, opening new markets, increase in profit margin, increase in population in the local market, or increase in orders to Arab Spring countries in their countries or as refugees. Eleven companies have registered a decline in their profitability. This happened mainly due to a decrease in the profit margin or competition based on the price. Only one company has claimed not to have been influenced. This company has overcome the disruption that affected its profitability.

5.7.2. Price

Eighteen companies have kept their prices stable. This was possible for those companies due to balancing the increase in production costs with decreases in other costs, not being able to change the prices, or customers still being able to afford this price. Only two companies had to increase prices due to the increase in costs or increase in quality, while nine companies managed to decrease their prices. This came as a result of their desire to maintain their competitiveness, decrease in material costs, or decrease in fixed costs.

5.7.3. Sales

Seventeen companies have managed to increase their sales, which happened due to companies managing to expand their work and markets, increase in population in the local market, demand increase in the local market, increase in demand in the Arab Spring countries, or the product's nature maintaining a continuous demand. Seven companies were forced to decrease sales, mainly because of market closure, increase in competition, or a general decline in trading volume. The rest (5 companies) kept the same level of sales.

5.7.4. Cost

Eighteen companies have faced an increase in costs due to increase in electricity and fuel costs, changes in shipping methods from land to sea, the need to change trucks when exporting to Iraq, added taxes, increase in the number of damaged items when shipping, having to issue a residence document for foreign labour, and marketing expenses to enter new markets. Three were able to decrease costs by requesting a raw materials price deduction, buying lower quality, lower priced raw materials, or by relying on mass production and advanced machinery. Eight were able to keep costs to the same level. Prices of some raw materials even declined, with some companies' costs being highly related to producing raw materials that have not been influenced by the Arab Spring, competition between suppliers and therefore overall stability in production costs, companies working on a decrease in other costs, or getting rid of unnecessary costs.

5.7.5. Revenue turnover

Revenue turnover has increased in the cases of five companies, mainly because those companies decreased reliance on credit and focused on financially stable customers. Meanwhile, five companies' revenue turnover has decreased as a result of financial obstacles facing their customers or pressure from the customers to give a longer period for paying their dues. Revenue turnover stayed the same for the rest of the companies (19).

5.7.6. Quality

Only four companies have managed to improve the quality further than the usual improvement rate, attempting to increase their competitiveness and eventually their market share. On the other hand, only two companies had to reduce their product quality due to market pressure to reduce prices. However, 23 companies have maintained the same level of continuous improvement.

5.7.7. Production capacity

Ten companies have increased their production capacity as a result of an increase in demand. But capacity decreased in the cases of six companies due to market closure or selling at a loss, and remained the same for 13 companies.

Companies' production capacity can be made more flexible by following one or more of four production flexibility strategies (Kumar et al., 2018) which are: 1) capacity adjustment according to demand and profitability; 2) modifying capacity to meet product diversity; 3) production postponement and reducing lead time in reaction to the competitors; and 4) lowering costs or avoiding risks through production allocation in different facilities or nations.

5.7.8. Flexibility

Only one company has improved its work flexibility, as a result of reliance on highly advanced technology, for three companies it has worsened, and it has remained the same for 25 companies.

5.7.9. Number of employees

Employees are among the main and most vital influencers of performance in terms of moderating the risk to companies from disruptions (Kumar et al., 2018). Although they can help in moderating the impact of disruptions, if not managed in the right way they could become a source of disruption due to absence, incidents, strikes, or lack of experience (Kumar et al., 2018).

The number of working employees has increased in seven companies to match the increase in demand in those companies, decreased in 12 companies to match the decrease in demand in those companies, while some companies believed that those employees were just an extra cost on the companies so they started to lay off jobs they viewed as unnecessary, and no change was witnessed in 10 companies.

This research supports the finding by Kumar et al. (2018) that a company's performance is influenced by how it manages the risks in its supply chain.

5.8. Positive impact

This turmoil has had a positive impact on the interviewed companies due to the increasing spread outside the region, work done on improving the quality of the product, and technological improvements for the factory. Those impacts were pointed out by the interviewees themselves during the interview when they were asked about them. Companies seem to have different opinions in this regard. Those companies seem to have different beliefs on the general impact of the Arab Spring and the level of this impact. This inconsistency was between the Arab Spring being the best thing that has happened in a while and that it should have happened a long time ago and the Arab Spring being a complete disaster that has ruined everything the companies have worked for over many years and that it did not have any positive impact.

The positive effect of the turmoil on C01 took the form of entry into new markets that turned out to be more suitable for the company than the previous ones, as the Libyan market rebounded significantly after the turmoil. It also entered the European markets.

C02 does not believe that the Arab Spring had a negative impact on it, as the company entered the market shortly before the Arab Spring, yet it was able to continue its work and even to develop it. It only presented the company with greater challenges in terms of entering numerous markets and expanding its business. C02 benefitted from the Arab Spring in terms of the Iraqi market, since, as a result of the war, some skin diseases had spread over there for which the company developed pharmaceutical formulations and exported very large quantities to Iraq, gaining a high financial return.

For C03 the positive impact of the Arab Spring is the increased emphasis on the credibility and quality of the company's products, especially in markets that were suffering from fraudulent goods. Another impact of the Arab Spring is the inability of all competitors to reach the markets, which increased the company's market share.

One of the positive impacts of the Arab Spring for C04 is that it helped to reinforce the efficiency of the company. Otherwise, it would not have been able to continue, due to all the difficulties it faced. C04 also believes that it will be one of the companies that will achieve great success and benefit when the economy returns to its normal state or the stage of economic prosperity, as it is able to continue in the most difficult economic conditions and with the fewest resources.

In the past C05 had experienced difficulty in switching suppliers due to their scarcity, but as a result of the Arab Spring and the entry of many Syrian companies into the local market, switching suppliers has become very easy due to the presence of many new suppliers, and these companies are now engaged in selling the product in addition to selling raw materials.

Meanwhile, C07 reported that the company's decision making has become faster.

For C08 the asylum given to Syrians had its advantages and disadvantages, as there are a number of Syrian refugees who came as investors and carried large amounts of capital or came as workers. Refugees in the Zaatari camp number 180,000 and in Azraq camp 60,000, while the rest of them live within Jordan's borders and with its residents, which created a demand from the local market.

C10 said that this turmoil has enlarged its market and enabled it to enter new markets while also helping it to attract qualified workers.

From C13's perspective, this crisis motivated industrial companies, in general, to prepare themselves for the future and to develop within their industry, use modern technological methods, and invest better in their sector, hoping that the future will be better and that companies' readiness will be better in terms of the markets. This crisis helped industrial companies to search for new markets and strive to find out what the customer needs, and thus expand their activities and

develop them for the future. Thus, companies may avoid similar crises in the future due to the diversity of their markets. C13's owner (2019) declared that *"The Arab Spring gave the company more incentive to improve the image of the company. Therefore, the company considers that, in general, the benefit from the Arab Spring is greater than the harm"*.

C15 has benefitted from the disruption in the neighbouring countries, as the arrival of former residents of these countries in Jordan has helped the company to expand the scope of the local work, since it led to an increase in demand for wooden furniture, an increase in the number of housing projects in Jordan, and an increase in sales for the company.

The positive impact of the Arab Spring on C17 was a change in the company's thinking in terms of relying mainly on one or a few markets. The Arab Spring made the company seek out new markets, marketing methods and continuous development, instead of relying on market stability.

C19 did not close its headquarters, because the benefit of keeping it at a loss and using it as a rental centre was greater than closing it. One of the positive impacts of the Arab Spring is the arrival of Syrian investors to the Jordanian market, which enabled the renting of factories to those investors.

C20 benefitted from the Arab Spring due to the nature of its work in construction. C20's benefits derived not only from individuals but also from all companies that started their work in the cities that fall within the scope of the company's work.

C22 believes that the Arab Spring has brought it positive impacts in such forms as the governmental support and the external funds that helped it to survive and stay in the market while none of its local competitors was able to do so.

According to the C24 owner, the Arab Spring should have happened 20 years ago. It came with benefits to everyone as the activities of any sector working in the market will lead to the activation of the rest of the sectors. This is of course in addition to the amount of support and funding that the companies have received as a result of the Arab Spring.

C25 claimed that the Arab Spring has brought lots of support to Jordan, especially financial support. It also brought qualified labour into the workforce.

C26 identified the movement by Syrian suppliers of their factories to Jordan as one of the advantages of the Arab Spring, which has helped companies to obtain raw materials more quickly and at nearly the same cost. Another advantage of the Arab Spring is that a group of Syrian manufacturing companies transferred their businesses to Jordan, which led to an increase in demand for packaging materials.

C27 viewed the Arab Spring as providing the motivation to start working with the British and American market (2016). Also, there is the support that external entities have provided.

C28 regarded the Arab Spring as a blessing in disguise, as it helped in entering new markets, in addition to being able to return to its previous markets. Also, the funding obtained by the company contributed greatly to the development of its work, helping it to remain in the market and to benefit from the current situation. Another positive effect of the Arab Spring is that the company now thinks broadly and adjusts its future vision, in addition to focusing on global markets that have better stability and growth. However, according to the owner of C28 (2019), *"The harm was greater than the benefit due to the fact that the benefit takes more time to be achieved"*. Even if the benefit is higher than the loss, it does not happen as fast as the loss.

According to C06, C09, C11, C12, C14, C16, C18, and C23, the Arab Spring has not had any positive impact on them.

Finally, C21 and C29 do not think that the Arab Spring has had any impact (positive or negative) on them.

5.9. Support

"Support for any market can help to enlarge its sales", according to C01's owner. Also, the C15 owner thinks that in order for Jordan to become stronger in exporting, it must work on developing the individual, such as through providing funds to establish language centres for company personnel to help them develop their commercial transactions abilities so that they can negotiate with the parties to whom they will be exporting. In addition, awareness should be raised of the needs of foreign markets.

C18 claims that "There is no government support for domestic goods. And no protection for the industry. There is no law to protect the national product".

In order to obtain a grant, first, the donor announces the existence of financial support that it wishes to distribute to the companies, which in turn submit the required papers (usually companies are given a month) in order to obtain approval and submit the rest of the required papers, and then the support is given. The company may obtain the required value or less, or its request may be rejected. Each sponsor has its own terms and conditions for applying for its funds, for instance, the amount of the funds, where to spend it, how to spend it, whether to buy directly or through the supporting fund entity, etc. After obtaining the funds, the supporting entity makes sure that the fund is used as agreed upon by continuously following up what the company is doing with it and how are they spending it, to ensure that the grant is used as agreed. This will include gaining copies of the money transfers made by the company (such as for buying machinery from abroad).

Usually, the donor requests several things, including a feasibility study, a notary guarantee (after obtaining approval) and a cheque for the value of the grant as a guarantee in the event that the beneficiary declines to implement the agreed-upon items (as a guarantee for the donor). If a company desires to apply for further support from the same donor, it must submit a new idea for development on the project or a new project.

Figure 19 - Manufacturing Industry – Support

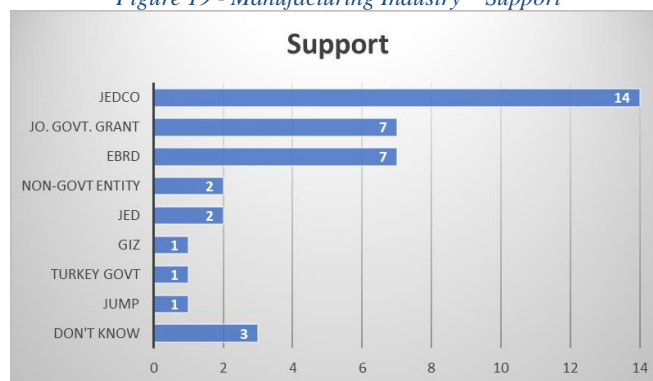


Figure 19 shows the types of supports that have been obtained by the companies as a result of the Arab Spring and the number of companies that have gained each one of them. This figure shows that only a few companies (3 companies) were not aware of the support that they could benefit from. There are also various different entities that provide companies with support. Eight entities seemed to have provided this support to the interviewed companies. Of those entities, JEDCO is the entity that supports companies the most, having provided support for half of the interviewed companies (14 out of 29 companies).

Table 16 - Manufacturing Industry - Support

Company	JEDCO	Jordan Govt. Grant	EBRD	Non-Govt Entity	JED	GiZ	Turkey Govt	Jump	Don't Know
C01	x	x	x	x	x	x	x	x	x
C02	✓	✓	✓	x	✓	x	x	x	x
C03	✓	x	✓	x	x	x	x	x	x
C04	✓	x	x	x	x	x	x	x	x
C05	x	x	x	x	x	x	x	x	x
C06	x	x	x	x	x	x	x	x	x
C07	x	x	x	x	x	x	x	x	x
C08	x	✓	x	✓	x	x	x	x	x
C09	x	x	x	x	x	x	x	x	x
C10	x	x	x	x	x	x	x	x	x
C11	✓	x	✓	x	x	✓	x	x	x
C12	✓	x	x	✓	x	x	x	x	x
C13	✓	x	x	x	x	x	x	x	x
C14	x	✓	x	x	x	x	x	x	x
C15	x	x	x	x	x	x	x	x	✓
C16	✓	✓	x	x	x	x	x	x	x
C17	✓	x	x	x	✓	x	x	x	x
C18	x	x	x	x	x	x	x	x	✓
C19	x	x	x	x	x	x	x	x	✓
C20	x	x	x	x	x	x	x	x	x
C21	x	x	x	x	x	x	x	x	x
C22	✓	✓	✓	x	x	x	x	x	x
C23	✓	x	x	x	x	x	x	x	x
C24	✓	x	x	x	x	x	x	x	x
C25	✓	x	x	x	x	x	✓	✓	x
C26	x	✓	x	x	x	x	x	x	x
C27	x	x	✓	x	x	x	x	x	x
C28	✓	✓	✓	x	x	x	x	x	x
C29	✓	x	✓	x	x	x	x	x	x

Table 16 shows that 11 companies have not received any support during this turmoil. While C15 wishes to obtain grants and financial support to help it develop and increase its employment, it does not know how to access or benefit from such grants.

5.10. Conclusion

In this chapter collected data have been grouped into a number of sections: introduction, systematic general comparison about the interviewed companies, disruptions related to the Arab Spring that those companies have faced, changes in the governing regulation that have influenced those companies, whether inside or outside Jordan, supply chain resilience practices that have been adopted by those companies, why those companies have adopted those specific practices, how their performance has been influenced due to this turmoil, if this turmoil had a positive effect and what it was, and whether or not those companies have received any support, which entities have provided them with it, and how it has impacted them.

This chapter has analysed the interviews conducted with 29 manufacturing companies from different manufacturing sectors. Those interviews were conducted mainly with the business owner and sometimes with top management levels, of all company sizes, with local, multinational, and international companies, and mainly with companies having supply chains in Arab Spring countries and countries that faced its consequences, companies that knew about supply chain resilience practices and others that had no idea about it. The level of the provided information

was different from one company to another as some of them were open to discussing most of the details about their companies, while others wanted to keep it at a level that would answer the research question but would not divulge lots of details about them or their companies.

After looking into all the collected data regarding those companies' operations and linking it with the Arab Spring, this chapter has found that: those companies having faced at least a few disruptive events. This research has identified 36 disruptions that have influenced those companies. Among those 36 events, those related to instability, production, and regulations seem to have had an impact on a higher number of companies. The majority of those companies believe that changes in regulations have had impact on them to varying degrees. However, changes in laws linked to shipping have impacted more companies than other categories of regulation changes.

Interviews with those companies have also suggested that the probability of companies adopting supply chain resilience practices is increasing after facing a disruption. This supply chain resilience practices adoption was more likely for practices related to coping with the new situation, such as adaptive capability and visibility, whereas practices linked with companies' information, such as sharing knowledge with others, even their own supply chain, improving trust, collaboration, risk and revenue sharing, and information sharing, were likely to be avoided. Moreover, due to those companies' lack of knowledge on how to apply them, agility practices were likely to be avoided. Among the interviewed companies, 25 out of 29 adopted at least one supply chain resilience practice.

Resilience practices adoption came as a result of the drivers that helped companies to benefit from this turmoil and barriers that have disrupted those companies' operations. It can be noted that factors (drivers or barriers) related to investment encouragement seem to be those most affecting decisions on adopt supply chain resilience practices.

The performance of those companies has been influenced also due to this turmoil. Those companies have been influenced differently (negatively or positively, and temporarily or permanently). Profitability, sales, and costs seem to be the most impacted measures of performance. Some companies have declared that the Arab Spring had some positive impact on them, the industry, the businesses, or even the area (more details will be given in the next chapter).

In terms of support, most of those companies who knew about the available support seemed happy with it and believed that it came as a great help for them, while a few seemed to believe that it was not sufficient and that the supporting entities keep checking up on the companies and controlling how they should use it.

Further details about the collected data can be found in appendixes. Interview questions (Appendix 4), participant cover letter (Appendix 5), participant information sheets (Appendix 6), consent form (Appendix 7), ethical approval (Appendix 8), and sector guide (Appendix 9) are also included. Basic information about the interviewed companies is provided (Appendix 11). Two sectors (the food sector and printing and packaging sector) have been studied in more detail and the resulting information can be found there (Appendix 12).

The next chapter will conduct a discussion of the study findings in relation to the literature (where applicable). It will also look at the findings through the theoretical lens that has been used in this research.

Chapter 6: Discussion

6.1. Introduction

The previous chapter has analysed the collected data from the interviewed companies by gathering them under sections and themes to help in better understanding them and how they are linked to this research’s aim, question, and variables.

Chapter 2: Literature Review highlighted a research gap in the supply chain resilience literature. This research worked on addressing this research gap by gathering and analysing related data that, in light of the literature, would help in answering the research question set out in Chapter 1: Introduction:

How does supply chain resilience influence a firm’s performance within a turbulent economic environment?

To answer this research question, 29 manufacturing companies in Jordan were interviewed, and the researcher gathered and examined reports from formal entities, related news articles, financial data for the manufacturing listed companies, and related research literature.

In this chapter, to gain further understanding of the collected data, supply chain resilience practices will be discussed based on their similarities rather than the time of adoption or the practice itself. Those findings first will be linked to previous literature (where available). Second, the influence of the Arab Spring on those companies will be examined. Third, those practices will be considered through the research’s theoretical lens (Institutional theory). Finally, the chapter will identify this research's limitations, strengths, and areas for possible future research.

6.2. Supply Chain Resilience Practices

Conducting the interviews has resulted in the identification of a number of practices (proactive and reactive) that those companies have used which helped them to overcome this turmoil and stay in the market and in some cases achieve a more favourable position. Those practices from Chapter 5: Analysis and Findings - Manufacturing Industry are now grouped in this chapter in Table 17 based on their similarities (Themes) and then discussed by linking them to previous literature (where available):

Table 17 - Supply Chain Resilience Used Practices

Cost	Starting to use alternative sources of power when the cost increased rapidly or trying to reduce power consumption
	Trying to cut costs internally
	Reducing profit margin or prices
	Sharing the cost with the supply chain
	Finding supportive bodies to help in developing their business
Marketing	Participating in exhibitions
	Adopting new marketing methods or increasing their current ones
	Customer Service/ product quality
	Shipping on behalf of their customers
Supplier/ Customers	Keeping on exporting to Arab Spring countries
	Stopping markets to reduce their unpredictability
	Having multiple customers/ suppliers
	Focusing/ relying on the local market
	Entering new markets that can be considered as richer markets or non-traditional markets

Length and spread of SC	Increasing the horizontal spread of the company by adding more products lines.
	Opening branches outside Jordan
	Maintaining communication within the company
	Increasing communication within the supply chain
	Companies reducing their existence in the market
	Alliance with other companies
Product/ Production	Product protection
	Changes to production specifications
	Trying to predict future demand
	Preparing the company for the future
	Keeping inventory
	Changing the production capacity of the factory
	Companies' tendency to become more sustainable, environment friendly, and increase the recycling level
	Public safety
Financial	Funds stopping
	Financial protection and payments
	Achieving what is desired from the business
Knowledge/ Talent	Starting to obtain certificates or training
	Employee's skilfulness/ knowledge
	Artificial intelligence
	Advising other companies to adopt successful supply chain resilience practices

6.2.1. Cost

Companies seek ways to become more competitive throughout their supply chain, including increasing their profitability by reducing costs (Sakka and Genoulaz, 2009).

Cost efficiency is still prominent in the supply chain environment as most organisations and business units are striving to achieve higher productivity which leads to higher profit margins and financial sustainability (Sellitto et al., 2015; Gopal and Thakkar, 2012).

Some researchers, such as Sheffi (2005) and Schmitt and Singh (2012), have focused on the importance of supply chain resilience as it helps in reducing companies' costs. For example, they believe that reducing transportation length and time by working with local suppliers might be better for companies even if their per-unit price is higher, as using those suppliers reduces different costs and might be better for companies in the overall situation.

6.2.2. Marketing

The increased uncertainty of the business environment has raised companies' awareness of the importance of meeting the customers' expectations in order to stay in the market (Sashi, 2012; Sheffi and Rice Jr., 2005). This increases the necessity for them to have some level of flexibility in their supply chain to mitigate any external influence (Sreedevi and Saranga, 2017; Morad and Houssam, 2019).

Companies should always search for new and improved ways to become more competitive, and increasing profitability by improving quality might help them to achieve this (Singh and Singh, 2019; Sakka and Genoulaz, 2009). One of the ways to do this is by relying on research and development (R&D); however, this method is considered relatively expensive and some companies might prefer to use the money instead for retained earnings or even for paying any external debts, as R&D is considered by the companies as a long-term, risky investment (Ünlü

and Alshebami, 2022). Additionally, political instability negatively influences the company's willingness to spend on R&D (Ünlü and Alshebami, 2022).

According to Beamon (1999), quality is one of the most measured indicators in SCP. Several studies retrieved a significant and positive correlation between quality and SCP (Flynn et al., 2010; Gopal and Thakkar, 2012; Sellitto et al., 2015); such measures can include: continuous improvement (Talib and Rahman, 2010), supplier quality management (Singh et al., 2006; Talib and Rahman, 2010), benchmarking (Singh et al., 2006; Talib and Rahman, 2010), customer orientation (Woon, 2000; Zhang et al., 2000), and customer satisfaction (Shepherd and Gunter, 2006; Gunasekaran and Kobu, 2007).

6.2.3. Supplier/ Customers

Tang (2006) highlighted that companies aim to adopt a widespread supply chain, by engaging with companies in different regions. Similarly, Todo et al. (2015) found that having a higher number of suppliers and clients outside of the affected areas of the disruptive events helps companies reduce the time necessary to recover from disasters. While it might only have a weak effect on the medium-term growth of sales, it allows companies to keep operating.

The company should be very careful about its relationship with its suppliers; if a company decides to work with one supplier, for example, it should keep up a deep relationship with this supplier in order not to jeopardise its position in the marketplace (Sheffi and Rice Jr., 2005). Companies' relationships with their suppliers can be of help in recovering from disasters. The benefits deriving from strong relationships with their suppliers and customers could be physical, psychological or financial in nature (Todo et al., 2015). Keeping strong relationships with the supply chain will also help if, for instance, a disruptive event caused a company to exit the market, those relationships could allow it to re-enter it again in an easier way in the future (Yayla et al., 2018).

Losing supply or demand from a damaged part of their supply chain can also be overcome by using the strength of the supply chain to spread information and find new partners (Todo, et. al, 2015). Companies might re-enter a foreign market that they previously exited if its environmental conditions have improved (Yayla et al., 2018).

Having a supply chain outside the affected areas will be of help to the short-term recovery, while the presence of the supply chain within the affected areas will help the medium-term recovery. Therefore, having a diversified supply chain will help the company in increasing its resilience against risks or disasters and to decrease their effects (Todo et al., 2015). This means companies working in a dynamic environment and relying on suppliers during disruptive events will be significantly impacted by it (Singh and Singh, 2019).

Political instability such as the Arab Spring not only affects the companies in a direct way, it also affects them through their working conditions and customers, as this turmoil will increase poverty, increase corruption, lead to more miserable living conditions, higher unemployment rates, and wealth inequalities (Ünlü and Alshebami, 2022; Klomp, 2021; Dubey et al., 2021; Singh and Singh, 2019). The poor economic conditions will also influence customers' consumption due to their worry about their personal well-being, economic well-being, and social well-being (Min et al., 2019).

6.2.4. Length and spread of the Supply Chain

Communication can help companies to recover from disasters through sharing information about what happened to them (Min et al., 2019; Todo et al., 2015). Firms that collaborate with their

trading partners have a higher chance of achieving faster access to the market and quicker recovery time (Min et al., 2019; Sheffi, 2005). Those firms that have good relationships with their partners will be more resilient and will need less time to recover since, for example, they will have quicker access to production parts. Companies that have the capability to build demand and have higher supply chain visibility would be more resilient and better able to reduce the impact caused by a disruptive event (Dubey et al., 2021).

Political instability has a high influence on the growth of companies and their supply chain, which is the case with countries in the MENA, in addition to their economies being considered weak in general (Ünlü and Alshebami, 2022; Klomp, 2021; Dubey et al., 2021; Kahveci, 2019). Political instability is also considered a demotivator for new foreign investment initiatives (Ünlü and Alshebami, 2022). This has had a huge impact on investors' new business decisions, as investors started to be extra careful regarding opening their investments and moving their current investments (Ünlü and Alshebami, 2022; Klomp, 2021). Even post the Arab Spring the instability is still having a negative effect on bilateral trade (Kahveci, 2019).

6.2.5. Product/ Production

The path of building supply chain resilience can be divided into four stages: planning for the disruption event; reacting to it; recovering from it; getting a competitive advantage from the situation (Tukamuhabwa et al., 2017). Globalisation has pushed companies toward gaining a competitive advantage to respond to changes in the market demand and to survive in the market. Companies do this by product feature personalisation according to the customer request, adding features to the standard products, customisation of core product elements, and product reformulation under the same identical brand (Min et al., 2019).

Relying on outsourcing to reduce the inventory level will increase the vulnerability of the supply chain as it will increase the company's dependence, in addition to increasing the complexity of the relationships in its supply chain (Thun and Hoenig, 2011). Having a good inventory level will give the company time to plan what it will do after disruption, but this method is considered expensive and might influence the quality. Firms might use redundancy in order to moderate the risk of disruption. However, achieving resilience is more important for firms than redundancy. This is because a resilient supply chain will be more able to anticipate disruptive events, carry on with its operation, overcome the effect of disruption, and consistently benefit from the situation to gain a competitive advantage, instead of relying on overproduction to avoid disruption risk, which might be increased if there is a change in the type of demand (Dubey et al., 2021; Namdar et al., 2017). This will improve the company's risk management capabilities, which in the long run will improve the company's return on investment (Dubey et al., 2021; Singh and Singh, 2019).

Time efficiency is a very prominent SCP measure as it can be positively associated with customer satisfaction and operation costs (Droge et al., 2004; Deshpande, 2012; Sellitto et al., 2015). According to Gunasekaran and Kobu (2007) and Gunasekaran et al. (2001), time efficiency can contribute to the improvement of SCP not only at an operational level but also at tactical and strategic levels. Shepherd and Gunter (2006) mention measures such as lead time, delivery time, product lateness, the average time of orders, on-time delivery and customer query time. Reverse supply chain measures are mentioned as well: dealing with product recycling time and time required for product recovery or replenishment (Beamon, 1999; Olugu et al., 2012).

The level of influence due to disruptive events can vary not only according to companies' supply chain resilience but also according to industry characteristics, company size, company location, and type of products (Darendeli et al., 2021; Gunasekaran et al., 2014). Firms have different levels of resilience in terms of reacting to the same disruption events (Sheffi, 2005; Longo and Ören, 2008) since the influence of disruption depends on the incident itself and the design of the supply chain (Thun and Hoenig, 2011). Additionally, disruption has a higher impact on cultures with a

low tolerance for uncertainty (Abdelzaher et al., 2017). Firms' ability to continue their operation after facing a disruption event is considered as one of the main determinants of long-term competitiveness (Abe and Ye, 2013). Darendeli et al. (2021) seem to believe that the experience the company has in a certain market does not influence its ability to overcome such disruptive events. While Singh and Singh (2019) argue that a company's expertise in managing disruption has a negative impact on its ability to develop its risk resilience. Literature also has shown that the Arab Spring has influenced different sectors at different levels.

The disruptive event usually impacts one or more of the parts of the supply chain, which consists of supply, demand, technology, and manufacturing (Sreedevi and Saranga, 2017). The main motivations for firms to build resilience capabilities are the possibility for these disruptive events to occur, and the extent to which they can affect the firm (Sheffi, 2005). However, many companies fail to build their resilience capabilities as they consider it too costly and they do not understand the direct implications or its impact (Sreedevi and Saranga, 2017). However, Darendeli et al. (2021) and Yayla et al. (2018) claim that if parts of the supply chain are outside the country of investments and a company wants to reduce the risk of association with that unpopular governmental it should seek legitimacy with elements of society in that country that have social power or participate in projects with social benefits. Therefore, Darendeli et al. (2021) believe that when companies decide on the location of their businesses, they do so by finding countries which have close political relationships or countries where they have political leverage as this will help in avoiding political volatile contexts.

Based on the above, it is better to have a reasonable amount of inventory to cover the amount of goods needed with regard to the demand response time and the probability of disruptions (Schmitt and Singh, 2012). This solution, in theory, seems to be an easy solution but is not always applicable in real life as the rule of trade-offs will come into play: what the company will lose by having this level of inventory, having unnecessary inventory, having a higher level of needed inventory, uncertainty in the market, or sudden changes to customer demands.

6.2.6. Financial

The Arab Spring has resulted in a significant rise in the financial costs that has affected the development of institutional and governance quality in a negative way (Arayssi and Fakih, 2017). Consequently, the relative weakening of the contribution of finance has affected economic growth (Arayssi and Fakih, 2017). The analysis conducted by Ghosh (2016) indicates that the Arab Spring has decreased firms' profitability by 0.2% and increased the risk by 0.4%, while Ünlü and Alshebami (2022) believe that financial constraints have a negative impact on the company's innovation performance.

Firms' ability to continue their operation after facing a disruption event is considered as one of the main determinants of long-term competitiveness, as this event may interfere with firms' production activities and will therefore also interfere with financial profits and market share in the long run (Abe and Ye, 2013). In particular, the effect of the disruptions can be felt in financial form if one or more of the parties facing disruption cannot maintain the firm's cash flow or cannot finalise its financial payables on time (Abe and Ye, 2013). Some companies rely on loans to overcome the cash liquidity problem (Ünlü and Alshebami, 2022). If companies are looking at sustainable supply chain management, they should also look for quantitative methods to evaluate their performance (Wu and Liao, 2016).

Such risks can lead to a major disruption which can be determined based on effects on the performance of the company resulting from changes in sales, production level, profits, customer service, or other measures (Sheffi and Rice Jr., 2005). However, the effects of those disruptions can vary according to the company's resilience and the strength of its supply chain relationships (Sreedevi and Saranga, 2017, Kumar et al., 2018, and Morad and Houssam, 2019).

6.2.7. Knowledge/ Talent

Several studies retrieved a significant and positive correlation between quality and SCP (Flynn et al., 2010; Gopal and Thakkar, 2012; Sellitto et al., 2015). Measures used to assess the level of correlation can include: continuous improvement (Talib and Rahman, 2010), supplier quality management (Singh et al., 2006; Talib and Rahman, 2010), benchmarking (Singh et al., 2006; Talib and Rahman, 2010), management commitment (Singh et al., 2006), employee management (Singh et al., 2006; Talib and Rahman, 2010), training and education (Zhang et al., 2000), and customer orientation (Woon, 2000; Zhang et al., 2000), defect-free rate, rejection rate, supplier relationship, competency, complaint rate, product quality, and customer satisfaction (Shepherd and Gunter, 2006; Gunasekaran and Kobu, 2007).

The labour market has been also influenced by the Arab Spring negatively as it has increased the unemployment rate (Ünlü and Alshebami, 2022), which could be because most companies have attempted to reduce their number of employees, in addition to the increase of the number of potential employees due to refugees looking for jobs in their new country.

6.3. The influence of Arab Spring

The interviewed companies have stated the following: “*One of the biggest pressures on the company was the one from the competition*” (C06). The turmoil also had an impact on the psyche of the industrialists, which led to an increase in their fear and worry over what might happen, and consequently the impact of this on their productivity and efficiency (C06).

However, some companies seem to have more understanding of how to face turmoil. Even though C09 thinks that the good and the bad of every situation should always be considered, other companies seem only to see the bad outcomes from this turmoil. The effects of the Arab Spring were on the spot, in the sense of being immediate (C28). And as a result of this turmoil, there has been a global fear of trade with the whole region (C17). The Arab Spring did not give Jordan any advantage (C12). One of the most important influences on any company is the economic effects, but the Arab Spring led to companies being unable to continue with the same annual growth and development in their work, and they were brought back almost to the zero point in terms of exports (C28). No factory has been unaffected by the turmoil, but there are some factories that have used wisdom in order to mitigate the harm and continue (C06).

On the other hand, C10 thinks any harm that befalls anyone benefits another party. Also, the Arab Spring led to benefits when coming out of the harm, as the Arab Spring helped the companies to pursue entry into new markets (C28). This turmoil prompted industrial companies, in general, to prepare themselves for the future, to develop within their industry, to use modern technological methods, and to invest better in their sector, in the hope that the future would be better and that companies’ readiness would be better with regard to markets (C13). This turmoil has helped industrial companies to search for new markets and seek to know what the customer needs and thus expand and develop their activities for the future, and thus companies may avoid similar crises in the future due to the diversity of their markets (C13).

The companies had different opinions on how to classify or to see this turmoil based on each company’s personal experience and how it has been affected by it. However, some companies seemed to have developed a pessimistic opinion about the future. C16 thinks that there is nothing that can be done to avoid similar crises in the future since the Arab region is a region of major crises and it is difficult to predict them. It is difficult to develop plans, as companies are currently living in the recovery phase, and therefore their plans are made on a daily basis and based on the developments that occur in the markets by which they are affected (C15). C17 agrees with this opinion regarding the difficulty of predicting the Jordanian market and attributes it to the fact that

the company follows its customers on demand, who follow their customers, and there is no standard or basis for making such predictions.

6.3.1. Arab Spring Influence - Influence Base

Figure 20 - Arab Spring Influence - Influence Base

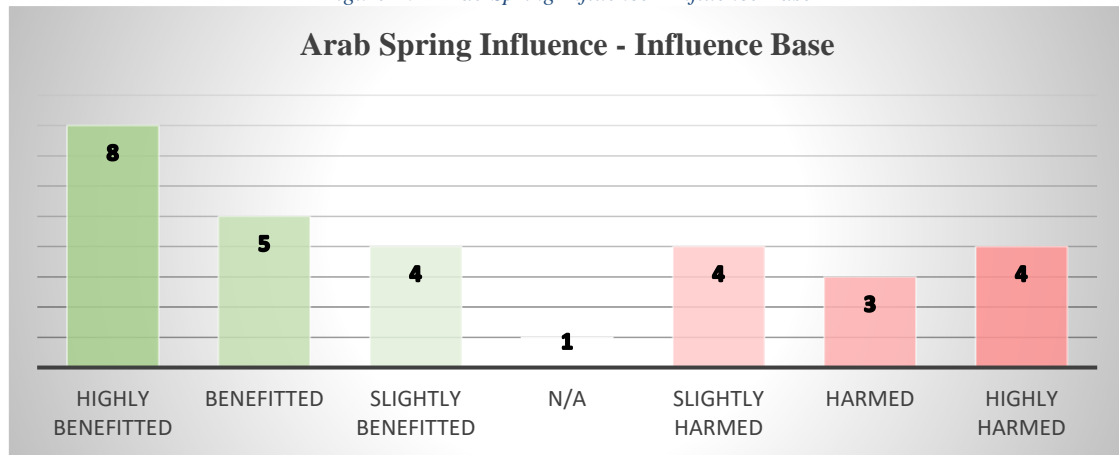


Figure 20 shows the levels at which the companies have been impacted by the Arab Spring and the number of companies that have been influenced at each level. The level of impact has been determined based on the assessment of the researcher on how the Arab Spring impacted them, the duration of impact, and any further impacts that it had on them. Highly Benefitted means that the company has benefitted from the Arab Spring and this positive impact will last for a long period and become a permanent positive impact. Benefitted means that the company has benefitted from the Arab Spring and this positive impact will last for a long period. Slightly Benefitted means that the company has benefitted from the Arab Spring and this positive impact has lasted for a short period. N/A means that the Arab Spring has had no overall impact on the company. Slightly Harmed means that the company has been harmed by the Arab Spring but this negative impact has lasted for only a short period. Harmed means that the company has been harmed by the Arab Spring and this negative impact will last for a long period. Highly Harmed means that the company has been harmed by the Arab Spring and this negative impact will last for a long period and become a permanent negative impact.

Below, Table 18 groups the companies based on the different levels of impact to show the number and identities of companies under each level. Then, Table 19 groups the companies based on their sector to show the level of impact on each sector.

Table 18 - Arab Spring Influence - Influence Base

	Highly Benefitted	Benefitted	Slightly Benefitted	N/A	Slightly Harmed	Harmed	Highly Harmed
1	C02	C06	C10	C14	C01	C04	C05
2	C03	C13	C17		C09	C07	C16
3	C08	C15	C21		C11	C22	C18
4	C20	C23	C29		C12		C19
5	C24	C25					
6	C26						
7	C27						
8	C28						

6.3.2. Arab Spring Influence - Sector Base

Figure 21 - Arab Spring Influence - Sector Base

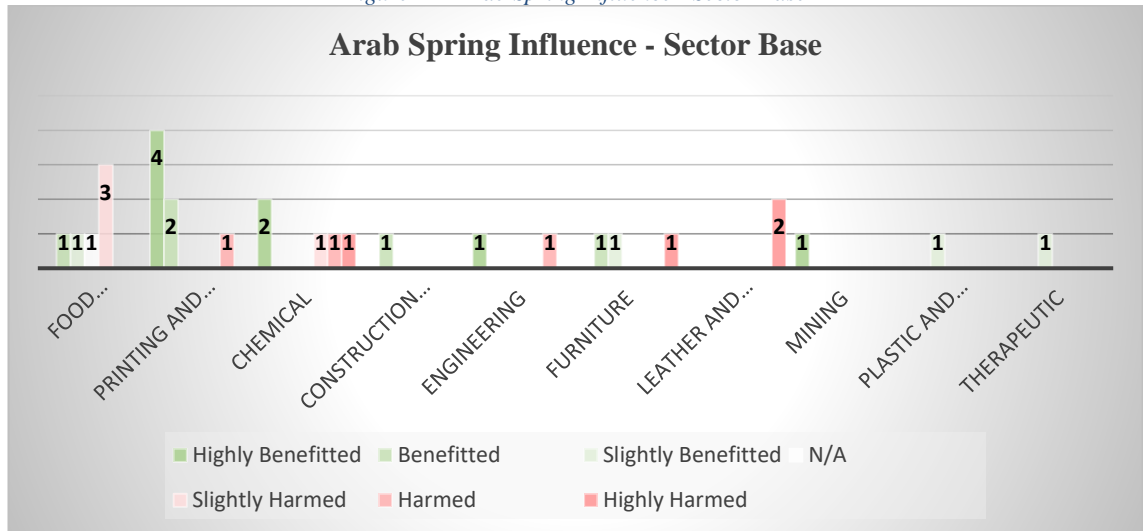


Figure 21 shows the levels at which the companies have been impacted by the Arab Spring and the number of companies impacted by sector.

Table 19 - Arab Spring Influence - Sector Base

Sector	Company Code	Effect on Performance
Food (Example Appendix 12)	C09	Slightly Harmed
	C10	Slightly Benefitted
	C11	Slightly Harmed
	C12	Slightly Harmed
	C13	Benefitted
	C14	N/A
Chemical	C01	Slightly Harmed
	C02	Highly Benefitted
	C03	Highly Benefitted
	C04	Harmed
	C05	Highly Harmed
Engineering	C07	Harmed
	C08	Highly Benefitted
Leather and Garments	C18	Highly Harmed
	C19	Highly Harmed
Printing and Packaging (Example Appendix 12)	C22	Harmed
	C23	Benefitted
	C24	Highly Benefitted
	C25	Benefitted
	C26	Highly Benefitted
	C27	Highly Benefitted
Furniture	C15	Benefitted
	C16	Highly Harmed
	C17	Slightly Benefitted
Construction Industry	C06	Benefitted
Mining	C20	Highly Benefitted
Plastic and Rubber	C21	Slightly Benefitted
Therapeutic	C29	Slightly Benefitted

Table 19 shows how companies in the same sector were influenced. It is noticeable that sectors on the left-hand side were more likely to be harmed from this turmoil. This could be due to the fact that those sectors were more dependent on exports than the ones on the right-hand side. Also, sectors on the right-hand side, because of their products' nature, have generally benefitted from the turmoil that brought the closure of the borders by increasing their activity in the local market and the turmoil has itself generated new projects for them.

Interviewed companies have been influenced differently as a result of the Arab Spring. There are a number of factors that have played a key role in terms of how the companies have been impacted by this turmoil. Those key factors include the sector the company is in, the type of product the company produces, where the company operates, where the company is based, and, of course, the level of adoption of supply chain resilience practices.

It has been noticeable from the conducted interviews, above tables, and figures that none of the sectors within which the interviewed companies operate have been affected to the same level.

However, the following paragraphs will try to provide a general scale of impact for each sector in the manufacturing industry.

The Chemical sector has been affected both negatively and positively by the Arab Spring. The main determinant for the level of impact was the nature of the product itself. For instance, companies that produced pharmaceutical products or fertilisers were more likely to benefit from the turmoil as their clients' need for such products increased. While companies that produced cleaning materials or paints were more likely to be harmed as clients were trying to lower their spending on such products or looking for cheaper replacements for them. All the interviewed companies in this sector had direct relationships with countries that faced the Arab Spring and its consequences. However, companies that used some supply chain resilience practices before the Arab Spring have managed to benefit from the turmoil, and in addition to the fact that those companies' products might be considered as more essential products, their pre-turmoil adoption of supply chain resilience practices has helped those companies to a faster response to overcome the turmoil. Moreover, companies that managed to add supply chain resilience practices were able to reduce the impact of the turmoil on their business and to find new ways to keep their company in the market. Some companies managed to find alternative ways to reach back to markets that they had to leave or to expand in markets where their competitors are struggling to reach.

The Construction sector has been affected positively by the Arab Spring and it had a very strong short-term impact on those companies. Mainly this is because those companies had worked on the relief projects that had been started in Jordan due to the turmoil. The turmoil has increased the number of relief projects inside and outside the refugees camps, mainly due to the increase in population which increased the need for this sector's products. In addition, the turmoil made it harder and more expensive to import such products from outside Jordan, which increased the demand in the local market. However, these companies were worried about declaring that they have benefitted from the turmoil as this might draw attention to them, and they were not sure what repercussions this attention might have for them, especially with the changes in the laws in Jordan. Additionally, companies that have strong supply chain resilience practices have managed to maintain the positive impact of the Arab Spring.

The Engineering sector has also been affected both negatively and positively by the Arab Spring, which came as a result of the company's product nature. The negative effect was mainly because some companies make products that are not considered daily basic essentials, are relatively expensive, and customers could live without them or even keep relying on their old products, especially since the economic recession caused by the Arab Spring also affected the buying power of customers and led them to prioritise their spending. While other companies experienced positive effects because they make products that are for daily use and may be more affordable to customers. Moreover, those products were continuously being changed and improved to make customers' daily activities easier or give them the satisfaction of knowing that they own the most recent products in the market. Meanwhile, companies who have adopted supply chain resilience practices have managed to reduce the negative impact and at some level to expand into new markets by convincing the customers that their particular products will benefit them in some way.

The Food sector companies have been only slightly affected, either positively or slightly negatively, by the Arab Spring. Mainly this is because this sector meets an essential human need. Also based on this research, those companies had direct relationships with countries that faced the Arab Spring and its consequences. However, the impact varies depending on the nature of the product itself, whether it is an essential or luxury item. For instance, companies providing essential products experienced a positive impact for a number of reasons, including the increased population in the local market and the compromising of the export market. Companies that had applied some supply chain resilience practices have managed to reduce the impact of the turmoil on their business and to find new ways to keep their company in the market by keeping the same supply chain through other channels, opening new markets, or increasing their focus on the local market. Meanwhile, those companies that have managed to add more supply chain resilience

practices have managed to control the situation even better to reach a level at which the negative impact is almost equal to the positive impact of the turmoil.

The Furniture sector companies have been fairly positively affected by the Arab Spring. Mainly this is because those companies' products cannot be influenced easily by other countries and because of the increasing population in the local market. This positive impact was despite the economic recession, the decline of customers' buying power, and the changes to some relevant laws in Jordan. Also, companies that produce home or office furniture have benefitted more than companies that make furniture for educational establishments. Meanwhile, companies that have applied some supply chain resilience practices were able to better overcome this turmoil.

The Leather and Garments sector companies have experienced an extremely strong negative impact due to the Arab Spring. Mainly this is because those companies had direct relationships with countries that faced the Arab Spring and its consequences. Some of the companies that did not apply supply chain resilience practices had to leave the market as they were no longer able to operate, while the rest are struggling to stay in it despite the losses, as liquidating the company might cost them more, or they are using the company to help them in continuing with another type of business.

The Printing and Packaging sector has experienced a strong positive impact due to the Arab Spring. This sector is the one that has benefitted most from this turmoil. Mainly this is because other companies in Jordan used to import those products from countries facing Arab Spring and its consequences. However, due to the turmoil, most of the Jordanian companies had no choice but to deal with the local companies, which led to a significant increase in the demand from those companies and increased their profitability. On one hand, it was noticeable during the interviews that even companies which had no supply chain resilience practices before the turmoil have been benefitting from the turmoil and they have tried to improve the quality of their products to benefit more. On the other hand, companies which did have some supply chain resilience practices previously have benefitted from the situation even more and they have worked on improving their products in addition to improving their factories and increasing their capacity. Also, there was a noticeable trend in this sector to add supply chain resilience practices as the companies in this sector do not want to lose what they have achieved, especially since they have seen what happened to the market and the majority of the companies; in addition, they want to get the most out of this situation.

The Therapeutic sector has been affected positively by the Arab Spring and it had a strong impact on those companies. Mainly this is because those products are of a critical nature and because those companies had direct relationships with countries that faced the Arab Spring and its consequences. Despite the difficulty of reaching those markets the demand level from them has increased due to the nature of the turmoil and other competitors' concern over working with such risky markets. This has led some of the companies that did not apply supply chain resilience practices to leave the market as they were no longer able to operate, while others are struggling to keep the same customers. However, companies that have applied many supply chain resilience practices have managed to reduce the impact of the turmoil on their business and to find new ways to keep their company in the market by gaining new markets or increasing the focus on the local market, or relying on the efficiency of their supply chain to offset its impact or even to benefit from it. Also, those companies have managed to control the situation and find alternative ways to reach their old customers and reach a level at which the negative impact can be neglected.

6.4. Theoretical Lens

Social science research and business use of theoretical lens terms has increased in recent years (Niederman and March, 2019). As discussed in Chapter 2: Literature Review and Chapter 3:

Methodology, this research has relied on the institutional theory with regard to analysing data. This section will go through how this theory was implemented in this research and how it helped in grouping the practices adopted by companies based on why those practices were chosen.

6.4.1. Institutional Theory

The institutional environment can strongly influence the adoption of resilient supply chain practices and force the companies to change in order to better adapt to the environment. Institutional theory has three mechanisms of isomorphism which are: coercive pressure, mimetic pressures and normative pressures (Kauppi, 2012 and Kauppi and Luzzini, 2021). However, a recent study has split the first pressure into two categories, namely competition and regulation (Kauppi and Luzzini, 2021).

For the interviewed companies from the manufacturing sector adoption of resilient supply chain practices has happened through:

6.4.1.1 Coercive isomorphism

Coercive isomorphism can result from formal or informal pressure on companies by the government, other companies in the market, or by society, which can result in practice adoption by the companies; however, such adoption does not necessarily lead to higher efficiency (Kauppi, 2012). This research is targeting a major man-made disruption, how it influenced the interviewed companies and what practices they have adopted to overcome its impact. Therefore, most of the companies interviewed in this research have faced this pressure due to the nature of the disruptive event. Those companies stated during the interviews that if this turmoil had not occurred, they probably would not have adopted most of those practices. This means that the pressure of this turmoil has forced those companies to adopt supply chain resilience practices, therefore, those practices can be classified under coercive isomorphism.

Figure 22 - Coercive isomorphism

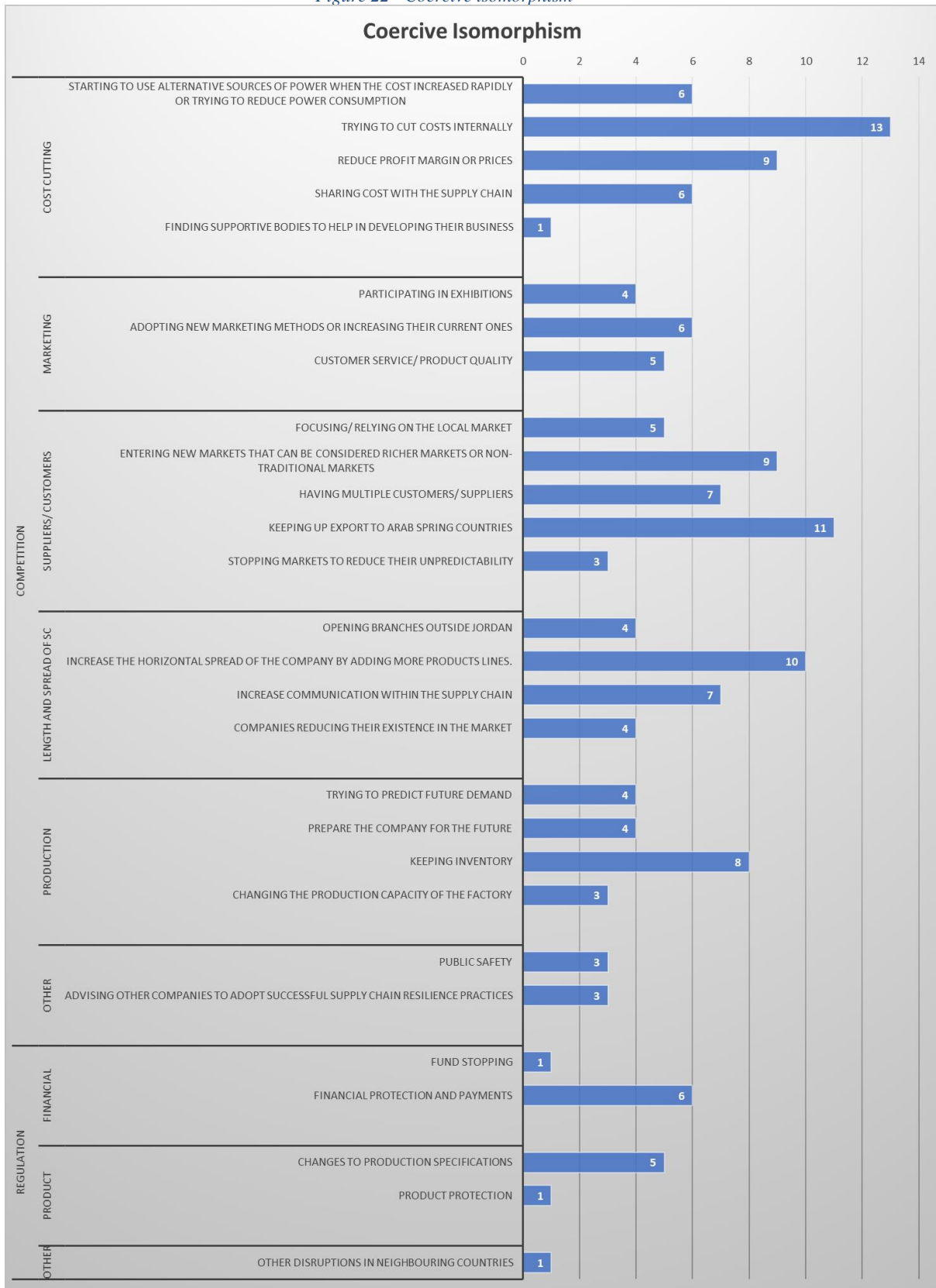


Figure 22 shows the number of companies affected by each aspect of coercive isomorphism.

Table 20 - Coercive isomorphism

Coercive isomorphism		C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	
Competitor	Cost Cutting	Starting to use alternative sources of power when the cost increased rapidly or trying to reduce power consumption	x	x	x	x	x	x	✓	x	✓	✓	x	x	x	x	x	x	x	✓	x	x	x	✓	✓	x	x	x	x	x	
		Trying to cut costs internally	x	✓	x	x	x	x	✓	x	✓	✓	✓	x	x	x	✓	x	x	✓	x	x	x	x	✓	✓	x	✓	✓	✓	✓
		Reducing profit margin or prices	x	✓	x	✓	x	✓	x	✓	x	✓	x	✓	✓	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	✓
		Sharing the cost with the supply chain	x	x	x	x	x	✓	x	✓	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	✓
		Finding supportive bodies to help in developing their business	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x
	Marketing	Participating in exhibitions	x	✓	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	✓	x	x
		Adopting new marketing methods or increasing their current ones	x	x	x	✓	x	x	✓	x	x	x	✓	x	x	x	x	x	✓	x	x	x	x	x	x	x	✓	x	✓	x	x
		Customer Service/ product quality	x	x	x	x	x	x	x	✓	x	x	x	x	✓	x	x	x	x	x	x	✓	x	x	x	x	x	x	✓	✓	x
	Suppliers/ Customers	Focusing/ relying on the local market	x	x	x	x	x	✓	x	✓	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	✓	x	x	✓	x	x
		Entering new markets that can be considered as richer markets or non-traditional markets	x	✓	x	x	x	x	x	✓	x	x	x	x	✓	x	x	x	✓	x	x	x	x	x	x	✓	✓	✓	✓	✓	x
		Having multiple customers/ suppliers	x	x	✓	x	x	x	✓	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	✓	✓	x	✓	x
		Keeping up export to Arab Spring countries	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	✓
		Stopping markets to reduce their unpredictability	x	x	x	x	x	✓	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x
	Length and spread of SC	Opening branches outside Jordan	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	✓	x	✓
		Increasing the horizontal spread of the company by adding more products lines.	x	x	✓	✓	x	x	x	✓	x	✓	x	x	✓	x	x	x	✓	x	x	x	x	x	x	✓	✓	x	✓	x	✓
		Increasing communication within the supply chain	x	x	✓	✓	x	x	✓	x	x	x	x	✓	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	✓	x	✓
		Companies reducing their existence in the market	x	x	x	x	x	x	✓	x	✓	x	x	x	x	x	x	x	x	x	x	✓	x	x	✓	x	x	x	x	x	x
	Production	Trying to predict future demand	x	x	x	x	x	x	x	x	x	✓	✓	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	✓
		Preparing the company for the future	x	x	x	x	x	x	x	✓	x	x	x	x	✓	x	x	x	x	x	x	✓	x	x	x	✓	x	x	x	x	x
		Keeping inventory	x	x	✓	x	x	x	x	x	x	✓	✓	x	✓	x	x	x	x	x	x	x	x	x	x	x	✓	✓	x	✓	✓
Changing the production capacity of the factory		x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	✓	x	x	x	x	
Other	Public safety	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	✓	x	
	Advising other companies to adopt successful supply chain resilience practices	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	✓	x	
Regulatory	Financial	Funds stopping	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
		Financial protection and payments	x	x	x	✓	x	✓	x	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	x	✓

Table 20 shows which practices (using the same themes as under section 6.2) can be classified under coercive isomorphism and which companies have been influenced by each coercive isomorphism pressure as explained below. Looking into coercive isomorphism and linking it to the manufacturing sector has resulted in:

6.4.1.1.1 Coercive isomorphism – Competition

Cost Cutting

Some of the companies started to use alternative sources of power when the power cost increased rapidly, such as solar systems (C07, C09, C10, and C18) or wind energy (C07), or tried to reduce power consumption by acquiring newer machinery (C22 and C23). Adoption of these practices by those companies came as a result of the increase in electricity prices due to the Arab Spring.

Finding cost-cutting methods was a necessity for most of the companies due to the increase in costs or the need to improve their competition place. Before the turmoil, those companies used to accept their existing cost levels without thinking, as their production and sales rates were enabling them to cover those costs and still achieve profit; however, when the turmoil happened and the costs increased, production level decreased, sales declined, and/ or profit margin declined, those companies had to seriously look into cutting costs for their survival, competition, and to gain the maximum possible level of profit.

Cost cutting has been approached in several ways, including trying to cut costs internally (C02, C07, C09, C11, C12, C16, C18, C23, C25, C27, C28, and C29). The companies have done this by starting to import raw materials themselves in cases where these raw materials will be exempt from tax, or finding raw materials with lower prices, stopping work during peak hours of power consumption and finding ways to lower their consumption, relying on the company's factory or branches, reducing advertising budget, restructuring their work to get the most out of their employees and laying off unneeded positions, stopping product lines that do not generate the required profitability, stopping use of their distribution cars and relying on their customers to send their own to collect their orders, inventory management in order to reduce waste and storage costs, suspension of salary increases for workers, and searching for common methods to apply across departments within the company in order to reduce costs.

Cutting costs was also done through reducing profit margin or prices (C02, C04, C06, C08, C10, C12, C13, C17, and C29). Those companies have done this by bearing the increase in costs in order to maintain their competitive place, reducing their profit margin to cope with the increased competition or to prevent new businesses from entering the market, selling at cost and only covering the fixed costs, to make their product affordable for the highest possible number of customers and thereby stay in the market.

Another method used to cut costs was to share the costs with their supply chain (C06, C08, C10, C11, C27, and C29). They have done this by increasing their prices in order for their customers to carry part of the increased costs, starting to rely on tenders to obtain raw materials at the best available prices, requesting their suppliers to bear some of the cost increase by reducing raw materials' prices, or due to the request for a certificate of origin.

One company (C22) had also managed to reduce the influence of cost increases by finding supportive bodies to help in developing its business. In this case, the company worked on developing the factory by bringing in more advanced mechanisms in order to increase competitiveness and improve productivity.

Marketing

Several companies participated in exhibitions (C02, C07, C17, and C27). This practice came as a result of the internal pressure of losing markets and external pressure from competition from other companies in the Jordanian market and outside of it. The internal pressure came from the company itself, through its owner or top management trying to compensate for the lost markets, and the external pressure came from competitors all trying to get the highest possible market share. This strategy has helped those companies to increase awareness in the local market of their products, and helped them to introduce their products to foreign markets to replace the lost ones.

Other companies (C04, C07, C12, C17, C24, and C27) have also adopted new marketing methods or increased their current ones due to the increased pressure from their markets, also to increase their market share and to be able to compete. They have done this by reducing the production and wait time for the order, participating in marketing campaigns and exhibitions, enhancing their packaging materials, relying on social media, or continuously adding value while offering new product features for free for the first few times.

Customer Service and product quality are among the aspects that C08, C13, C20, C27, and C28 looked at. Their focuses included maintaining their product quality and the standard of after-sale service, finding ways to get customer feedback to the responsible persons in the company, continually adding the newest features to their products, and developing their production processes through the KAIZEN method. Those companies were forced to do this by their markets and the increased competition within them, as they believed that if they failed to do so they would jeopardise their market existence and their market share.

Suppliers/ Customers

In addition, companies started to focus and rely more on the local market (C06, C08, C13, C24, and C28). They have done this in order to mitigate the impact of the Arab Spring, especially regarding the loss of some export markets. This has had a very positive impact for local manufacturing companies that were no longer able to deal with companies outside Jordan, as in the case of the packaging materials industry. Before the turmoil, those companies did work on the local market, but not necessarily with the same level of focus. However, the events of the Arab Spring led those companies to realise that their survival relies on using the local market and companies which have probably been influenced by the same issues that they are facing. In other words, they needed to reduce the uncertainty of dealing with the outside markets.

Entering new markets that can be considered as richer markets or non-traditional markets seemed the reasonable thing to do for a number of the companies (C02, C09, C13, C17, C23, C24, C25, C27, and C28). Companies started to look for markets outside the region of the turmoil to avoid the risk of losing the business and to avoid similar crises in the future by focusing on the markets that have the potential to expand or entering richer markets. Of course, in some cases, the companies had to make modifications to their products in order to fit with the new markets.

Having multiple customers or suppliers has been a necessary strategy for some companies in attempting to offset the influence of this turmoil (C03, C07, C24, C25, and C28). Due to the Arab Spring and those companies' sudden and immediate loss of markets, some of them realised that they could no longer rely on only one customer as this could lead to a total loss. However, some of those companies thought that they would still be able to survive by having one main customer and dividing the rest of their production among other customers in case the main customer failed to order from them. In this case the company could compensate for the lost markets by relying on their other markets, attracting new customers to overcome the lost ones. This is a similar idea to

relying on multiple suppliers to avoid any sort of shortage or delay if one supplier faces a disruption.

Some companies have worked on keeping up their exports to Arab Spring countries (C02, C03, C04, C05, C06, C07, C09, C10, C17, and C29). They have continued to export to at least some of the Arab Spring countries to which they used to export. Those companies have done this mainly because they do not want to lose those markets since they would be hard to replace. Therefore, they have continued exporting to or importing from them, relying on alternative transportation methods, such as by sea, when dealing with companies in Syria, Iraq, Lebanon, Turkey, Qatar, or by land through other countries, dealing with Arab Spring countries through other markets, or by shipping to a further port for safety reasons.

Companies have also stopped dealing in some markets to reduce the unpredictability (C06, C13, and C28). The suspension was a result of the company not offering products and the customers not ordering to avoid related risks such as loss of products, or change in regulations; however, C13 only stopped dealing with Arab Spring countries when its route to market was closed.

Length and spread of SC

Opening branches outside Jordan felt like the right thing to do for other companies (C08, C23, C27, and C29). The Arab Spring made them feel trapped, especially after the closure of the Syrian borders. Hence, the companies selected the countries for their new branches based on the availability of raw materials and their cost, or because it was outside the region of the instability. However, due to the spread of this instability across the region and the continuous changes in laws, some companies had to close the branches that they had opened.

Another practice that some companies felt forced to adopt was to increase the horizontal spread of their companies by adding more product lines (C03, C04, C08, C10, C13, C17, C23, C24, C26, and C29). Companies have started to add more products for their customers to enable them to source multiple diversified products from the same company instead of having to look elsewhere.

Some companies believed that the current situation necessitates increasing communication within the supply chain (C03, C04, C07, C12, C20, C27, and C29). They have done this by having a field day to prove to their customers that they are still able to work, despite what is happening around them, by engaging more salesmen to increase communication with their customers and to enable them to better understand the market, spreading awareness about the features of their products to reduce reliance on importing, increasing communication among the company employees throughout their chain, relying on less formal techniques for communications within the companies for discussion and taking decisions, establishing non-formal associations to increase the intra-trade between companies, improving communication related to possible shortages of materials or payments, asking customers to give feedback to the company so they can work on the improvements, or informing the customers of any changes that might have any sort of influence on the product.

Some companies have reduced their existence in the market by relying on other companies to provide another level of supply material, in order to mitigate the influence of the surrounding environment (C07, C08, C19, and C22). Due to the high competition, some companies that were no longer able to operate in the market, even those with a potentially strong market, were acquired by other companies. In addition, some companies that were no longer able to operate on a multi-national basis have reverted to being local companies, while other companies that used to produce everything from scratch have had to rely on suppliers to provide them with some manufactured items or even to close parts of their business that can no longer provide the required outcome, or

to make an agreement with other companies to help with production in order to have full control of distribution.

Production

The companies have used various methods to try to predict future demand (C11, C12, C17, and C29). One method was to use their sales representatives to anticipate the exact market need, in order to avoid materials shortage or surplus, also to decide which customers to work with or not to work with, in addition to setting short-term goals, conducting sales analysis on a monthly basis, or accessing as much information as possible from customers.

Meanwhile, other companies worked on preparing their companies for the future (C08, C13, C20, and C24). They have done this by preparing for the tough times during good times, developing within their industry, using modern technological methods, working on developing the machinery, or investing better in their sector. Those companies stated that they have learned much from what they have faced due to the Arab Spring, including that they should work on preparing their companies for future disruptions.

Inventory could be a very important element for companies to look at. Behaviour toward inventory varied from one company to another depending on the company's production nature. Some companies (C10, C11, C13, C26, and C29) believe they should always maintain a certain amount of inventory, while other companies (C03, C25, and C28) think they should not keep inventory since they look at it as a waste or too costly, as they only order or produce under the specifications required by the customer. The first group believe that they should have a higher volume due to the delays caused by the disruption, whereas the second group think they should find other solutions, such as relying on the local market, having multiple suppliers, or having a longer production time to enable them to keep on ordering inventory only when they need it.

Production capacity has been affected at a few companies, which in most cases have had to reduce their production capacity (C07 and C18). They have done this to avoid filling the market with their products, which will negatively affect the prices of the products, and have closed some production lines due to the lack of labour to operate them. However, some companies (C24) had managed to increase their production capacity to adapt to the increase in demand and sales. This has happened due to the turmoil causing the closure or opening of markets and forcing those companies to modify their production levels.

Other

Care for public safety was observed in some companies (C08, C20, and C28). Those companies were pressured mainly by the government to implement those practices, also, in the case of C28, it was pressured to do this by external foreign markets. It is a relatively new trend for companies in Jordan to pay attention to public safety and for companies to take measures to protect it. Those companies have done this by implementing the following measures: making adjustments to the gases used in devices in order to reduce their environmental risk, having the highest levels of High Quality in Health and Safety whereby every person must, before entering the company, receive information related to public safety and every person must wear appropriate/special clothing while in the factory, or using compostable and biodegradable materials that degrade within three months instead of using plastic that takes 100 years.

Some companies have started advising other companies on adopting successful supply chain resilience practices (C04, C24, and C28). Those companies felt that they need to help other

companies to overcome this turmoil by sharing their individual experience. They have done this either through casual discussions with their peers or through non-formal entities such as the East Amman Industrial Investors Association. In their view, companies have been struggling due to this turmoil, while the government is not providing help to those struggling companies and is instead allowing them to lose their businesses and leave the market. Therefore, those companies started to share their experience with other companies to help them to overcome this disruption.

6.4.1.1.2 Coercive isomorphism – Regulation

Financial

The interviewed companies have faced various kinds of financial pressure. One such pressure was caused by the stoppage of funds from the project sponsors (C07). The company was able to predict the suspension of payments by customers, but not able to determine the time when the payments would stop completely, therefore, they continued working until the funds stopped.

Another financial pressure related to the financial protection of payments for the purchased materials or sold products (C04, C06, C10, C11, C25, and C29). Those companies had to find alternative ways to deal with this pressure coming from the markets and other companies in their supply chain due to changes in international regulations which resulted in cancellation of bank representation in some countries, while those companies tried to stay away from credit and demand that customers paid in advance into the company's account through methods such as Western Union transfer payments and remittance offices and paying personally instead of using banks. They also tried to cut the supply to any customer who failed to pay on time, accept requests from more customers but only on the condition that a bank guarantee was provided, or avoid taking risks in the face of the current situation and the unknown obstacles. This pressure has forced those companies to find alternative ways for receiving their payments and avoid dealing with certain markets or customers to reduce its impact.

Product

Some companies had to make some modifications to their product specifications in order to meet current/ new market entry requirements and to increase their competitiveness or enter new markets (C02, C07, C12, C13, and C29). They have done this to fit the new markets' needs, especially when entering non-traditional markets, by adding new features to their products that could give extra value or better usage, reduce the checking times, or even committing to re-run the examination of any change to any element of production components.

One company (C07) turned to a formal entity to provide protection for the company from external competition by convincing it that the contribution to the local economy from local industry is much greater than the benefit derived from the investment from abroad in terms of income, employment, activating the economy, and others.

Other

Pressures faced by competitors gave some companies (e.g. C29) the opportunity to take over and start to deal with their customers. For example, Saudi Arabia's recent laws indicate that it imports its pharmaceutical needs from a number of countries. However, due to the events in 2018 in the Saudi seaports, it was no longer able to receive products through those sea ports, which has led

Saudi companies to attempt to meet all their needs from the Jordanian market as the arrival of locally sourced goods takes only three days via land freight.

6.4.1.2 *Mimetic isomorphism*

Mimetic isomorphism can result from imitation due to uncertainty; the more the company is uncertain how to reach its goal the more it will start to copy successful companies in its area/sector (Kauppi, 2012). This kind of isomorphism is more about companies worrying about failure rather than an attempt to recreate what has already been successful in the market, without having to be the one to develop a new strategy; however, following the lead of other companies might not result in replication of their success as every organisation has its own particular context (Kauppi, K., 2012).

Figure 23 - Mimetic isomorphism

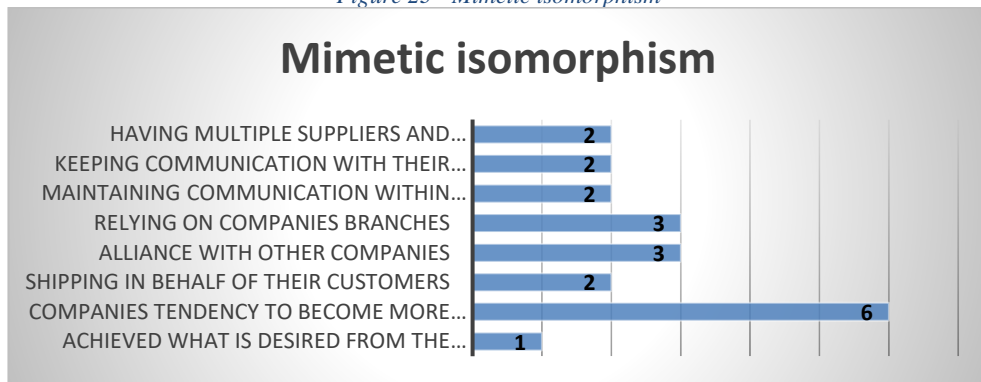


Figure 23 shows the number of companies affected by each aspect of mimetic isomorphism.

Table 21 - Mimetic isomorphism

Mimetic isomorphism	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30		
Having multiple suppliers and customers	✓	✓	
Keeping contact with their suppliers	.	.	✓	✓	.	.
Maintaining communication within the company	✓	✓	
Relying on companies' branches	✓	.	.	✓	✓	
Alliance with other companies	.	.	✓	✓	✓	
Shipping on behalf of their customers	.	.	✓	✓	
Companies' tendency to become more sustainable, environmentally friendly, and increase the recycling level	✓	✓	.	✓	.	✓	.	✓	✓	.	.	
Achieved what is desired from the business	✓	

Table 21 shows which companies have been influenced by each coercive isomorphism pressure as explained below. In the cases of the interviewed manufacturing companies, application of mimetic isomorphism has had the following results:

Companies have gained multiple suppliers and customers (C09 and C10). This has not always come as a result of competition pressure, as in some cases companies started to engage with multiple suppliers and customers because they have seen this work successfully for other companies and have found that it is a possible strategy for their companies. For those companies, this practice has taken on a guiding role as it is not only about avoiding reliance on one potentially risky source, but it also enables them to establish important bonds and relationships that would continue even if a further disruption happened. According to those companies, they started to acquire multiple suppliers and customers years before the turmoil began.

Meanwhile, keeping up regular contact with their suppliers (C03 and C25) was also not always a result of competition pressure, and those companies found that while companies may be successful in finding new suppliers and customers, they can just as easily lose them. Maintaining continuous links with existing parts of their supply chain can help get them back when needed in the future, even if not dealing with them at the moment.

On the other hand, maintaining communication within the company could be even more important. It was noticeable that companies with multiple branches were more likely to apply this strategy. Some companies (C20 and C29) have found this critically important to staying in complete control over their company. Within those companies effort is usually made to work together to overcome any obstacle that they might face. This kind of practice is more common within multi-national and international companies in the emerging markets rather than across the whole supply chain as this usually goes back to the point about different parties' readiness to trust each other and share private details about the company.

Indeed, it is usually the norm for companies with multiple branches to rely on those branches to help each other out when one of them is struggling for any reason, especially in cases where those branches are located in different countries and face different obstacles based on the surrounding circumstances. Or in other words that multi-branch companies usually do this because they have seen other multi-branch companies doing it, which was a success for them. Multi-national and international companies use this strategy to help them survive and become stronger in the market, for instance, by helping a branch to find a raw material supplier, distributing exports among the company's branches, or carrying losses from any of their branches.

Other companies who do not have multiple branches started to make alliances with other companies (C03, C22, and C28). They have thus relied on Jordan having the required raw materials and being able to manufacture at lower cost, in order to enter new markets, which they cannot do alone due to supply chain agreements or the complexities of entering these markets, or in the case where the company has the know-how but is no longer able to operate.

Some companies (C03 and C20) have formed similar kinds of alliances that have involved making agreements with their customers to ship products on the behalf of those customers' customers, or to produce on behalf of their branches and ship the products directly to their customers.

Some companies have tended to become more sustainable, environmentally friendly, and increase their recycling activities (C07, C20, C22, C24, C26, C27, and C28). This tendency is based on two factors: first, the company was established based on the idea of supporting sustainability and recycling (C07 and C22); second, the companies sell their production waste to recycling companies (C24, C26, and C27), or consume fewer materials (C20 and C24).

Finally, in the case of C19, the company had achieved what it desired from the business and had arrived at a point where it was no longer interested in developing the business further as it had reached its maximum potential. This company, like other struggling companies, is no longer expecting to achieve a reasonable profit margin from this business due to the high costs and competition and despite any efforts it might make to develop the business. Therefore, they accept whatever profit they can get, since their machinery has already fully depreciated, and they now hire workers based on the hour rather than on contract with a monthly salary, which means their costs are reduced to a minimum level.

6.4.1.3 Normative isomorphism

Normative isomorphism can result from professionalisation whereby personnel from each speciality decide the rules and methods for their speciality, which will result in people with the

same education and experience processing cases in a similar way, and will eventually lead to creating homogeneity (Kauppi, 2012). For instance, companies that have applied for support from JEDCO have to go through a process of providing multiple studies and reports on their companies, hence those companies started to give more attention to detailed planning, feasibility studies, cost estimation, etc., whereas previously most of the companies had most of the time relied more on their own judgement and less on detailed breakdown and analysis.

Figure 24 - Normative isomorphism

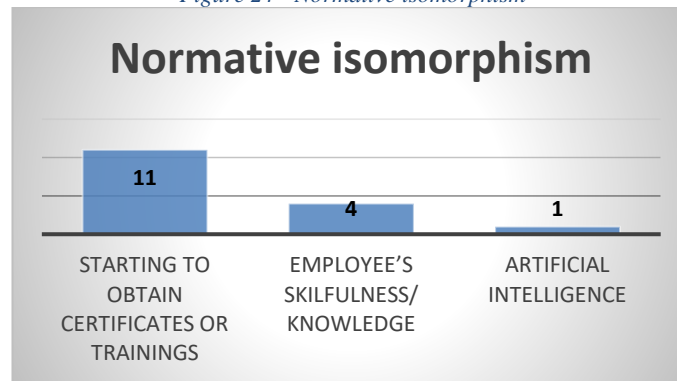


Figure 24 shows the numbers of companies affected by each aspect of normative isomorphism.

Table 22 - Normative isomorphism

Normative isomorphism	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29
Starting to obtain certificates or training	•	✓	✓	•	•	•	•	•	•	•	✓	•	✓	✓	✓	✓	•	•	•	•	•	✓	•	•	•	•	✓	✓	✓
Employee's skilfulness/ knowledge	•	✓	•	•	•	•	✓	•	•	✓	•	•	•	•	•	•	•	•	•	•	•	•	✓	•	•	•	•	•	•
Artificial intelligence	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	✓	•	•	•	•

Jordan does not have a non-formal association for all companies engaged in manufacturing industry or even groups for different sectors in this industry. The only entity that represents this industry is the “Jordan Chamber of Industry”, which is a national government entity that covers all the chambers of industry in Jordan. It is, however, independent, financially and administratively. The Chamber is represented on various national and international forums, groups, and organisations. As a statutory body, it works closely with the Government of Jordan and other business associations in order to consult on any policies, laws, draft laws, regulations, strategies and programmes that might affect the national industry.

Nevertheless, companies in the manufacturing industry do not think that in reality this entity has the power needed to affect governmental decisions for the public good and also believe that it puts the government’s interests before companies’ interests. Therefore, several non-official entities have been established, such as Eastern Amman Investors Industrial Association (C13 owner is the Chairman of the Board of Directors for this entity and other companies are members, such as C24, C25, and C28). The problem with such entities is that they do not have any power over governmental decisions or even ability to influence those decisions; moreover, not all of those engaged in the industry are members of these entities. Hence, as they see it, the maximum that companies can do at the moment is to try to convince business owners to share their experience with each other in order to better understand the industry and to cooperate on overcoming obstacles. Even though they have not yet achieved this goal, they are optimistic that in the future they will do so.

Table 22 shows which companies have been influenced by each normative isomorphism pressure, as is also explained below. In the cases of the interviewed manufacturing companies, application of normative isomorphism has had the following results:

Some companies are starting to obtain certificates or training (C02, C03, C11, C13, C14, C10, C17, C22, C27, C28, and C29). The main focus of those companies was on ISO certificates, and some companies had obtained external funds to obtain those certificates as they were considered relatively expensive. Some companies had obtained other certificates, while the rest relied on training programmes.

Employees' skilfulness, experience, and knowledge are other factors that had an influence on normative isomorphism adoption (C02, C07, C10, and C22). Companies usually mainly rely on their top-level employees to take the right decision to overcome obstacles they are facing as companies believe that these skills, experience, and knowledge give their employees the rationale to make the right decision. Those companies have relied throughout the years on their workers, believing that they have talented and wise employees who have experienced different obstacles throughout their career and know how to overcome disruptions and reduce the impact of them.

One company (C24) has relied on artificial intelligence to reduce the influence of human mistakes or different levels on knowledge, and the use of robots to achieve a higher and more constant production level and quality. Relying on robots will help create better homogeneity and consistency than relying on humans.

Other companies have attempted to obtain production certificates but have found this difficult as the level of requirements for achieving such as ISO certificates is high. Moreover, even when companies succeed in getting such certificates they face lack of recognition from their customers of the value of such certificates.

6.5. Conclusion

This chapter has grouped the adopted supply chain resilience practices by the interviewed companies into seven themes based on their similarities (commonality) and linked each of these to previous literature. Then, it examined the influence of the Arab Spring in two respects: first, on an influence basis, second, on a sector basis, and finally, the analysed data have been assessed in relation to the theory selected for this research.

From studying the theoretical lens and the pressures faced by the interviewed companies it can be deduced that no company can neglect the influence of its environment. However, from the previously mentioned pressures, it can be noticed that pressure does not always have a negative influence on the company. Sometimes pressure can be good in terms of helping the company to thrive. For instance, some of the companies that had an international company within their supply chain were more likely to reach for other international companies as they already knew how to deal with them, and what are the usual expectations of such companies. This might even result in that company expanding its work internationally.

Companies cannot neglect the influence their environment has on them but, as discussed earlier, even if companies operate in the same market the company's industry might impact what pressures it is facing and how it is affected by them. For instance, manufacturing industry does not have the same privileges as trade industry which, if it faces obstacles in its business, can stop right away and change the nature of its work. Manufacturers have already invested in land and machinery, therefore, any changes that they might make would have a huge influence on them and they need to think about every consequence of their decisions. Therefore, they believe that *"Currently in Jordan, working in trade is more profitable than working in manufacturing, especially since manufacturers have to pay a tax of 16% in addition to their production costs, while the traders pay the same tax of 16% on the ready-made goods, without carrying any additional costs"*. Therefore, it is quite important for the companies to know what types of pressure they are facing and to try to find ways to take advantage of this pressure. If they cannot

benefit from it, they should at least be flexible enough to avoid or reduce its negative impact on them. The faster the company can react to any disruptive event in the right way, the higher the probability for it to beat its competitors and make the best of the worst situation.

Chapter 7: Conclusion

This thesis has discussed the topic of supply chain resilience, how it influences a company's performance, and how this relationship has been affected due to the Arab Spring. This thesis started as an observation from the researcher based on directly interacting with and being a linking party between some manufacturers and traders. On looking into this topic of interest, the researcher then found that the amount of research covering the effect of supply chain resilience on a company's performance was insufficient, and that there was even less research covering this topic with regard to geopolitical disruption. This highlighted a clear research gap worth studying, and led to it being studied further through a PhD thesis.

This PhD thesis started with a general introduction to the research topic, highlighting the main variables of the study relating to the Arab Spring, then a more detailed up-to-date literature review was conducted to gain a better understanding of the research topic. After that, the research methodology was selected, relying on the research onion to make sure that all research methodology aspects had been covered. Next, the research interview questions were written and ethical approval was obtained to collect the data from 29 manufacturing companies in Jordan, from all its sectors, also, secondary data in the form of reports were collected from governmental entities in Jordan. Those collected data were grouped into themes and analysed based on the research questions and variables; finally, those analysed data were discussed based on the previous literature and in relation to the institutional theory, looking at how the Arab Spring influenced the companies.

7.1. Implications

This research has helped in understanding how supply chain resilience practices affect companies' performance and how when faced with a geopolitical disruption this relationship is impacted. This section will highlight the implications of this research after understanding these research variables and how they are linked to data from a practical reality as seen in previous chapters. This research has also highlighted how researchers can benefit from filling a part of this area's research gap or be able to continue building on this specific area of research. This research also has highlighted that companies are able to overcome similar situations and benefit from it when possible, and how it will help the Jordanian government itself and its investors in similar situations which eventually will lead to enhance the Jordanian GDP.

In this section, a summary of the research result has been pointed out, it also has some suggestions for companies, governments, and researchers on how to improve the collaborations between all of them that would help in improving the working conditions and outcomes which eventually end in a greater benefit to each of them.

This research has shown that supply chain resilience has a positive impact on firm performance; even though geopolitical disruption would still impact companies, companies who adopt supply chain resilience practices have a better chance of overcoming such events in less time, and they also have a better chance of taking advantage of them, which usually happens through responding to the disruption in ways that help in maintaining what they have and enabling them to return on track to what they had. And if their competitors did not do the same as fast as they did, it will probably give them the chance to obtain a competitive advantage over them and possibly acquire part of their market share.

Companies that did not apply supply chain resilience practices might still be able to survive when faced with a disruptive event but this will be harder on them. Usually, those companies will be faced with two paths. The first and more logical one is for them to learn from their mistakes and

to start adopting those practices by implementing adaptive capability to control the impact of the disruptions, then they may or may not implement other practices. The second path is not to do anything related to supply chain practices, which usually happens due to their lack of relevant knowledge or due to the denial of the need to adopt them and belief that they can survive without them. In both those paths, companies have no choice but to accept what has happened, count their losses, and decided if they want to do something else to prepare for the future.

One of the main problems that companies face when they do not have supply chain resilience practices is that no matter how prepared they think they are, they will definitely face a disruption that they have not prepared themselves for. And even if they overcome a disruptive event or more than one disruptive event they will reach a point where they have overconsumed their resources in surviving disruptions rather than using them to thrive and achieve better results and higher performance.

It has been also found from this research that companies in Jordan who have adopted supply chain resilience practices have done so for one of three reasons: company history in the market, the company's manager having a degree in management, or the company applying to receive a supporting fund.

The first of these incentives usually occurs when the company have been in the market for some time and they have faced a number of disruptive events through their operation time that have led them to adopt SCR practices, with those companies tending to use practices mainly related to risk management. The second incentive, from the interviewed companies' perspectives, occurs when second or the third generations of the business management in corporates or family businesses comprise younger managers (in their 20s or 30s) who are aware of those practices but have difficulties convincing their top managers about them, as those first or second generations in top management are used to running their businesses in a certain way and look at those younger managers as not experienced enough to propose suggestions or solutions. The third incentive happened when entities (Jordanian or foreign ones) offered supporting funds and for those companies to obtain them they had to send out a proposal containing information about their companies, their plans, and details of practices to be adopted, for instance, having three different suppliers for each raw material, and preparing those proposals has highlighted things that they need to do while managing their businesses and that they have started to do, even though they may not be aware that those are considered as supply chain resilience practices.

The mentality of the managing parties plays a significant role in overcoming disruptions. As it has been found that companies who have accepted that they are facing the turmoil and started to act accordingly have achieved better and faster results than others working in the same sector, while those that kept denying it and believing that they can get through it without doing a thing have suffered the most; even when other companies in their sector have benefitted from it, they have seemed not to receive the same advantage.

The disruption's nature plays a significant role in which sectors will be harmed and which will benefit, in general. No matter what the nature of disruption, there will be parties that will benefit from it. For instance, regarding this particular disruption (Arab Spring), assuming that the rest of the variables have been controlled, companies working in sectors related to complementary products or of an exploratory nature have been most negatively impacted, while companies offering essential production products locally have benefitted the most. Having this resilience is quite significant for all the companies as it will help harmed companies to get through the disruption more quickly, unless it is a particularly severe disruption, and it will give them a better chance to achieve a competitive advantage. It will also help the benefitted companies to achieve a higher benefit that might even become a permanent benefit.

Companies, also, do not give much attention to research and development or training and most of them do not even have a research and development department as they find it expensive and do

not see the benefit of it. They also rarely rely on training, science, and education to run their businesses as they believe having practical experience in the market and relying on their own judgement are the most important factors when working in an unpredictable and unstable market like the Jordanian market, especially since they believe that there is no specialised training worth attending. Even though training could help them get through this uncertainty, they prefer to carry on doing what they have always done.

The government have no control over the companies in terms of the way they run their companies, their education and degree qualifications, or even asking them to obtain certain certificates. And if the government started to take control over this, most probably, companies would find it unfair and refuse to obey their orders and instructions. Their discontent might reach a level where they would exit the market or transfer their businesses to another country that they believe would be fairer to them and would allow them to run their business as they desire. Therefore, the government should find a way to encourage companies to do what they want them to do without forcing them to do so.

Government should encourage companies to obtain degrees, certificates, and training in how to manage their operations until this becomes the norm for every company and any company in the market that does not conform will feel like an outsider. This could be achieved by the government creating and started to provide an incentive system or research and development services.

An incentive system could be, for instance, a points system that would give companies points every time any of their employees enrol in any training, obtain any certificate, or get a qualification related to their companies' operations (depending on the speciality of the company). They would also gain points if, for instance, they hosted training to help other companies and shared their knowledge and experience with them. Then those points could be exchanged to gain facilities, exemptions, or funds from the government, based on criteria set by the government.

Research and development services can be provided through a third party, for instance, a university or a research company that would assure the companies of the confidentiality of their information. The entity conducting the research would be able to access data that are hard to reach, especially as there is a lack of research based on empirical data from developing countries. Such research would benefit all parties: the companies by helping them to better understand their strengths, weaknesses, and what they can do to improve and thrive. Meanwhile, the government would benefit in an indirect way through the companies' performance improvements leading to enhancement of the economy and the country's GDP.

Research and development services could also be offered for free for struggling companies to prevent them from leaving the market as the government benefits much more from working companies than struggling ones. This benefit comes from employees they hire, consumption of governmental resources that they pay for (i.e. electricity and water), taxes that they pay, the economic prosperity that they cause, and reducing the country's reliance on other countries.

This research has also found that companies seem to have difficulty understanding the rationale behind some governmental decisions and distrust the people in charge of decision-making. They have claimed that the government is putting its interests in front of theirs, which could be because governments generally do not act in a completely transparent way. Therefore, the best way to gain their trust back is by making them more involved in those decisions in a way that will not have a negative impact on the legitimacy of the government.

Enacting laws in Jordan requires a number of stages; *“The Prime Minister shall refer to the Chamber of Deputies any draft law, and the Chamber shall be entitled to accept, amend, or reject the draft law, but in all cases, the Chamber shall refer the draft law to the Senate”* (Article 91 of the Jordanian Constitution) (National Legislative Bodies / National Authorities, 1952, p. 18). *“(i) Every draft law passed by the Senate and the Chamber of Deputies shall be submitted to the King*

for ratification. (ii) A law shall come into force after its promulgation by the King and the lapse of thirty days from the date of its publication in the Official Gazette unless it is specifically provided in that law that it shall come into force on any other date". (Article 93 (i) and (ii) of the Jordanian Constitution) (National Legislative Bodies / National Authorities, 1952, P. 18-19).

Accordingly, it is suggested that the government could intervene at an earlier stage by establishing a committee that might include the Prime Minister, the Chamber of Deputies representatives, and companies' representatives from all the industries that would be impacted by the decisions. This committee could help in drafting the new law, in such a way that any changes to the governing laws or regulations would be discussed beforehand with all parties influenced by it before promulgation.

Those companies' representatives should be chosen by the companies themselves through elections involving every industry and all its sectors, to make sure that those companies would accept the decisions that they would participate in making and that they would believe that the decisions made would represent the best possible contribution to creating a win-win scenario.

7.2. Research Limitations

The topic is relatively new, which made it harder to find literature covering the area of research. It was even harder to find literature on the specific topic of the effect of man-made disruptions and more specifically the Arab Spring. This indicates a lack of investigation on the man-made disruption and its impact on companies' performance, not only in empirical studies but also in the literature as a whole. The researcher has faced some obstacles while collecting the data, among which were the unexpected changes in the Cabinet during the data collection period and the freeze on the approval process in all the governmental entities which the researcher visited to collect secondary data. Also, no single entity in Jordan has all the needed or complete information about the companies. Therefore, the researcher had to visit all the related entities to first gather that information, then find a way to combine those details together. This was extra hard as every entity classifies company details and groups companies on a different basis. Additionally, not all the entities were supportive or allowed information sharing for research purposes.

In general, companies were reluctant to participate in an interview and were advised against providing details about their company by their legal department due to the large number of documents related to the research, which is not common practice in Jordan. Moreover, even though the topic does not view supply chain resilience from a political perspective, the perceived political sensitivity may have influenced the participation level. Additionally, the companies who have benefitted from the turmoil were afraid to mention everything relevant in case they faced any tax increment or changes in regulation that might harm them. Also, not all companies agreed to share specific details regarding their financial statements and only reported on the impact of the turmoil (increase, decrease, stayed the same), while some of them agreed only to give approximate percentages regarding their performance in the past period (profitability, cost, revenue turnover, etc).

7.3. Research Strengths

A number of factors have contributed to the strength of this research. First, its originality, since this is an under-researched area with gaps that need to be filled through studies. To the researcher's knowledge, this is the first paper to study the influence of the Arab Spring on companies' operations by looking at a country that has not actually experienced this turmoil. This

research might therefore provide the backbone for future research in this area. The research mainly studies companies' operations in the Arab region, a research area in which the number of studies is very limited, as companies in this region tend not to participate in any research or share any information that might reach their competitors. The researcher's strong and wide connections allowed her to reach the companies' top management and request to conduct the interviews. These connections also played a significant role in encouraging the interviewees to trust the researcher and reassuring them that their identity and the information that they shared will always be protected and respected as confidential.

7.4. Future research

Research in this area must continue as it is still under-investigated. Also, the criticality and the influence of such disruptive events increase the need to find out how to prepare businesses for these events and the right practices to implement to overcome them. For instance, in the case of the new Covid-19 pandemic, which is also man-made, it is important to assess how it has influenced and is still influencing companies' operations, not only in the region where it started but in companies all over the world, and why some companies have been harmed by it, others have not been significantly influenced, while some companies have actually benefitted from it. In addition, it is important to know why, like any other disruption, this one has led to some companies going bankrupt and leaving the market and, at the same time, it created opportunities for others to open new businesses.

Appendixes

Appendix 1. Work Plan

Figure 25 provides an overview of the future research that will be undertaken for the next two years of the PhD. After obtaining ethics approval, the second year will focus on the data collection and analysis. The survey questionnaire and interview protocol will be refined and, once approved, the data will be collected and analysed. The fourth year will be dedicated mostly to the thesis writing process.

Figure 25 - Research Timescale

Expected Timescale Of The Research	2018			2019												2020												2021			
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Articles Search																															
Articles Read																															
Theoretical Framework																															
Confirmation Review																															
Data Collection																															
Ethical Approval																															
Preparing the research questions																															
Getting a cover letter from the University of Sheffield																															
Contacting the Jordanian official entities for secondary data																															
Contact the Companies representatives to make an appointment																															
Contact the Companies representatives in order to send the questionnaires																															
Sending invitations with further details to those representatives																															
Conducting the meetings with the representatives																															
Sending thanks emails to the respondents																															
Write down the details of the meeting																															
Backing-up the data collected																															
Data Analysis																															
Checking that all the data collected has been entered into the system																															
Checking the categories used																															
Starting applying the analysis needed for the research																															
Reading the analysis and starting to write it up the results																															
Checking if further analysis is needed to support the findings																															
Thesis Writing																															
Checking the finding from the data analysis in order to write them down																															
Adding justification for the findings and connecting it with the literature																															
Writing recommendations for the companies and the government																															
Stating how the research filled the gap of the study																															
Mentioning the limitations of the research																															
Suggesting for future research on the topic of the study																															
Checking the thesis in order for submission																															
Proofreading																															
Thesis Submission																															
Viva preparation																															
Viva																															
Corrections (If Any)																															

Appendix 2. TNA Report

FACULTY OF SOCIAL SCIENCES: TRAINING NEEDS ANALYSIS (TNA)

The skills and experience you should gain by the end of your higher degree studies.

Name of student: Lubna Al-Zoubi
Department or School: Sheffield University Management School
Names of all supervisors: Dr. Andrea Genovese (1st)/ Dr. Chantal C Cantarelli (2nd)
Year of study: First Year

Completing your TNA

Before completing your TNA in consultation with your supervisor(s), you should read the guidance notes that accompany this form.

The Faculty's TNA form has been compiled with reference to the Vitae Researcher Development Framework (RDF), which divides into four 'Domains' the skills, attitudes and behaviours required to be an effective researcher. The framework is also recognised widely outside academia and can provide you with an effective way of articulating your skills to employers.

To familiarise yourself with the terms used in the Researcher Development Framework and this form, visit the University's online RDF tool.

Prioritising your training and development

Academic, professional and personal development are all key aspects of your doctoral research experience, and the Faculty will support you to develop your skills throughout the course of your PhD. However, time is a precious resource, so it is important to ensure that you undertake the right training at the right stage of your PhD. When considering the twelve areas (three within each 'Domain') in the following table, please decide – in consultation with your supervisor(s) – to what extent it is a priority for the coming year (low, medium or high).

Formal training (such as that within the Faculty of Social Science Core Programme) may be part of your development, but many of the skills required of an effective researcher will also be developed through the process of working on your PhD itself (e.g. developing your critical thinking through writing thesis chapters). Through discussion with your supervisor(s), you should use this form to set realistic goals and identify the action to achieve them – you can then use this to reflect on your development throughout the year.

In addition, remember to keep an up-to-date record of the training you have undertaken within your PhD, as you will need to submit a Doctoral Development Programme Summary Form at the end of your doctoral studies.

RDF Domain A: Knowledge and Intellectual Abilities the knowledge, intellectual abilities and techniques to do research		
	Reflection on your current ability/experience in this area and main priorities for the coming year	Action to be taken to develop this area (if appropriate), agreed with your supervisor(s).
Knowledge base (RDF subdomain A1) Including: Subject knowledge Research methods – theoretical knowledge and practical application Information seeking and information management skills Academic literacy and numeracy	It is now three years since I completed my MBA/ Management from the University of Jordan. I have also been granted a research scholarship and teaching assistant work during my master degree. Additionally, I have two years of practical experience in the domain of human resources, gained after finishing my master degree. This has some general relevance for my PhD but was not completely in the same area of study. This and the question of understanding what makes research academically valid are two of my major concerns at the start of my PhD. I also think I need a general ‘update’ on the skills I gained from a taught study on statistics and research methods.	High priority – I will be attending the whole of the Faculty Core Programme, and as many related workshops as possible. I aim to get a background to my subject area from related modules, training, Departmental research seminars, and through initial reading tasks set in discussion with my supervisors. In addition to attending statistical workshops related to my research offered by the Management School.
Cognitive abilities (A2) Including: Analysing Synthesising knowledge Critical thinking	I think that I have some skills and background in this area from my MBA studies, particularly the models that I took and the research paper assignment that I have done. My main concern here is to know whether these are at an appropriate level for a PhD student. I have also learned more about efficiently using analytical methods from my PhD.	High priority – module FCS 660 Foundations of Social Science Research will provide formal training, and discussion of my written work in supervision will also be important. Critical thinking training (offered by Career Services and 301) In addition to the advice and feedback from my supervisors relating to my topic.
Creativity (A3) Including: Intellectual insight Innovation Argument Construction	My main concern here is whether my past skills translate to the level of quality required for PhD-level research. As my first language is not English, I personally think that I should attend thesis writing and speaking skills seminars to enhance my skills and knowledge for my future confirmation review as well as the viva.	High priority – module FCS 660 Foundations of Social Science Research and observation of Departmental research seminars will develop these skills – writing of extended research proposal for confirmation review will embed/test this learning. I will register also for other modules to help me with the thesis writing skills and in speaking and presenting.
RDF Domain B: Personal Effectiveness the personal qualities and approach to be an effective researcher		
	Reflection on your current ability/experience in this area and main priorities for the coming year	Action to be taken to develop this area (if appropriate), agreed with your supervisor(s).
Personal qualities (B1) Including: Resilience Self-confidence Integrity Self-reflection	I think that I have a good baseline in all of these personal qualities, but expect them to be tested/ developed through the PhD process.	Medium/low – will reflect on this through supervisory meetings.
Self-management (B2) Including: Time management Responsiveness to change Work-life balance	I’m fairly confident in this area, although the challenge of moving from a work environment in which my time is highly structured through following a timetable, priority, and deadlines to the more flexible/open-ended world of PhD study is a transition for which I need to organise my work in order to fulfil it the right way. Additionally, discussions with my supervisors relating to this will help in better organising it.	Medium/low – I will attend the ‘Kick-start your PhD’ workshops

Professional and career development (B3) Including: Career management Networking Reputation and esteem	I have aspirations to be an academic at the end of my studies as I will teach with my sponsor as soon as I finish my PhD, so I am aware that this is an area I need to start thinking about early within the PhD process.	Medium – I'm aware of networking opportunities through the White Rose DTC Pathway, and will attend a national PhD-focused conference on my subject area in the Spring Semester.
RDF Domain C: Research Governance and Organisation the knowledge of the standards, requirements and professionalism to do research		
	Reflection on your current ability/experience in this area and main priorities for the coming year	Action to be taken to develop this area (if appropriate), agreed with your supervisor(s).
Professional conduct (C1) Including: Ethics Respect and confidentiality Attribution and co-authorship	I have got some experience in this area from the module I took.	Medium - Undertaking FCS 6100 Research Ethics and Integrity will be a starting point – other issues to be explored through work with the partner institution.
Research management (C2) Including: Research strategy; Project planning and delivery; Risk management.	I have some experience in project management from my previous employment and study; understanding how this relates to the PhD process and stages within this is a priority and important. Therefore, I need to learn more as the culture in the Arab region is different from that of the United Kingdom. I need also to have a plan B in case anything goes wrong.	Medium – ‘Kick start your PhD’ for an overview of the PhD process, and discussion of PhD project ‘milestones’ in collaboration with supervisors will provide an initial guide.
Finance, funding and resources (C3) Including Income and funding; Financial management.	Some experience of writing funding bids for the different domains within my previous job, in addition to experience from previously studied family members in the UK.	Low – not a priority for me over the review period as I have a fully-funded PhD (Al Zaytoonah University of Jordan).
RDF Domain D: Engagement, Influence and Impact the knowledge and skills to work with others and ensure the wider impact of research		
	Reflection on your current ability/experience in this area and main priorities for the coming year	Action to be taken to develop this area (if appropriate), agreed with your supervisor(s).
Working with others (D1) Including: Team working; People Management; Influence and leadership.	Existing skills are relevant and very good; this has been achieved through working in teams during my study, working on a number of projects, for most of which I have been the group leader. Additionally, in work, while working within a team (the department), different teams within the company branch, or even within different branches of the company in other countries.	Medium – Working with supervisors and other PhD students from different backgrounds and cultures.
Communication and dissemination (D2) Including: Communication Methods; Publication.	Good in general communication through existing experience. No experience yet in publication.	Medium – I will try to discuss with my supervisors and learn from them if possible on how to publish papers in reputable academic journals. Trying also to publish papers with them during and after my PhD and participate in conferences.
Engagement and impact (D3) Including: Teaching; Public Engagement; Global Citizenship.	Moderate existing skills; I have some experience in teaching through the scholarship of research and teaching assistant work during my master degree. In addition to teaching my colleagues during my studies for bachelor and master.	Medium – I will participate in training relating to teaching methods and presentations.
Feedback (to be completed after the supervision in which the TNA is discussed)		
Comments from supervisor(s)	Any further action agreed by the supervisor and the student [please specify]:	

Signature of researcher: Lubna Al-Zoubi	Date: 23/1/18
Signatures of supervisor(s): Dr Andrea Genovese	Date: 23/1/18
Signatures of supervisor(s): Dr Chantal Cantarelli	Date: 23/1/18
Signature of departmental PGR Director:	Date:

Appendix 3. Included papers classification dimensions

Method			
AMOS	1	Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms	(Ga et al., 2011)
Balanced Scorecard	1	strategic learning & the balanced scorecard	(Bhagwat and Sharma, 2007)
Case study	2 2	A supply chain view of the resilient enterprise	(Sheffi and Rice Jr., 2005)
		Building Resilient Supply Chains against Natural Disasters: The Cases of Japan and Thailand	(Abe and Ye, 2013)
		Can this be spring? Assessing the impact of the "Arab Spring" on the Arab tourism industry	(Mansfeld and Winckler, 2015)
		Customer engagement, buyer-seller relationships, and social media	(Sashi, 2012)
		How do supply chain networks affect the resilience of firms to natural disasters? Evidence from the great east Japan Earthquake	(Todo et al., 2015)
		Impacts of the Arab Spring on trade-in airline services	(Button et al., 2016)
		Political transition and bank performance: How important was the Arab Spring	(Ghosh, 2016)
		Preparing for the big one	(Sheffi, 2005)
		Recovering from conflict and uncertainty post Arab Spring	(Abdelzaher et al., 2017)
		Supply chain risk management: The lessons learned from the Egyptian revolution 2011	(Elzarka, 2013)
		Supply chain vulnerability and resilience: A state of the art overview	(Longo and Ören, 2008)
		Structure-integration relationships in oil and gas supply chains	(Ebrahimi et al., 2007)
		A review of approaches to supply chain communications: From manufacturing to construction	(Cutting-Decelle et al., 2007)
		Jordan: A Refugee Haven	(Chatelard, 2010)
		TRADE AND INDUSTRIALISATION AFTER GLOBALISATION'S 2ND UNBUNDLING: HOW BUILDING AND JOINING A SUPPLY CHAIN ARE DIFFERENT AND WHY IT MATTERS	(Baldwin, 2011)
The Arab Spring: Implications for Economic Integration	(Gasiorek, 2013)		
Supply Chain Disruptions	(Hopp et al., 2012)		
The Arab Spring Its Impact on the Region and on the Middle East Conference	(Rosza et al., 2012)		
Jordanian Foreign Policy and the Arab Spring	(Ryan, 2014)		
Exploring the challenges in implementing supplier environmental performance measurement models: A case study	(Genovese et al., 2013)		
A literature review and a case study of sustainable supply chains with a focus on metrics	(Hassini et al., 2012)		
An expert fuzzy rule-based system for closed-loop supply chain performance assessment in the automotive industry	(Olugu and Wong, 2012)		
Deterministic modelling	1	Measuring supply chain resilience using a deterministic modelling approach	(Soni et al., 2014)
Developing performance metrics	1	Developing key performance indicators for supply chain: An industry perspective	(Chae, 2009)
Empirical study	6	An empirical analysis of supply chain risk management in the German automotive industry	(Thun and Hoening, 2011)
		Firm's resilience to supply chain disruptions: Scale development and empirical examination	(Ambulkar et al., 2015)
		Supply chain resilience in the global financial crisis: An empirical study	(Jüttner and Maklan, 2011)
		Managing Disruption Risks in Supply Chains	(Kleindorfer and Saad, 2005)
		The Impact of Supply Chain Disruptions: Evidence from the Japanese Tsunami	(Leckcivillize, 2012)
When Supply-Chain Disruptions Matte	(Schmidt and Raman, 2012)		
Focus groups	1	A SCOR-based model for supply chain performance measurement: Application in the footwear industry	(Sellitto et al., 2015)
Fuzzy extended analytic hierarchy process	1	Global supplier development considering risk factors using fuzzy extended AHP-based approach	(Chan and Kumar, 2007)
Historical data	7	Benchmarking of logistical operations based on a causal model	(Landeghem, 2001)
		Impacts of the Arab Spring on trade-in airline services	(Button et al., 2016)
		Measuring supply chain performance	(Benita M. Beamon, 1999)
		Supply chain resilience for single and multiple sourcing in the presence of disruption risks	(Namdar et al., 2017)

		Multi-attribute approach to sustainable supply chain management under uncertainty Robust strategies for mitigating supply chain disruptions Finance–growth nexus in a changing political region: How important was the Arab Spring?	(Wu and Liao, 2016) (Tang, 2006) (Arayssi and Fakh, 2017)
Literature review	1 2	A model of factors influencing the supply chain performance SMEs' e-commerce adoption: Perspectives from Denmark and Australia Supply chain resilience: Definition, review and theoretical foundations for further study Understanding the concept of supply chain resilience From a literature review to a conceptual framework for sustainable supply chain management Performance measurement of supply chain management: A balanced scorecard approach Performance measures and metrics in logistics and supply chain management: A review of recent literature (1995-2004) for research and applications Measuring supply chain performance: Current research and future directions Performance measures and metrics in outsourcing decisions: A review for research and applications A review on supply chain performance measures and metrics: 2000-2011 Toward a subjective measurement model for firm performance Performance measurement system design: A literature review and research agenda	(Sakka et al., 2009) (Scupola, 2009) (Tukamuhabwa et al., 2017) (Ponomarov and Holcomb, 2009) (Seuring and Müller, 2008) (Bhagwat and Sharma, 2007) (Gunasekaran and Kobu, 2007) (Shepherd and Günter, 2006) (Gunasekaran et al., 2015) (Gopal and Thakkar, 2012) (Santos and Brito, 2012) (Neely et al., 1995)
Quality Assessment Exercise	1	Assessment of TQM implementation: Benchmarking Singapore's productivity leaders	(Woon, 2000)
Simulation	1	A quantitative analysis of disruption risk in a multi-echelon supply chain	(Schmitt and Singh, 2012)
Structural Equation Modelling	1	The whole relationship between environmental variables and firm performance: Competitive advantage and firm resources as mediator variables Innovation, organizational learning, and performance	(López-Gamero et al., 2009) (Jiménez-Jiménez and Sanz-Valle, 2011)
Survey	5	Enhancing effects of supply chain resilience: insights from the trajectory and resource-based perspectives Supply chain collaboration: Impact on collaborative advantage and firm performance Studying the impact of total quality management in service industries The effects of internal versus external integration practices on time-based performance and overall firm performance Performance measurement systems Models, characteristics and measures	(Cheng and Lu, 2017) (Cao and Zhang, 2011) (Talib and Rahman, 2010) (Droge et al., 2004) (Toni and Tonchia, 2001)

Industry			
Airlines	1	Impacts of the Arab Spring on trade-in airline services	(Button et al., 2016)
Chemical	1	Managing Disruption Risks in Supply Chains	(Kleindorfer and Saad, 2005)
Consumer goods	1	Exploring the challenges in implementing supplier environmental performance measurement models: A case study	(Genovese et al., 2013)
E-commerce	1	SMEs' e-commerce adoption: Perspectives from Denmark and Australia	(Scupola, 2009)
Financial	7	Finance–growth nexus in a changing political region: How important was the Arab Spring? Supply chain resilience in the global financial crisis: An empirical study The whole relationship between environmental variables and firm performance: Competitive advantage and firm resources as mediator variables Political transition and bank performance: How important was the Arab Spring strategic learning & the balanced scorecard The Arab Spring: Implications for Economic Integration Jordanian Foreign Policy and the Arab Spring	(Arayssi and Fakh, 2017) (Jüttner and Maklan, 2011) (López-Gamero et al., 2009) (Ghosh, 2016) (Kaplan and Norton, 1996) (Gasiorek, 2013) (Ryan, 2014)
Footwear	1	A SCOR-based model for supply chain performance measurement: Application in the footwear industry	(Sellitto et al., 2015)
General Study	2 9	Understanding the concept of supply chain resilience Supply chain resilience for single and multiple sourcing in the presence of disruption risks Building Resilient Supply Chains against Natural Disasters: The Cases of Japan and Thailand Preparing for the big one	(Ponomarov and Holcomb, 2009) (Namdar et al., 2017) (Abe and Ye, 2013) (Sheffi, 2005)

		<p>Recovering from conflict and uncertainty post Arab Spring Supply chain vulnerability and resilience: A state of the art overview Jordan: A Refugee Haven TRADE AND INDUSTRIALISATION AFTER GLOBALISATION'S 2ND UNBUNDLING: HOW BUILDING AND JOINING A SUPPLY CHAIN ARE DIFFERENT AND WHY IT MATTERS Supply Chain Disruptions The Arab Spring Its Impact on the Region and on the Middle East Conference Firm's resilience to supply chain disruptions: Scale development and empirical examination When Supply-Chain Disruptions Matte Measuring supply chain resilience using a deterministic modelling approach Multi-attribute approach to sustainable supply chain management under uncertainty A model of factors influencing the supply chain performance Supply chain resilience: Definition, review and theoretical foundations for further study Robust strategies for mitigating supply chain disruptions Benchmarking of logistical operations based on a causal model Developing key performance indicators for supply chain: An industry perspective Global supplier development considering risk factors using fuzzy extended AHP-based approach From a literature review to a conceptual framework for sustainable supply chain management Performance measurement of supply chain management: A balanced scorecard approach Performance measures and metrics in logistics and supply chain management: A review of recent literature (1995-2004) for research and applications Measuring supply chain performance: Current research and future directions A review on supply chain performance measures and metrics: 2000-2011 Toward a subjective measurement model for firm performance Performance measurement system design: A literature review and research agenda Innovation, organizational learning, and performance</p>	<p>(Abdelzaher et al., 2017) (Longo and Ören, 2008) (Chatelard, 2010) (Baldwin, 2011) (Hopp et al., 2012) (Rosza et al., 2012) (Ambulkar et al., 2015) (Schmidt and Raman, 2012) (Soni et al., 2014) (Wu and Liao, 2016) (Sakka et al., 2009) (Tukamuhabwa et al., 2017) (Tang, 2006) (Landeghem, 2001) (Chae, 2009) (Chan and Kumar, 2007) (Seuring and Müller, 2008) (Bhagwat and Sharma, 2007) (Gunasekaran and Kobu, 2007) (Shepherd and Günter, 2006) (Gopal and Thakkar, 2012) (Santos and Brito, 2012) (Neely et al., 1995) (Jiménez-Jiménez and Sanz-Valle, 2011)</p>
Inventory	1	A quantitative analysis of disruption risk in a multi-echelon supply chain	(Schmitt and Singh, 2012)
Manufacturing	1 4	<p>The Impact of Supply Chain Disruptions: Evidence from the Japanese Tsunami An expert fuzzy rule-based system for closed-loop supply chain performance assessment in the automotive industry The effects of internal versus external integration practices on time-based performance and overall firm performance A supply chain view of the resilient enterprise How do supply chain networks affect the resilience of firms to natural disasters? Evidence from the great east Japan Earthquake Enhancing effects of supply chain resilience: insights from the trajectory and resource-based perspectives A review of approaches to supply chain communications: From manufacturing to construction Supply chain risk management: The lessons learned from the Egyptian revolution 2011 An empirical analysis of supply chain risk management in the German automotive industry Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms Measuring supply chain performance Supply chain collaboration: Impact on collaborative advantage and firm performance Performance measurement systems Models, characteristics and measures Performance measures and metrics in outsourcing decisions: A review for research and applications</p>	<p>(Leckcivilize, 2012) (Olugu and Wong, 2012) (Droge et al., 2004) (Sheffi and Rice Jr., 2005) (ToDo et al., 2015) (Cheng and Lu, 2017) (Chatelard, 2010) (Elzarka, 2013) (Thun and Hoenig, 2011) (Ga et al., 2011) (Benita M. Beamon, 1999) (Cao and Zhang, 2011) (Toni and Tonchia, 2001) (Gunasekaran et al., 2015)</p>
Oil and gas service	1	Structure-integration relationships in oil and gas supply chains	(Cutting-Decelle et al., 2007)
Social Media	1	Studying the impact of total quality management in service industries	(Talib and Rahman, 2010)
	1	Customer engagement, buyer-seller relationships, and social media	(Sashi, 2012)
Tourism	1	Can this be spring? Assessing the impact of the "Arab Spring" on the Arab tourism industry	(Mansfeld and Winckler, 2015)
TQM	1	Assessment of TQM implementation: Benchmarking Singapore's productivity leaders	(Woon, 2000)

Utility company	1	A literature review and a case study of sustainable supply chains with a focus on metrics	(Hassini et al., 2012)
Geographical Context			
Brazil	2	A SCOR-based model for supply chain performance measurement: Application in the footwear industry Toward a subjective measurement model for firm performance	(Sellitto et al., 2015) (Santos and Brito, 2012)
Denmark and Australia	1	SMEs' e-commerce adoption: Perspectives from Denmark and Australia	(Scupola, 2009)
Egypt	1	Supply chain risk management: The lessons learned from the Egyptian revolution 2011	(Elzarka, 2013)
Germany	1	An empirical analysis of supply chain risk management in the German automotive industry	(Thun and Hoenig, 2011)
Globally	2 9	Supply chain resilience in the global financial crisis: An empirical study The whole relationship between environmental variables and firm performance: Competitive advantage and firm resources as mediator variables Understanding the concept of supply chain resilience Supply chain resilience for single and multiple sourcing in the presence of disruption risks Preparing for the big one Supply chain vulnerability and resilience: A state of the art overview Firm's resilience to supply chain disruptions: Scale development and empirical examination When Supply-Chain Disruptions Matte Multi-attribute approach to sustainable supply chain management under uncertainty A model of factors influencing the supply chain performance Robust strategies for mitigating supply chain disruptions A quantitative analysis of disruption risk in a multi-echelon supply chain strategic learning & the balanced scorecard Benchmarking of logistical operations based on a causal model Developing key performance indicators for supply chain: An industry perspective From a literature review to a conceptual framework for sustainable supply chain management Performance measures and metrics in logistics and supply chain management: A review of recent literature (1995-2004) for research and applications Measuring supply chain performance: Current research and future directions A review on supply chain performance measures and metrics: 2000-2011 Performance measurement system design: A literature review and research agenda Measuring supply chain resilience using a deterministic modelling approach Global supplier development considering risk factors using fuzzy extended AHP-based approach Supply chain resilience: Definition, review and theoretical foundations for further study Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms Measuring supply chain performance A review of approaches to supply chain communications: From manufacturing to construction Structure-integration relationships in oil and gas supply chains Customer engagement, buyer-seller relationships, and social media A literature review and a case study of sustainable supply chains with a focus on metrics	(Jüttner and Maklan, 2011) (López-Gamero et al., 2009) (Ponomarov and Holcomb, 2009) (Namdar et al., 2017) (Sheffi, 2005) (Longo and Ören, 2008) (Ambulkar et al., 2015) (Schmidt and Raman, 2012) (Wu and Liao, 2016) (Sakka et al., 2009) (Tang, 2006) (Schmitt and Singh, 2012) (Kaplan and Norton, 1996) (Landeghem, 2001) (Chae, 2009) (Chan and Kumar, 2007) (Tukamuhabwa et al., 2017) (Seuring and Müller, 2008) (Gunasekaran and Kobu, 2007) (Shepherd and Günter, 2006) (Gopal and Thakkar, 2012) (Neely et al., 1995) (Soni et al., 2014) (Chan and Kumar, 2007) (Tukamuhabwa et al., 2017) (Ga et al., 2011) (Benita M. Beamon, 1999) (Cutting-Decelle et al., 2007) (Ebrahimi et al., 2017) (Sashi, 2012) (Hassini et al., 2012)
India	2	Performance measurement of supply chain management: A balanced scorecard approach Studying the impact of total quality management in service industries	(Bhagwat and Sharma, 2007) (Talib and Rahman, 2010)
Italy	1	Performance measurement systems Models, characteristics and measures	(Toni and Tonchia, 2001)
Japan	4	The Impact of Supply Chain Disruptions: Evidence from the Japanese Tsunami How do supply chain networks affect the resilience of firms to natural disasters? Evidence from the great east Japan Earthquake Building Resilient Supply Chains against Natural Disasters: The Cases of Japan and Thailand	(Leckcivillize, 2012) (Todo et al., 2015) (Abe and Ye, 2013)

		Performance measures and metrics in outsourcing decisions: A review for research and applications	(Gunasekaran et al., 2015)
Jordan	2	Jordanian Foreign Policy and the Arab Spring Jordan: A Refugee Haven	(Ryan, 2014) (Chatelard, 2010)
Korea and Taiwan	1	Trade and industrialisation after globalisation's 2nd unbundling: How building and joining a supply chain are different and why it matters	(Baldwin, 2011)
Malaysia	1	An expert fuzzy rule-based system for closed-loop supply chain performance assessment in the automotive industry	(Olugu and Wong, 2012)
MENA	7	Impacts of the Arab Spring on trade-in airline services Political transition and bank performance: How important was the Arab Spring The Arab Spring: Implications for Economic Integration Finance-growth nexus in a changing political region: How important was the Arab Spring? Recovering from conflict and uncertainty post Arab Spring Can this be spring? Assessing the impact of the "Arab Spring" on the Arab tourism industry	(Button et al., 2016) (Ghosh, 2016) (Gasiorek, 2013) (Arayssi and Fakh, 2017) (Abdelzaher et al., 2017) (Mansfeld and Winckler, 2015)
Singapore	1	Assessment of TQM implementation: Benchmarking Singapore's productivity leaders	(Woon, 2000)
Spain	1	Innovation, organizational learning, and performance	(Jiménez-Jiménez and Sanz-Valle, 2011)
Taiwan	1	Enhancing effects of supply chain resilience: insights from the trajectory and resource-based perspectives	(Cheng and Lu, 2017)
Turkey, Israel, the United States, Germany, Spain, Hungary, and MENA	1	The Arab Spring Its Impact on the Region and on the Middle East Conference	(Erzsebet N. Rosza, et. al., 2012)
UK	1	Exploring the challenges in implementing supplier environmental performance measurement models: A case study	(Genovese et al., 2013)
US	5	Managing Disruption Risks in Supply Chains Supply Chain Disruptions A supply chain view of the resilient enterprise The effects of internal versus external integration practices on time-based performance and overall firm performance Supply chain collaboration: Impact on collaborative advantage and firm performance	(Kleindorfer and Saad, 2005) (Hopp et al., 2012) (Sheffi and Rice Jr., 2005) (Droge et al., 2004) (Cao and Zhang, 2011)

Theoretical Perspective			
Agent theory	1	Agent theory	(Cutting-Decelle et al., 2007)
built a causal model	1	Benchmarking of logistical operations based on a causal model	(Landeghem, 2001)
Comparison	1	TRADE AND INDUSTRIALISATION AFTER GLOBALISATION'S 2ND UNBUNDLING: HOW BUILDING AND JOINING A SUPPLY CHAIN ARE DIFFERENT AND WHY IT MATTERS	(Baldwin, 2011)
Complex Adaptive Systems	1	Supply chain resilience: Definition, review and theoretical foundations for further study	(Tukamuhabwa et al., 2017)
Conceptual model	2	Managing Disruption Risks in Supply Chains A review on supply chain performance measures and metrics: 2000-2011	(Kleindorfer and Saad, 2005) (Gopal and Thakkar, 2012)
Deming-based theory	1	Assessment of TQM implementation: Benchmarking Singapore's productivity leaders	(Woon, 2000)
Detailed studies and follow-ups with managers	1	A supply chain view of the resilient enterprise	(Sheffi and Rice Jr., 2005)
Developing a theoretical framework	5	Supply chain resilience for single and multiple sourcing in the presence of disruption risks Multi-attribute approach to sustainable supply chain management under uncertainty Understanding the concept of supply chain resilience A model of factors influencing the supply chain performance Customer engagement, buyer-seller relationships, and social media	(Namdar et al., 2017) (Wu and Liao, 2016) (Ponomarov and Holcomb, 2009) (Sakka et al., 2009) (Sashi, 2012)
Double-loop learning	1	strategic learning & the balanced scorecard	(Kaplan and Norton, 1996)

Empirical theory	1 6	SMEs' e-commerce adoption: Perspectives from Denmark and Australia Supply chain risk management: The lessons learned from the Egyptian revolution 2011 Supply chain resilience in the global financial crisis: An empirical study The whole relationship between environmental variables and firm performance: Competitive advantage and firm resources as mediator variables Preparing for the big one Supply chain vulnerability and resilience: A state of the art overview Firm's resilience to supply chain disruptions: Scale development and empirical examination Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms Structure-integration relationships in oil and gas supply chains Studying the impact of total quality management in service industries Performance measurement systems Models, characteristics and measures How do supply chain networks affect the resilience of firms to natural disasters? Evidence from the great east Japan Earthquake Political transition and bank performance: How important was the Arab Spring Finance-growth nexus in a changing political region: How important was the Arab Spring? Can this be spring? Assessing the impact of the "Arab Spring" on the Arab tourism industry Innovation, organizational learning, and performance	(Scupola, 2009) (Elzarka, 2013) (Jüttner and Maklan, 2011) (López-Gamero et al., 2009) (Supply et al., 2005) (Longo and Ören, 2008) (Ambulkar et al., 2015) (Ga et al., 2011) (Ebrahimi et al., 2017) (Talib and Rahman, 2010) (Toni and Tonchia, 2001) (Todo et al., 2015) (Ghosh, 2016) (Arayssi and Fakh, 2017) (Mansfeld and Winckler, 2015) (Jiménez-Jiménez and Sanz-Valle, 2011)
Exploratory	6	When Supply-Chain Disruptions Matte Jordanian Foreign Policy and the Arab Spring Jordan: A Refugee Haven The Arab Spring: Implications for Economic Integration The Arab Spring Its Impact on the Region and on the Middle East Conference Robust strategies for mitigating supply chain disruptions	(Schmidt and Raman, 2012) (Ryan, 2014) (Chatelard, 2010) (Gasiorek, 2013) (Rosza et al., 2012) (Tang, 2006)
Fragmentation theory	1	Building Resilient Supply Chains against Natural Disasters: The Cases of Japan and Thailand	(Abe and Ye, 2013)
Fuzzy set theory	2	Global supplier development considering risk factors using fuzzy extended AHP-based approach Performance measures and metrics in logistics and supply chain management: A review of recent literature (1995-2004) for research and applications	(Chan and Kumar, 2007) (Gunasekaran and Kobu, 2007)
Game theory	1	Performance measures and metrics in outsourcing decisions: A review for research and applications	(Gunasekaran et al., 2015)
Graph theory	1	Measuring supply chain resilience using a deterministic modelling approach	(Soni et al., 2014)
An industry-oriented, practical approach	1	Developing key performance indicators for supply chain: An industry perspective	(Chae, 2009)
Islamic management theory	1	Recovering from conflict and uncertainty post Arab Spring: A model leveraging employees' spiritual values	(Abdelzaher et al., 2017)
Modelling	6	A quantitative analysis of disruption risk in a multi-echelon supply chain The Impact of Supply Chain Disruptions: Evidence from the Japanese Tsunami Measuring supply chain performance: Current research and future directions Impacts of the Arab Spring on trade-in airline services The effects of internal versus external integration practices on time-based performance and overall firm performance Supply Chain Disruptions	(Schmitt and Singh, 2012) (Leckcivilize, 2012) (Shepherd and Günter, 2006) (Button et al., 2016) (Droge et al., 2004) (Hopp et al., 2012)
Normative theory	2	Performance measurement system design: A literature review and research agenda Measuring supply chain performance	(Neely et al., 1995) (Benita M. Beamon, 1999)
Performance management theory	1	A literature review and a case study of sustainable supply chains with a focus on metrics	(Hassini et al., 2012)
Probability-impact-matrix distinguishing between	1	An empirical analysis of supply chain risk management in the German automotive industry	(Thun and Hoenig, 2011)

internal and external supply chain risks			
Resource-Based View	1	Enhancing effects of supply chain resilience: insights from the trajectory and resource-based perspectives	(Cheng and Lu, 2017)
Rule-based system	1	An expert fuzzy rule-based system for closed-loop supply chain performance assessment in the automotive industry	(Olugu and Wong, 2012)
SCM performance measurement theory	1	Performance measurement of supply chain management: A balanced scorecard approach	(Bhagwat and Sharma, 2007)
SCOR-based model	1	A SCOR-based model for supply chain performance measurement: Application in the footwear industry	(Sellitto et al., 2015)
Stakeholder theory	1	Toward a subjective measurement model for firm performance	(Santos and Brito, 2012)
Theory development	1	From a literature review to a conceptual framework for sustainable supply chain management	(Seuring and Müller, 2008)
Theory testing	1	Exploring the challenges in implementing supplier environmental performance measurement models: A case study	(Genovese et al., 2013)
Transaction cost economics (TCE) theory	1	Supply chain collaboration: Impact on collaborative advantage and firm performance	(Cao and Zhang, 2011)

Trigger Event			
Arab Spring	9	Impacts of the Arab Spring on trade-in airline services Recovering from conflict and uncertainty post Arab Spring Jordanian Foreign Policy and the Arab Spring The Arab Spring: Implications for Economic Integration The Arab Spring Its Impact on the Region and on the Middle East Conference Supply chain risk management: The lessons learned from the Egyptian revolution 2011 Political transition and bank performance: How important was the Arab Spring Can this be spring? Assessing the impact of the "Arab Spring" on the Arab tourism industry Finance-growth nexus in a changing political region: How important was the Arab Spring?	(Button et al., 2016) (Abdelzaher et al., 2017) (Ryan, 2014) (Gasiorek, 2013) (Rosza et al., 2012) (Elzarka, 2013) (Ghosh, 2016) (Mansfeld and Winckler, 2015) (Arayssi and Fakh, 2017)
Customer engagement	1	Customer engagement, buyer-seller relationships, and social media	(Sashi, 2012)
Disruption risk	2	Managing Disruption Risks in Supply Chains Robust strategies for mitigating supply chain disruptions	(Kleindorfer and Saad, 2005) (Tang, 2006)
E-commerce	1	SMEs' e-commerce adoption: Perspectives from Denmark and Australia	(Scupola, 2009)
Environmental management	1	The whole relationship between environmental variables and firm performance: Competitive advantage and firm resources as mediator variables	(López-Gamero et al., 2009)
Global financial crisis	1	Supply chain resilience in the global financial crisis: An empirical study	(Jüttner and Maklan, 2011)
Globalisation	2	TRADE AND INDUSTRIALISATION AFTER GLOBALISATION'S 2ND UNBUNDLING: HOW BUILDING AND JOINING A SUPPLY CHAIN ARE DIFFERENT AND WHY IT MATTERS Supply Chain Disruptions	(Baldwin, 2011) (Rosza et al., 2012)
Information exchanges	2	A model of factors influencing the supply chain performance A review of approaches to supply chain communications: From manufacturing to construction	(Sakka et al., 2009) (Chatelard, 2010)
National TQM programme	1	Assessment of TQM implementation: Benchmarking Singapore's productivity leaders	(Woon, 2000)
Natural Disasters	3	The Impact of Supply Chain Disruptions: Evidence from the Japanese Tsunami How do supply chain networks affect the resilience of firms to natural disasters? Evidence from the great east Japan Earthquake Building Resilient Supply Chains against Natural Disasters: The Cases of Japan and Thailand	(Leckcivilize, 2012) (Todo et al., 2015) (Abe and Ye, 2013)
Operating frontier, trajectory and absorptive capacity	1	Enhancing effects of supply chain resilience: insights from the trajectory and resource-based perspectives	(Cheng and Lu, 2017)
Politics, economy, and society	1	Jordan: A Refugee Haven	(Chatelard, 2010)

Risk management	8	Measuring supply chain resilience using a deterministic modelling approach Firm's resilience to supply chain disruptions: Scale development and empirical examination A quantitative analysis of disruption risk in a multi-echelon supply chain Structure-integration relationships in oil and gas supply chains Supply chain resilience for single and multiple sourcing in the presence of disruption risks Studying the impact of total quality management in service industries Global supplier development considering risk factors using fuzzy extended AHP-based approach An empirical analysis of supply chain risk management in the German automotive industry	(Soni et al., 2014) (Ambulkar et al., 2015) (Schmitt and Singh, 2012) (Cutting-Decelle et al., 2007) (Namdar et al., 2017) (Talib and Rahman, 2010) (Chan and Kumar, 2007) (Thun and Hoenig, 2011)
Supply chain performance	4	Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms The effects of internal versus external integration practices on time-based performance and overall firm performance A SCOR-based model for supply chain performance measurement: Application in the footwear industry Supply chain collaboration: Impact on collaborative advantage and firm performance	(Ga et al., 2011) (Droge et al., 2004) (Sellitto et al., 2015) (Cao and Zhang, 2011)
Supply chain performance measurement	16	Benchmarking of logistical operations based on a causal model A review on supply chain performance measures and metrics: 2000-2011 strategic learning & the balanced scorecard Performance measurement systems Models, characteristics and measures Innovation, organizational learning, and performance Performance measures and metrics in logistics and supply chain management: A review of recent literature (1995-2004) for research and applications Performance measures and metrics in outsourcing decisions: A review for research and applications Developing key performance indicators for supply chain: An industry perspective Measuring supply chain performance: Current research and future directions Performance measurement system design: A literature review and research agenda Measuring supply chain performance A literature review and a case study of sustainable supply chains with a focus on metrics An expert fuzzy rule-based system for closed-loop supply chain performance assessment in the automotive industry Performance measurement of supply chain management: A balanced scorecard approach Toward a subjective measurement model for firm performance Exploring the challenges in implementing supplier environmental performance measurement models: A case study	(Landeghem, 2001) (Gopal and Thakkar, 2012) (Kaplan and Norton, 1996) (Toni and Tonchia, 2001) (Jiménez-Jiménez and Sanz-Valle, 2011) (Gunasekaran and Kobu, 2007) (Gunasekaran et al., 2015) (Chae, 2009) (Shepherd and Günter, 2006) (Neely et al., 1995) (Benita M. Beamon, 1999) (Ahi and Searcy, 2013) (Olugu and Wong, 2012) (Bhagwat and Sharma, 2007) (Santos and Brito, 2012) (Genovese et al., 2013)
Supply chain resilience	3	Supply chain resilience: Definition, review and theoretical foundations for further study Preparing for the big one Supply chain vulnerability and resilience: A state of the art overview	(Tukamuhabwa et al., 2017) (Supply et al., 2005) (Longo and Ören, 2008)
Sustainability	1	From a literature review to a conceptual framework for sustainable supply chain management	(Seuring and Müller, 2008)
Systematic bias in choosing which disruptions to announce	1	When Supply-Chain Disruptions Matte	(Schmidt and Raman, 2012)
Terrorist attacks	1	A supply chain view of the resilient enterprise	(Sheffi and Rice Jr., 2005)
Uncertainty	1	Multi-attribute approach to sustainable supply chain management under uncertainty	(Wu and Liao, 2016)
A unified theory of resilience	1	Understanding the concept of supply chain resilience	(Ponomarov and Holcomb, 2009)

Appendix 4. Interview Questions

1. Can you tell me more about your company?
 - a. What are you doing/ what is your business?
 - b. What kind of products do you have?
 - c. How many suppliers do you have? Who are they?
 - d. Who are your target customers? How many customers do you have? Who are they?
 - e. How is your supply chain organised?
 - f. Where is your company based is it national/ multi-national, or international?
 - g. How was your company business related to the countries facing the turmoil?
2. Can you tell me about the challenges that your company faced since the beginning of the Arab Spring?
 - a. As the Arab Spring has an impact on the economic environment could you please describe me the economic environment in which your company operates?
 - i. Easy of doing business
 - ii. Level of bureaucracy
 - iii. Skilfulness
 - iv. Poverty
 - v. External Debt
 - vi. Financial Sector
 - vii. Social Protection & Labour
 - viii. Trade
 - ix. Urban Development
 - b. Can you put them in order based of their influence on your company?
 - c. What was the influences of those challenges on your company?
3. How easy would it be for you to replace suppliers? And customers?
 - a. What would happen if you lose one of them?
 - b. Is there any kind of regulation that influences the relationship between you and your suppliers or business partners?
 - c. Was this relationship exacerbated by the turmoil?
4. What kind of practices have you adopted to mitigate, avoid, or reduce the impact of the Arab Spring?
 - a. Supply chain practices:
 - i. Agility
 - ii. Collaboration
 - iii. Information sharing
 - iv. Risk and revenue sharing
 - v. Sustainability
 - vi. Trust
 - vii. Visibility
 - viii. Risk management culture
 - ix. Adaptive capability
 - x. Structure
 - b. When did you start to apply each of those practices?
5. What was the reason for implementing those practices?
 - a. Were you trying to implement best-practices from your industry?
 - b. To what extent did you encourage other parties from your supply chain to adopt similar practices?
 - c. Was there any kind of pressure on your company to adopt specific practices; business pressures (market, technology, or societal)?

- i. Market pressure:
 - 1. The Global Economy
 - 2. Strong Competition between companies
 - 3. The Changing Nature of the Workforces
 - 4. Powerful Customers.
 - ii. Technology pressure:
 - 1. Technological changes and outdated of technology.
 - 2. Information overload.
 - iii. Societal Pressure
 - 1. Social Responsibility
 - 2. Government Regulation and Deregulation
 - 3. Protection Against Terrorist Attacks
 - 4. Ethical issues
- 6. To what extent do you believe the organisation's capabilities restricted the adoption of certain resilience practices?
 - a. What kind of resources enabled your company to overcome the turmoil and what kind of resources were missing to have done so more efficiently/effectively?
 - b. What kind of skills enabled your company to overcome the turmoil and what kind of skills were lacking that could have allowed to do so more efficiently/effectively?
- 7. Could you please provide me with some details about your company's overall performance before and after the Arab Spring?
 - i. Profitability
 - ii. Cost
 - iii. Revenue turnover
 - iv. Quality
 - v. Flexibility
 - vi. Time
 - b. Where there any positive influence from this turmoil on your company?
 - c. Overall, have things improved or worsen due to this turmoil?
- 8. Is there anything that you think you should have in the company for the future similar situations that would help you in overcoming them?
 - a. Have you thought about it before facing this turmoil?
 - b. Where there any kind of restriction on applying it or thinking about it?
 - c. Are you planning to apply it now?
- 9. Have you received any kind of help or support from the government which helped you to overcome the disruption?
 - i. Tax reduction
 - ii. Financial support
 - iii. Loans
 - iv. Training programme
 - b. When did you received it?
 - c. To what extent did it help you continue your operations?
- 10. Is there anything else that you think should be mentioned about the research or any point that should be added to it?

Appendix 5. Participation Cover Letter



The
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Of
Sheffield.



Sheffield
University
Management
School.

Lubna Al-Zoubi

Doctoral Researcher/ Operations Management and Decision Sciences Division

The University of Sheffield Management School

Conduit Rd, Sheffield S10 1FL, United Kingdom

Email: lal-zoubi1@sheffield.ac.uk

Mobile: +447948300023

Date: / /

Invitation to participate in a research project: regarding Supply Chain Resilience and Firm Performance in Turbulent Contexts: A Case Study of Jordan and the Arab Spring.

Dear Sir/ Madam

I am writing this letter to invite you to participate in my doctoral research project which will study the influence of the Arab Spring on the company's operations.

I am specifically interested in the economic impact of the Arab Spring on the company's operation and resilience and the extent to which the Arab Spring has had a positive or negative impact. This means this study will look at the facts before and after December-2010. Looking at your role in the company, I believe you have the knowledge and expertise about this subject and I would greatly appreciate the opportunity to learn from your experience and to solicit your help in gathering accurate data regarding your company.

I would like to assure you that all the information gathered will only be used for research purposes. All the data collected will be treated in a confidential and ethical way, giving you the option -if you wish- to keep both your identity and that of the company anonymous. Moreover, you are free to withdraw from the study at any time without giving any reason till the research has been published; more details can be found in the participant information sheet. If you need any further details please do not hesitate to contact me using the details provided.

I would like to thank you for going through this cover letter and I would really appreciate it if you can give me some time to answer questions regarding this research.

Yours faithfully,

Lubna Al-Zoubi

Appendix 6. Participant Information Sheet



The University Of Sheffield. Supply Chain Resilience and Firm Performance in Turbulent Contexts: A Case Study of Jordan and the Arab Spring

You are being invited to take part in this research project. Before you decide to do so, it is important you understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

What is the project's purpose?

This research aims at investigating factors impacting a company's performance in turbulent economic environments due to major geopolitical changes, trying to understand whether supply chain resilience practices can play a mitigating role in helping organisations to manage the unintended consequences of such major disruptions.

Why have I been chosen?

We are studying the manufacturing sector in Jordan and the companies that managed to survive the Arab Spring. As an employee working at a top-management level, you will know the information we seek.

Do I have to take part?

Participation in this research is completely voluntary and you have the right to withdraw at any point without explanation. If you do decide to take part, you will be asked to read and sign the attached consent form to indicate your agreement. You will be given a copy of the consent form to keep.

What will happen to me if I take part?

The research project involves completing a semi-structured interview which we estimate will take around one hour to be completed.

What are the possible disadvantages and risks of taking part?

Taking part in this research will require you to commit some of your time – to conduct the interview. There should not be any risks to you or your company as a result of taking part in this research.

What are the possible benefits of taking part?

There are no direct benefits but if you wish you will be given a summary of the findings and this will give insights into improving your company's performance.

What happens if the research study stops earlier than expected?

Should the research stop earlier than planned we will inform you about this and explain why.

What if something goes wrong?

If you have any complaints about the project, in the first instance, you can contact any member of the lead supervisory research team (see below).

Will my taking part in this project be kept confidential?

All the information that we collect about you and your company during the course of the research will be kept strictly confidential and anonymous. These anonymised data will not allow any individuals or their companies to be identified. Any data collected about you in the questionnaire survey or interview will be stored online in an encrypted form on a password-protected University of Sheffield database.

Will I be recorded, and how will the recorded media be used?

The interview will be recorded using a digital recorder. The recordings will be listened to and transcribed by myself, thereby making me the only one with access to the raw data material. They will not be used in any other way except to help with the typing up.

What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

The interview consists of two parts. The first part will be general information about your company's operation. The second part will ask you to indicate the type of practices and strategies your company used to help in continuing the operation during this turmoil.

What will happen to the results of the research project?

Research findings will be published in academic journals and presented at relevant conferences, but you will not be identified in any reports, publications or presentations. If you wish to be given a copy of any reports resulting from the research, please send us your contact details.

Who is funding the research?

The project will be conducted under the University of Sheffield name and regulations, while the research is sponsored by Al-Zaytoonah University.

Who has ethically reviewed the project?

This project has been ethically approved by the Management School's ethics review procedure. The University of Sheffield's Research Ethics Committee monitors the application and delivery of the University's Ethics Review Procedure across the University.

Project contact details for further information:

Lead researcher:

Lubna Al-Zoubi, Management School, University of Sheffield, UK.
Tel: +44 (0) 7948300023, email: lal-zoubi1@sheffield.ac.uk

Supervisory team:

Prof. Andrea Genovese, Management School, University of Sheffield, UK.
Tel: +44 (0)114 222 3347, email: a.genovese@sheffield.ac.uk
Dr Chantal Cantarelli, Management School, University of Sheffield, UK.
Tel: +44 (0)114 222 3377, email: c.c.cantarelli@sheffield.ac.uk

Research Support Team: (For complaints)

Ms Catherine Workman, Research Support Manager (Management School and Economics), University of Sheffield, UK.

Tel: +44 (0)114 222 9189, email: c.workman@sheffield.ac.uk

Thank you for reading thus far and considering taking part in this research. If you would like to participate then please complete and sign the consent form, which is attached.

Appendix 7. Participant Consent Form



The
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Sheffield.

Supply Chain Resilience and Firm Performance in Turbulent Contexts:
A Case Study of Jordan and the Arab Spring

Please tick the appropriate boxes	Yes	No
Do you agree to recording of this interview only for the purposes of taking notes?	<input type="checkbox"/>	<input type="checkbox"/>
Taking Part in the Project		
I have read and understood the project information sheet or the project has been fully explained to me. (If you will answer No to this question please do not proceed with this consent form until you are fully aware of what your participation in the project will mean)	<input type="checkbox"/>	<input type="checkbox"/>
I have been given the opportunity to ask questions about the project.	<input type="checkbox"/>	<input type="checkbox"/>
I agree to take part in the project. I understand that taking part in the project will include: Completing a structured survey questionnaire	<input type="checkbox"/>	<input type="checkbox"/>
Take part in a follow-up interview	<input type="checkbox"/>	<input type="checkbox"/>
I understand that my taking part is voluntary and that I can withdraw from the study at any time. I do not have to give any reasons why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.	<input type="checkbox"/>	<input type="checkbox"/>
How my information will be used during and after the project		
I understand my personal details such as name, phone number, address and email address etc. will not be revealed to people outside the project.	<input type="checkbox"/>	<input type="checkbox"/>
I understand and agree that my words may be quoted in publications, reports, web pages, and other research outputs. I understand that I will not be named in these outputs unless I specifically request this.	<input type="checkbox"/>	<input type="checkbox"/>
I understand and agree that other authorised researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	<input type="checkbox"/>	<input type="checkbox"/>
So that the information you provide can be used legally by the researchers		
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	<input type="checkbox"/>	<input type="checkbox"/>

Name of participant

Signature

Date

Name of Researcher

Signature

Date

Project contact details for further information:

Lead researcher:

Lubna Al-Zoubi, Management School, University of Sheffield, UK.

Tel: +44 (0) 7948300023, email: lal-zoubi1@sheffield.ac.uk

Supervisory team:

Prof. Andrea Genovese, Management School, University of Sheffield, UK.

Tel: +44 (0)114 222 3347, email: a.genovese@sheffield.ac.uk

Dr Chantal Cantarelli, Management School, University of Sheffield, UK.

Tel: +44 (0)114 222 3377, email: c.c.cantarelli@sheffield.ac.uk

Research Support Team: (For complaints)

Ms Catherine Workman, Research Support Manager (Management School and Economics), University of Sheffield, UK.

Tel: +44 (0)114 222 9189, email: c.workman@sheffield.ac.uk

Appendix 8. Ethical Approval



Downloaded: 08/04/2023
Approved: 10/06/2019

Lubna Al-Zoubi
Registration number: 170226789
Management School
Programme: Postgraduate - Research

Dear Lubna

PROJECT TITLE: Supply Chain Resilience and Firm Performance in Turbulent Contexts: A Case Study of Jordan and the Arab Spring
APPLICATION: Reference Number 026302

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 10/06/2019 the above-named project was approved on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 026302 (form submission date: 23/05/2019); (expected project end date: 30/09/2021).
- Participant information sheet 1059852 version 3 (23/05/2019).
- Participant information sheet 1059853 version 3 (23/05/2019).
- Participant consent form 1059854 version 2 (22/05/2019).

The following optional amendments were suggested:

I am approving this but like mentioned before, for questionnaire survey you would just need one combined information + consent document. The information background for questionnaire survey is very brief compared to interviews' information sheet. You might want to look into some example emails that you receive from others for filling questionnaire survey. Rest all the amendments are fine. Good luck!

If during the course of the project you need to deviate significantly from the above-approved documentation please inform me since written approval will be required.

Your responsibilities in delivering this research project are set out at the end of this letter.

Yours sincerely

Sophie May
Ethics Administrator
Management School

Please note the following responsibilities of the researcher in delivering the research project:

- The project must abide by the University's Research Ethics Policy: <https://www.sheffield.ac.uk/research-services/ethics-integrity/policy>
- The project must abide by the University's Good Research & Innovation Practices Policy: https://www.sheffield.ac.uk/polopoly_fs/1.6710661/file/GRIPPolicy.pdf
- The researcher must inform their supervisor (in the case of a student) or Ethics Administrator (in the case of a member of staff) of any significant changes to the project or the approved documentation.
- The researcher must comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data.
- The researcher is responsible for effectively managing the data collected both during and after the end of the project in line with best practice, and any relevant legislative, regulatory or contractual requirements.

Appendix 9. Sector Guide

Sector (https://www.jci.org.jo/Pages/viewpage.aspx?pageID=175)									
Construction Industry	Plastic and Rubber	Mining	Leather and Garments	Furniture	Engineering	Therapeutic	Chemical	Food	Printing and Packaging
Construction stones, stone cutting and composition and the production of panels of marble, granite, basalt and other construction products.	Rubber tires, tires coating and rubber tires and tubes.	Phosphate and Potash.	Yarn and fibers.	Wood panels, veneer and plywood and plastics.	Electric power.	Medical and therapeutic materials.	Oil refining products.	Live animals and animal products and meat.	Paper pulp, paper and cardboard industry.
Cement, concrete and gypsum products: tiles, bricks and boards pipes.	Rubber products, panels, plates, rods, tires and tubes or belts	Cement.	Tissues and fabrics.	Wooden building products, carpentry, including doors, windows, wooden frames and decoration works.	Iron and steel basic industries.	Medicines.	Inorganic chemicals materials.	Fruits, vegetables and processed products.	Printing and publishing.
Ready mixed concrete.	Panels, plates, tapes, rolls, hoses, plastic pipes and fittings.	Mining and extraction of limestone to produce calcium carbonate.	Non-woven fabrics.	Wooden molds.	Basic metal industries except iron and steel.	Medical and therapeutic antiseptics.	Organic chemical materials.	Cocoa and chocolate, sugar, candy, desserts and Eastern sweet products.	Stationery.
Rock wool and insulation products.	Health plastic wares, baths and shower baths, sink tubs and other.	Mining and manufacturing kaolin, gypsum, feldspar and silica.	Carpets and rugs and textile floor coverings.	Wooden hand tools and structures.	Metal construction and building products.	Natural medical cosmetics.	Petrochemicals.	Dairy products.	Packaging products.
Asphalt products.	House wares and Plastic cosmetics.	Extracting and crushing stone tablets, slabs, marble and granite stones and sand.	Embroideries and hand-made textiles.	Wooden handicrafts.	Metal household supplies.	Veterinary therapeutic products	Fertilizers.	Cereals, flour, starch, pastry and bakery products, potato chips and corn.	
Metal structures and metal rebar and structural products manufacturing.	Fiber glass products.	Chalk mining.	Knitted fabrics or crocheted and knitted fabric products.	Cork products, straw and plaiting.	Sharp and cutting tools.	Laboratory reagents and medical devices and supplies.	Pesticides and other agricultural chemicals.	Alcoholic and soft drinks, juices, vinegar and mineral water.	
Prefabricated buildings.	Plastic toys, games and accessories.		Garments and clothing accessories.	Kitchens.	Wire, nails and screws.	Visual and audio-visual equipment.	Fertilizers.	Tobacco and manufactured tobacco substitutes.	
Glass products used in construction and fiber glass.	Plastic farm tools.		Non-apparel textiles: towels, bed sheets, curtains, woven bags and tents.	Furniture of all kinds (home, offices, restaurants, schools, hospitals and laboratories).	Work sheet and slopping and turnings.	Dental equipment and supplies.	Printing inks.	Spices, salt and flavorings.	

Ceramic products.	Sponge products.		Leather products.	Mattresses.	Electrical home appliances and accessories.	Medical products.	Soaps, detergents, cleaning and polishing preparations		
The non-metallic insulation products for building and construction.			Shoes and shoe parts.	Ceramic pots, tableware and ornamental statues and other ceramic products.	Central heating and solar water heaters.	Any other similar industries within this sector.	Perfumes and cosmetics.		
Pipes.			Leather bags.		Metal equipment for agricultural use.		Shampoos, hair sprays, cosmetics and shaving preparations.		
Decoration, building and construction services.					Electrical lighting fixtures and wiring.		Explosives and matches.		
					Electronic devices.		Gum and glue.		
					Vehicles and primary cells.		Refined and processed salt.		
					Receivers and broadcast radio and television broadcasting and recording.		Dead Sea products (salts, mud, natural cosmetics materials).		
					Vehicles and transport equipment and accessories.		Lighting products, paintings, photographs and films.		
					Machinery and metal tools.		Anti-freeze materials, fluids processing and hydraulic transport processors.		
					Pumps and cranes, elevators and escalators.		Materials used in the completion of tissue processing and dyeing.		
					Conditioning, cooling, extinguishing devices and accessories.				
					Machinery, equipment and tools for the work of construction materials				
					Measuring and weight devices.				

					Devices for the preparation of food and water.				
					Clocks and alarm clocks.				
					Information and communications technology industry.				

Appendix 10. List of Abbreviations

ASE	Amman Stock Exchange
BBC	The British Broadcasting Corporation
BRC	British Retail Consortium
CBC	The Canadian Broadcasting Corporation
CCD	Companies Control Department
CEO	Chief Executive Officer
CNETAC	Close Neighbors Economic and Trade Association Council
COO	Chief Operating Officer
DAC	Digital-to-Analog Converter
EAIIA	Eastern Amman Investors Industrial Association
EBRD	The European Bank for Reconstruction and Development
ERP	Enterprise resource planning
ESCWA	Economic and Social Commission for Western Asia
EU	The European Union
FDA	Food and Drug Administration
FMCG	Fast-Moving Consumer Goods
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
HDPC	High Density Plastic Composite
HILF	High Impact Low Frequency
ISIS	The Islamic State of Iraq and Syria
ISO	International Organization for Standardization
ISTA	Income and Sales Tax Department
JEDCO	Jordan Enterprise Development Corporation
JIT	Just In Time
JOD	Jordanian Dinar
JREEEF	Jordan Renewable Energy & Energy Efficiency Fund
JSMO	Jordan Standards and Metrology Organization
LIHF	Low Impact High Frequency
MENA	Middle East and North Africa
MIT	Ministry of Industry and Trade
MOL	Ministry of Labour
NATO	The North Atlantic Treaty Organization
OECD	Organisation for Economic Co-operation and Development
OS	Operating System
OTC	Over The Counter
PVC	Polyvinyl Chloride
SC	Supply Chain
SCM	Supply Chain Management
SCP	Supply Chain Performance
SCR	Supply Chain Resilience
SCRP	Supply Chain Resilience Practices
SSC	Social Security Corporation
TQM	Total Quality Management
UAE	The United Arab Emirates
UK	United Kingdom
UN	United Nations
UPVC	Unplasticized Polyvinyl Chloride
US	United States
USA	United States of America

Appendix 11. Manufacturing Industry – Basic Information

Table 23 illustrates that interviews have been conducted with all the 10 sectors in the manufacturing industry. Different numbers of companies were drawn from each sector due to the reliance on snowballing for arranging the interviews. The establishment years for the companies varied from 1926 to 2015. Interviews have covered local, multinational, and international companies. Three out of the interviewed companies (C15, C19, and C22) had to adjust their market existence. This table also shows that 16 companies used to adopt supply chain resilience practices before the turmoil and that they have added more practices after the turmoil, nine companies have started to adopt supply chain resilience practices, and 4 companies (C1, C14, C15, C21) have not adopted any practices before or after the turmoil.

Table 23 - Manufacturing Industry – Basic Information

Company Code	Year	Sector	The base of the Company	Interviewee	Before the Arab Spring	After The Arab Spring	SCRP before Arab Spring	SCRP after Arab Spring	Effect
C01	Parent: 1969 Subsidiary: 2009	Chemical	Multinational	Owner	Jordan & Exporting	Jordan & Exporting	No Practices	No Practices	Slightly Harmed
C02	2006	Chemical	Local	Owner	Exporting	Exporting	Some Practices	Add Practices	Highly Benefitted
C03	Parent: 1999 Subsidiary: 2002	Chemical	Multinational	Marketing Manager	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Highly Benefitted
C04	Parent: 1987 Subsidiary: 1987	Chemical	Multinational	Owner	Jordan & Exporting	Jordan & Exporting	No Practices	Add Practices	Harmed
C05	1990	Chemical	Local	Owner	Exporting	Jordan & Exporting	No Practices	Add Practices	Highly Harmed
C06	2005	Construction Industry	Local	Owner	Jordan & Exporting	Jordan & Exporting	No Practices	Add Practices	Benefitted
C07	Parent: 1992 Acquisition: 2000	Engineering	Local	Finance manager & Sales manager	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Harmed
C08	1960	Engineering	Local	Owner	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Highly Benefitted
C09	1950	Food	Local	Owner	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Slightly Harmed
C10	1926	Food	Local	Finance manager, Supply chain manager & Assistant director	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Slightly Benefitted
C11	1995	Food	Local	Owner	Jordan & Exporting	Jordan & Exporting	No Practices	Add Practices	Slightly Harmed
C12	2002	Food	Local	Owner	Jordan	Jordan	No Practices	Add Practices	Slightly Harmed
C13	1980	Food	Local	Owner	Jordan & Exporting	Jordan & Exporting	No Practices	Add Practices	Benefitted

C14	2015	Food	Local	Owner	N/A	Jordan & Exporting	No Practices	No Practices	N/A
C15	1969	Furniture	Local	Owner	Jordan	Jordan	No Practices	No Practices	Benefitted
C16	1982	Furniture	Local	Owner	Jordan & Exporting	Jordan & Exporting	No Practices	Add Practices	Highly Harmed
C17	1993	Furniture	Local	Owner	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Slightly Benefitted
C18	2008	Leather and Garments	Local	Owner	Jordan & Exporting	Jordan & Exporting	No Practices	Add Practices	Highly Harmed
C19	1992	Leather and Garments	Local	Owner	Jordan & Exporting	Jordan	Some Practices	Add Practices	Highly Harmed
C20	Parent: 1972 Subsidiary: 1994	Mining	International	Operation Manager	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Highly Benefitted
C21	1978	Plastic and Rubber	Local	Owner & Executive Officer	Jordan & Exporting	Jordan & Exporting	No Practices	No Practices	Slightly Benefitted
C22	1979	Printing and Packaging	Local	Owner	Exporting	Jordan	Some Practices	Add Practices	Harmed
C23	1993	Printing and Packaging	Local	Owner	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Benefitted
C24	2001	Printing and Packaging	Local	Owner	Jordan & Exporting	Jordan & Exporting	No Practices	Add Practices	Highly Benefitted
C25	1958	Printing and Packaging	Multinational	Owner	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Benefitted
C26	1992	Printing and Packaging	Local	Finance and Administration manager	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Highly Benefitted
C27	1989	Printing and Packaging	Local	Executive Manager	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Highly Benefitted
C28	1998	Printing and Packaging	Local	Owner	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Highly Benefitted
C29	Parent: 1978 Subsidiary: 1982 Acquisition: 1991	Therapeutic	International	Commercial Manager & Logistic manager	Jordan & Exporting	Jordan & Exporting	Some Practices	Add Practices	Slightly Benefitted

Note: each colour represents a different sector in the manufacturing industry.

Appendix 12. Research Examples

1. Qualitative Data: Example 1: Food Sector

1.1. Introduction

According to the Jordan Chamber of Industry (2021) “*The food, catering, agricultural and livestock industries sector is considered one of the most important local industrial sectors as the products of this sector are numerous and they are intertwined with several other industrial sectors to form an interconnection link that is characterized by complementarity*”.

Figure 26, Figure 27, and Figure 28 show relevant statistics from the Jordan Chamber of Industry regarding the food sector.

Figure 26 - The Number of Establishments Operating in the Food Sector During the Years 2010-2018

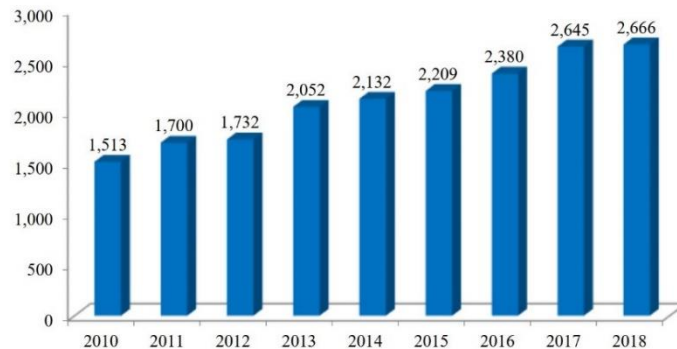


Figure 27 - Production Volume of the Food Sector - Million JOD

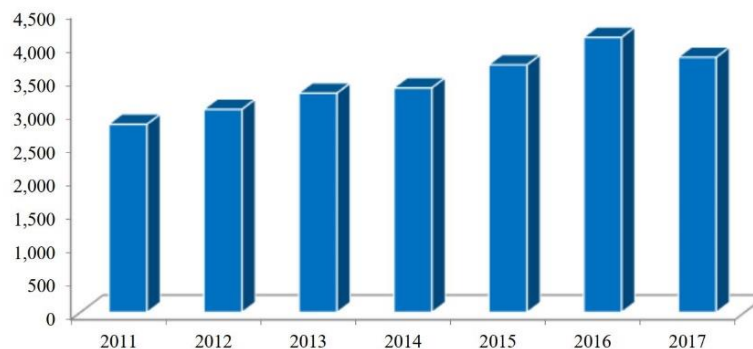
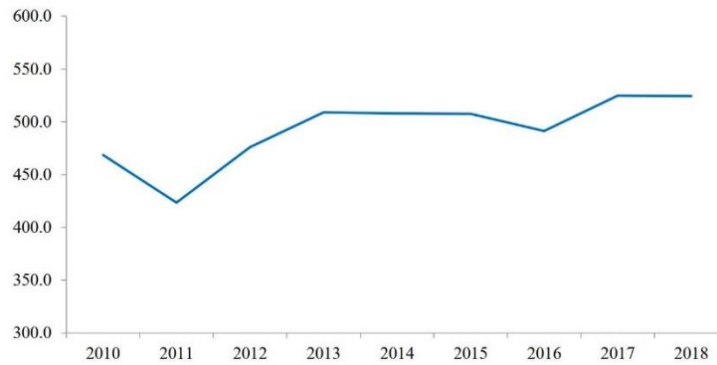


Figure 28 - Exports of the Food Sector - 2010-2018 Million JOD



According to the interviewed companies, the Food sector has been affected negatively by the Arab Spring and it had a strong impact on those companies, mainly because those companies had direct relationships with companies in countries that faced the Arab Spring and its consequences. Some of the companies who have not applied supply chain resilience practices had to leave the market as they were no longer able to operate, while the rest are struggling to stay in it. However, companies who had applied some supply chain resilience practices have managed to reduce the impact of the turmoil on their business and to find new ways to keep their company in the market, by opening new markets or increasing the focus on the local market. Among the companies that have applied supply chain resilience practices, those companies that have managed to add the most practices have been able to control the situation better and, in some cases, reach a level at which the negative impact is almost equal to the positive impact of the turmoil. Additionally, the level of impact was influenced by the nature of the product itself, whether it is an essential product or luxury product.

Companies C09-C14 are all in the food sector, with different types of food and different levels of adopting supply chain resilience practices; accordingly, they have been influenced by the Arab Spring differently. The below tables (24-29) show the comparisons between those companies:

Table 24 - Food Sector - Company General Information

Company		C09	C10	C11	C12	C13	C14
Establishment year		1950	1926	1995	2002	1980	2015
Type of food		Chocolate	Tahini, thyme, powders and herbs	Chocolate	Dairy, cheese and their derivatives	Canned materials and spices	Crisps
Import	Before	Europe, Netherlands and West Africa	Ethiopia, Sudan, Saudi Arabia, Syria, Turkey, Saudi Arabia and Lebanon	Belgium, the Netherlands, Italy and Turkey	Denmark, Germany, America, Turkey and local market	Canada, Argentina, Turkey, Australia, Britain, Egypt and local market	N/A
	After	Same	Stop: Sudan, Turkey and Lebanon	Same	Stop: Turkey	Same	Jordan, Lebanon, Egypt, Malaysia, America, Dubai, Netherlands, India and Turkey
Export	Before	27 countries and local market	30 countries and local market including USA, Europe, Russia, Australia, Malaysia, Singapore, Palestine, Gulf countries, Qatar, Egypt, Iraq, Kurdistan, Iran, and Libya	Local market, Palestine, Qatar, Saudi Arabia, Canada, Germany, Libya and Iraq	Local market	Local market, Germany, Netherlands, France, Spain, Palestine and the Gulf	N/A
	After	Stop: Syria, Iraq, Libya, Egypt, Algeria, Morocco, Tunisia, Lebanon	Same	Stop: Libya and Iraq	Same	Addition: America, Canada Stop: Syria, Lebanon, Iraq and Libya	Germany, Sweden, Belgium, Qatar, Palestine, Saudi Arabia, Dubai and Bahrain Export continued after Arab Spring but stopped after some time: Germany, Sweden and Belgium

As shown in Table 24 six companies with different establishment years from the food sector have been interviewed. Three of these are producing essential food (C10, C12, and C13) and the other three are producing non-essential products (C09, C11, and C14). The comparisons have been conducted based on the following criteria:

1.2. Product type

C09 manufactures chocolate from start to finish, A-Z. It has different lines of chocolate production: (1) Chocolate for catering. (2) Chocolate by weight (Chocolate Eid) per kg. (3) Chocolate Occasions (Christmas) Seasonal. (4) Supermarket chocolate - for spread (Nutella) or pieces (for homemade cakes) FMCG.

C10 works mainly in the manufacture of halva and tahini in addition to thyme, powders (cocoa, oats, brown sugar) and herbs.

C11 is engaged in chocolate production and produces under its commercial name or the commercial name of customers (Private label). It manufactures hospitality chocolate. The company manufactures approximately 70-80 chocolate products.

C12 specialises in the manufacture of dairy, cheese and its derivatives.

C13 specialises in canned materials, spices and related products. It has 25 varieties of canned foods in the market, including chickpeas, beans, peas, beans, spiced and mixed vegetables.

C14 specialises in natural potato crisps.

1.3. Import of Raw Materials

The raw material is a very important factor in production for manufacturing companies. Changing raw material providers could put companies at the risk of their product quality declining, which would influence their customers' loyalty. This puts manufacturers in a position where they need to be extra careful when choosing their suppliers, especially since *“The industrial sector is different from the merchant sector. The industrialist does not only look at the price and buy on this basis. When he is buying, he looks at the service that he will receive and is interested in the speed of communication and is interested in building a relationship. That is why changing the supplier, for the industrialist, is very difficult”* (Owner of C13, 2019). Moreover, loss of their business will also mean losing their business infrastructure which usually involves extremely high-value assets.

Raw materials for four of the interviewed companies in the food sector have been imported from Arab Spring countries and countries that faced its consequences. Two companies (C11 and C13) have continued importing raw materials from their suppliers even with the increase in time and cost, while the other two companies (C10 and C12) had to make some modifications to their raw materials providers or to find alternative ways to keep dealing with them as there is no good replacement. Those two companies who have changed their suppliers have only changed suppliers for packaging, which is not directly related to the product quality, and they have only done this due to the complications that they would face if they continued with the original suppliers, in addition to the increased costs. For instance, C10 have tried to maintain the same raw materials provider but the packaging materials proved to be highly expensive and not convenient for them as they usually order items in advance and keep an inventory level at the position. Continuing thus means that they need to keep a higher level of inventory due to the fact that the wait time for delivery has significantly increased. Keeping dealing with the same suppliers has resulted in cost

increases for the company in addition to the lengthening of their production cycle as a result of importing by sea instead of by land and the time needed to do so. Dealing with new suppliers had an influence on the materials' quality and prices, also it takes time for the company to build trust and strong relationships with those suppliers as starting new deals with new providers involves some level of ambiguity since both of the parties need time to reach a level of understanding of the working criteria for the other party so they can work accordingly. In addition, establishing trust in the other party can take some time due to the increasing amount of fraudulence, especially during times of turmoil. In both of these cases, the company's performance has been indirectly influenced.

For instance, C10 has continued importing raw materials from war zone countries (Syria) as it could not find an adequate replacement. Receipt of materials from Syria by land completely stopped when the Syrian border closed; however, companies started to get the materials by sea, their suppliers sending them through Latakia or Tartous to Amman, passing through the Suez Canal and Aqaba. This route is shown in Figure 29 and Figure 30 This company is under a continuous threat of having to stop their work due to the continuous changes in laws in different countries, the threat of theft of the raw material during shipping, the threat of damage to the raw materials when left standing on national borders as a result of changes to the law, the threat of deadline delays with their customers due to delay of raw materials, and the threat of costs continuously increasing for reasons such as increase of raw material prices, increase in inventory level, increase of taxes, and increased losses. There is also a threat of its business operations stopping entirely as at the moment it is relying only on Ethiopia for sesame which represents 80% of the product's ingredients. Those factors made C10 the most affected interviewed company from the food sector since it faced the continuous risk of cessation of its operations.

Figure 29 - C10 Shipping before Arab Spring



Figure 30 - C10 Shipping after Arab Spring



1.4. Export to Customers

The companies' supply chain starts with raw materials that get processed through a different level and different companies to finally achieve the finished goods and in order for the chain to be completed companies need an end customer to consume them. Therefore, as stated by the C14 owner, "Customers are the target for every company in order to sell the product and achieve profit. Every company needs to have customers in order for it to keep working and it is even more important to have customer loyalty and to maintain it. Losing a customer could be one of the worst outcomes for any company. The risk level of losing a customer is associated with the ease

of replacing this customer”. Moreover, the owner of C12 (2019) believes that “the Jordanian market is small concerning the number of companies in it”, which makes it even more important and challenging for companies not to lose their customers.

According to the owner of C09, dependence on a particular market or country is extremely risky in the event of any problem and may result in a serious loss that could lead to exiting from the market. Most of the industrial companies in Jordan, when they were first established, were operating based on part of their production being for the local market and the other part for export.

Exports from the interviewed companies were sent to a wide range of countries. As shown in Table 24 four out of the five companies used to export to Arab spring countries, three out of those companies (C09, C11, and C13) had to stop exporting to some of those countries, while 1/5 companies (C10) continued exporting to the same countries but with different volumes. In the case of the sixth company (C14), although it was established after the Arab Spring, its exports were still affected as in the first few months they used to export to Germany, Sweden and Belgium which, due to the increasing instability in the area, decided to stop dealing with C14. Those countries found it too risky to keep dealing with companies in a war zone area as this would increase the possibility of disruptions happening, especially due to the products’ nature and the shipping duration for the products (6 months expiry and it takes 45-60 days shipping) potentially leading to those countries eventually receiving an expired product.

From the food sector, C12 was the only interviewed company that did not previously export to any of the Arab Spring countries and only worked on the local market. Therefore, it has not been influenced with regard to its current customers, even starting to get a bigger local market share at the beginning of the turmoil due to the increasing demand coming from refugees. Looking into another interviewed company (C10), this company decided to keep everything in hand in order not to lose any customers; therefore, it started to export to some countries through its customers, or to look for alternative payment methods to continue working with its existing customers. The remaining interviewed companies could not keep the same customers, and C11 and C12 worked on finding alternative markets to replace those lost. So far they have reached a point where the new markets’ order volume almost covers the lost markets’ order volume. However, the owner of C09 reported that he still has not covered the lost market and it does not seem that he will be able to do so in the near future.

As stated by the owner of C12, “As a result of the prevailing conditions in neighbouring countries and the absence of any escape for the Jordanian people if any misfortune happened, the Jordanian people began saving what they have to use in times of need, which affected the purchasing power and citizens got used to the economy. Even though stability is returning to some of these Arab countries, the Jordanian citizen is still following the economy and savings approach”. However, the owner of C13 claims that “The Jordanian product is of high quality and follows international specifications and standards. Also, Jordanian FDA standards are considered as high loan and are largely in line with international standards, which will help companies to enter global markets in addition to giving the Jordanian products a good reputation”.

1.5. Disruptions

Table 25 - Food Sector - Disruption Events

Disruption	C09	C10	C11	C12	C13	C14
Syrian borders closure	✓	✓	✓	✓	✓	✓
Transportation and shipment	✓	✓	✓	N/A	✓	✓
Changes in regulations	✓	✓	✓	✓	✓	✓
Currency Collapse	✓	N/A	N/A	✓	N/A	✓
Government instability	✓	N/A	N/A	N/A	✓	N/A
Instability and wars in neighbouring countries	✓	✓	✓	✓	✓	✓

The collapse of the banking system	N/A	✓	N/A	N/A	✓	N/A
The economy and savings approach	✓	N/A	✓	✓	N/A	✓
Purchasing power	N/A	N/A	✓	✓	✓	N/A
Expertise migration	N/A	N/A	✓	N/A	✓	N/A
Other	Protect the foreign currency from leaving exporting markets	Raw materials quality and prices	N/A	The depletion of Jordan resources	The Jordanian government lost from the transit trade	N/A
	N/A	Insurance	N/A	N/A	N/A	N/A

“Everything starts small then grows, except for calamity, which begins large and then starts to shrink. This is what happened with Arab Spring, the loss of the markets was full and not gradual and the company should work to compensate this market as soon as possible” (Owner of C09, 2019). Arab Spring has affected companies' operations not only in countries facing this turmoil but also in the surrounding countries such as Jordan, as shown in Table 25 Companies in Jordan have been affected differently depending on several factors, and the effects on the interviewed companies in the food sector can be summarised as follows:

Arab Spring has disrupted all those companies’ operations due to: closure of the Syrian borders which has led to those companies being affected either directly by losing the Syrian market or indirectly by losing Iraqi, Lebanese, and Turkish markets (Table 25).

The Arab Spring also has led to disruption to transportation and the related cost which has affected 5/6 companies regarding the sales volume, costs, and profit margin. C12 was not affected by this as it works only on the local market, while other companies such as C09, C11, C13, and C14 have decided to rely on the local market for the materials that they need even if they are of lower quality, as they cannot afford any additional cost. However, C10 continued with the same suppliers for the direct production raw materials and relies on the local market for the indirect such as packaging materials.

Change in regulations, either internally or externally, have affected all the interviewed companies. Those changes came without previous warning and affected them directly in multiple ways as Table 26 shows.

Table 26 - Food Sector - Regulation Change

Regulations that have changed	C09	C10	C11	C12	C13	C14
Egypt and Iraq product and currency protection	✓	✓	-	-	-	✓
Certificate of conformity for Iraq and Saudi Arabia	✓	-	✓	✓	✓	-
Unqualified labour	✓	-	-	-	-	-
Jordan’s continuous change of regulations	✓	-	✓	✓	✓	✓
Changes in shipping laws	-	✓	-	-	-	-
Additional shipping expenses	-	✓	✓	-	-	-
Export to Gulf countries	-	-	-	✓	-	-
Israeli shipping laws	-	-	-	✓	-	✓
The Caesar Law	-	-	-	-	✓	-

Table 26 summarises the regulations that have changed in the past period as has been mentioned by the interviewees.

Egypt and Iraq products and currency protection: exporting to Egypt and Iraq has become impossible because of the impediments to protect their product or to protect the foreign currency (\$) from leaving their markets.

Certificate of conformity for Iraq and Saudi Arabia: due to the Arab Spring, Saudi Arabia and Iraq recently (2019) required all Jordanian companies to issue a certificate of conformity for export through conformity companies that have very high fees and which examine the product to ensure compliance with specifications for each shipment and per weight.

Unqualified labour: the imposing of unqualified labour from Jordan's labour force and prevention of use of foreign labour. The Jordanian labour law defines the percentage of Jordanian labour in each company in relation to the nature of the business and the sector.

Jordan's continuous change of regulations: the frequent changes in the cabinet have led to continuous changes in governing laws. In order to reduce the economic impact on the country the government had to increase taxes and electricity costs. There have been changes in governing law such as the imposition by the Jordanian government of a 2% tax on previously exempted goods and a 5% tax on exports. Also, previously in Jordan, exports were exempted from sales tax, but now they are subject to it (at 16% of the price). There has also been reduction of labour, imposition of unqualified Jordanian labour, and limitation of use of foreign labour. Additionally, the implementation of the law that allowed companies in the field to work with alternative energy has been stopped, due to the issuance of a decision to reorganise the energy sector in general.

Changes in shipping laws: some countries have changed their shipment laws, which has also influenced shipping in Jordan. For example, Jordanian shipping vehicles are no longer allowed to cross the border into Iraq, which means hiring one vehicle for shipping from the factory to the Iraqi border and another one from the Iraqi border to the customer.

Additional shipping expenses: Saudi Arabia (2019) added a tax of \$ 1,000 per freight car for laboratory tests by international companies, as well as a 5% tax on exports to it.

Export to Gulf countries: exports to the Gulf countries must go through Saudi Arabia, which controls the specifications of the products exported to the Gulf countries.

Israeli shipping laws: exports to Palestine are limited due to the existence of agreements with Israel that place limits on the quantities of exports to Palestine, also there are conditions on the height of the trucks, which reduces the number of boxes shipped.

The Caesar Law: the Caesar Law, which was recently approved but is not yet in operation, bears a threat from the USA that if any company in the world deals with a Syrian company that is proven to be cooperating with Iran, the bank accounts of this company will be blocked.

Even though some of those changes in regulations might have affected more or all the interviewed companies, the above Table 26 only shows what has been explicitly mentioned by the interviewees.

The currency collapse in Egypt has affected two out of six companies; C09 experienced a negative impact where the company's products became overpriced and unable to compete in the local market, which has led to it leaving the market. Meanwhile, C14 has experienced a positive impact whereby the costs have reduced as it relies partly on manufacturing or buying materials from Egypt, which helped C14 to overcome other cost increases and overall it has not had to change its prices and has been able to compete in the market accordingly.

The frequent changes in the cabinet in Jordan have affected two out of six companies (C09 and C13), since these changes usually led to changes in regulations and some level of instability. Moreover, the new regulations do not need to be better than the old ones and usually they do not cover the legal loopholes in previous laws and regulations. Worthy of note is that in Jordan from Dec-2010 until Apr-2021 there were 9 cabinet changes in addition to 17 amendments to those cabinets (Prime Ministry, 2021).

Instability and wars in neighbouring countries have affected all the interviewed companies, through affecting their import and export from other countries as their supply chain became worried about dealing with countries near to turmoil as its consequences are not definite and could reach any country at any point of time.

This also influenced the banking system for two out of six companies (C10 and C13). In the case of C10, it has been affected only by no longer having a bank representation for its customers and not being able to continue financially as before. However, it has started to use other methods to collect its money, such as Western Union, in order to keep working with those markets. Meanwhile, for C13 the threat imposed by the Caesar law meant that C13 did not want its supply chains to deal with Iran in case they became blacklisted. Therefore, it had no option but to stop dealing with Syrian companies, as it is less risky for the companies' survival to lose the Syrian market than to keep dealing with it since that might lead to losing the whole business through no longer having bank representation.

The terrible state of the economy and the lack of purchasing power mainly affected companies with nonessential products (C09, C11, and C14), since customers started to focus on saving and only buying what satisfies their essential and survival needs, not trusting what could happen in the future. This also has affected one of the essential products companies (C12) as the customers are even trying to reduce the amount of their consumption in general.

While various disruptions have affected the companies, only one company has claimed to be affected by all of the identified disruptions. Suspension of import and export due to foreign currency being prevented from leaving the market and protection of local products has affected C09 and increased the difficulties for it to stay in some markets such as Egypt or to enter new markets. Raw materials quality and prices have in some way affected more than one company but C10 has been affected by this the most as it could not replace its suppliers and had to deal with the increase in prices and reduction in the quality in parts that do not directly affect its products. Insurance for imported products has only affected C10 as it is the only company that continued dealing with risky countries such as Syria, Libya and Yemen. Insurance companies cancelled insurance policies in such risky countries and if any kind of an exception is made to those policies it will be much more expensive, with lower coverage. Depletion of Jordan resources was cited by C12, since Jordan is a very poor country with very limited resources and the events in Syria and the 260 refugees coming to Jordan have in particular put Jordan under considerable pressure and caused more consumption of its resources, which will not last forever. The decline in the customers' purchasing power is another disruption, according to C12, as the living expenses have increased dramatically in the past few years while incomes remain the same or decline and this has forced people to reduce their consumption, in general, to save their money for the highly essential products and to try to save some money instead of buying the less essential products as they do not trust what could happen in the future. Meanwhile, the loss of transit trade had a high influence on the Jordanian government from a financial perspective and led to an increase in its external debt. Therefore, it started to increase taxes on the manufacturing sector and stop the support that it used to give to manufacturers to indicate its national debt, and according to C13 there has been migration of experts who seek better job offers and more convenient living conditions. C13 highlighted that losing those experts has a double influence: first is the loss of this expertise and second is the loss of trainers and leaders for the other workers.

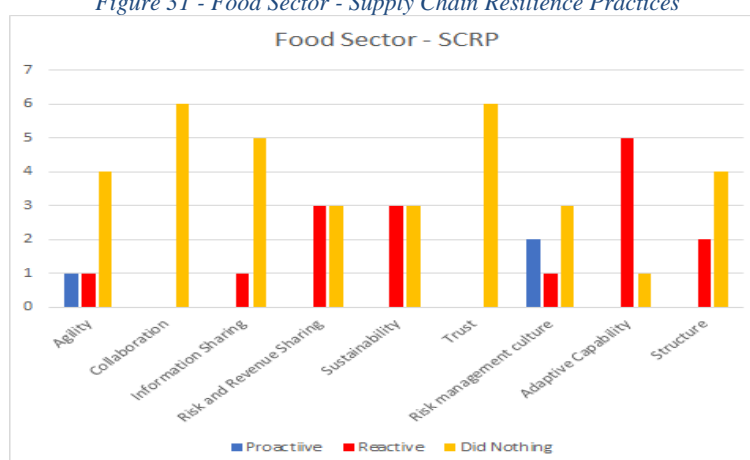
According to the owner of C09, *“the most difficult phase of the disruption is at the beginning of the problem, however, the way to behave to solve it and the speed of response determine the effect and the size of the problem facing the company”*. This indicates that no matter what the disruption is that faces the company, the critical factor to keep in mind is how fast it can respond and how it will respond. Therefore, companies should train themselves to do this.

The turmoil itself is not the only cause of obstacles for the companies as C12 owner (2019) believes that *“One of the challenges is the depletion of Jordan's resources for the Syrian refugees, and the Iraqi refugees before them, to create shelters, infrastructure, and other things, which led to a deficit and indebtedness on Jordan, which had to resort to loans from the World Bank, which then led to interference with Jordan's economic policies and thus imposition of taxes that affected companies who increased prices to cover this increase in costs. This affected the purchasing power and worsened the situation in general”*. That has led to *“The Arab Spring becoming more*

of a blockade of Jordan than a window for entering new markets. Whereas, instead of Jordan benefitting from the conditions of neighbouring countries and supplying these countries with their products, the border closure came as an obstacle to prevent it from exporting even to countries that it exported to in the past. For instance, the biggest source for products for Iraq was Syria, but production in Syria almost stopped. Nevertheless, Jordan did not benefit from that until recently” (Owner of C12, 2019). And according to C13’s owner (2019), this turmoil has not only affected the companies it has also affected the whole country, since he states that “The Jordanian government lost at least 400 million in fees from the transit trade as a result of the Arab Spring, in addition to other losses related to it such as customs, and this is only from the closure of the Jordanian-Syrian road”.

1.6. Supply chain resilience practices

Figure 31 - Food Sector - Supply Chain Resilience Practices



As the above Figure 31 shows, companies were more reactive rather than proactive. Only two companies were adopting supply chain resilience practices before the Arab Spring. The rest of the companies have started to implement more practices after seeing what other companies in the sector are doing, believing that imitating the surviving companies would also help them to survive. One company has not adopted any supply chain resilience practices so far. Also, as Figure 31 shows it is more likely for companies not to adopt practices than to adopt them. It is noticeable that companies tend not to adopt any practice that would lead to any kind of sharing their details throughout the supply chain, such as information sharing, trust, and collaboration, and instead to focus on practices related to adoption and survival.

Table 27 - Food Sector - Supply Chain Resilience Practices

SCR Practices	C09	C10	C11	C12	C13	C14
Agility	Not applied	Proactive	Not applied	Not applied	Reactive	Not applied
Collaboration	Not applied	Not applied	Not applied	Reactive	Not applied	Not applied
Information Sharing	Not applied	Not applied	Reactive	Reactive	Not applied	Not applied
Risk and Revenue Sharing	Not applied	Reactive	Reactive	Not applied	Reactive	Not applied
Sustainability	Reactive	Reactive	Not applied	Not applied	Reactive	Not applied
Trust	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied
Visibility	Reactive	Proactive & Reactive	Reactive	Not applied	Reactive	Not applied
Risk management culture	Proactive	Proactive	Not applied	Reactive	Not applied	Not applied
Adaptive Capability	Reactive	Reactive	Reactive	Reactive	Reactive	Not applied
Structure	Reactive	Proactive	Not applied	Not applied	Reactive	Not applied

According to the owner of C09, “*the most difficult phase of the disruption is at the beginning of the problem, however, the way to behave to solve it and the speed of response determines the effect and the size of the problem facing the company*”. And according to the C11 owner, “*Companies are not open to each other, meaning there is no concept of sharing plans, ideas, or practices with other companies, whether in the same sector or other sectors.*” This could be the explanation for the fact that companies in the food sector did not give attention to supply chain resilience practices before the Arab Spring and that the most adopted reactive practice was adaptive capability. This could be due to the lack of awareness regarding supply chain resilience practices in the sector in general and that the companies have started to realise this after facing this disruption. Therefore, they had to act in a way that could guarantee their survival, which led them to apply adoption practices. With regard to adoption of supply chain resilience practices and as shown in Table 27 companies’ behaviour could be classified as:

1.6.1. SCR Practices Proactive Adoption

Proactive supply chain resilience can be defined as companies’ ability to structure their companies in a way that helps them to predict and overcome any sudden or unpredicted disruption that they might face and in a way that would help them to maintain control over their function and if possible to have a better position in the market which could lead to gaining a competitive advantage (Ponis and Koronis, 2012).

Only 2/5 companies (C09 and C10) have adopted some supply chain resilience proactive practices, both having made improvements in their risk management practices. Because they faced several disruptions during their existence in the market they have developed the ability to anticipate the kind of risks their companies might face and plan what they can do to avoid it when possible. C09 has done this by having multiple suppliers and multiple customers to reduce the influence of losing them and the delay that this might cause. On the supplier side, there are at least two suppliers for each raw material used, while on the customer side, C09 has 27 customers/ countries so if any customer is lost the others will compensate. Meanwhile, C10 acted only with regard to its customers, through having 30 customers/ countries so if any customer is lost the others will compensate, which the owner of C10 described as “*Not to put all your eggs in one basket*”.

C10 has adopted agility and this also could be due to its experience in the market. This company has relied heavily on building a strong relationship with its customers, a relationship that is based on trust and loyalty by continuously providing them with the best quality product in the market at reasonable prices and that product being always available on the shelves. This strong relationship helps the company to keep its markets, as even with some markets becoming classed as in red and orange zone countries the company refused to cut those markets and preferred to keep their working chain. This made their customers appreciate this relationship and not switch to a lower price competitor and even to trust them sufficiently to transfer the price of the products before it is shipped from Jordan. C10 claims: “*One of the things that helped the company overcome this crisis is the quality of the product, the compan’’s long history and customer loyalty*”. This practice of having this kind of relationship had helped C10 to react to overcome the upcoming delay for raw materials and therefore delay on production and shipping, also that their customers can trust that even with all those obstacles they will manage to continue dealing with them, it might just require more patience from their side. C10’s ability to keep its same supply chain (supplier and customers) when most of the other companies found it to be impossible helped C10 to shortly get back to its original place even with the disruption.

1.6.2. SCR Practices Reactive Adoption

Reactive supply chain resilience can be defined as: companies' ability to respond to and recover from disruption after it happens, in a way that helps it get back to its previous status or a better one with minimum losses in the shortest possible time (Chowdhury and Quaddus, 2017).

Due to the Arab Spring, all of the five companies have added supply chain resilience practices. All those five companies (C09, C10, C11, C12, and C13) have used their adaptive capacity to survive and to reduce the negative impact of the turmoil. For instance, C09 worked on finding alternative markets, focusing on the markets that have the potential to expand and reducing its advertising costs. C10 have implemented this practice by finding alternative ways to keep importing into their markets; for instance, to import into Yemen they started by importing to Saudi Arabia, then importing the goods from Saudi Arabia into Yemen. In the case of C11, they started to cut what they called unnecessary costs, such as any employee who is not adding any additional value to the company, stopping the product lines that are not popular and cutting the supply to any customer who failed to pay on time. They also started to develop short term goals (12 months) to help guide and monitor the company's performance. C12 worked on increasing its advertising in order to increase its sales, it also worked on developing its packaging materials to make them catchier, and it decreased the number of employees to reduce costs. Finally, it reduced the frequency of periodic checks from daily to weekly; however, this last practice had a very negative and direct impact on the product quality that led to losing customers and it was forced to go back to the daily checks. C13 also worked on finding alternative and new markets; however, it tried to find non-traditional markets such as the European markets and it worked on finding new product lines that would match these markets' needs and expectations.

Additionally, C13 restructured its supply chain to try to make it more agile. It has done this by entering richer markets such as European markets that can afford higher selling prices which will help the company to compensate for any additional costs that it has now or that it might face in the future. This will help them to overcome any disruption that might affect the region markets or any problems related to the prices in the future.

C11 started to use information sharing. It did this through its sales representatives who were made responsible to determine the exact market need in order to avoid materials shortage or surplus, also they were responsible to decide which customers to work with or not to work with.

Three companies (C10, C11, and C13) have started to use risk and revenue sharing. C10 did this by keeping its prices the same even with the increase in the costs. It did this to help its customers to continue dealing with it and to help them to avoid facing extra costs as they knew that this economic instability is affecting everyone. C10 believed if it helped by handling part of the increasing costs to its customers this would likely help them to keep dealing with C10 for a longer period of time. It also covered some additional costs such as the certificate of origin, as not doing so might affect the possibility of continuing in the Saudi and Iraqi markets. As for C11, their suppliers shared some costs with them to help them overcome the increase in costs due to the turmoil, since they were at the risk of leaving the market due to not being able to cover the increased cost, especially with the additional issue of losing markets. This cost-sharing helped them to recover, in particular at the beginning of the disruption, and to be able to compensate for the lost markets. Through this strategy, the suppliers reduced their profit margin, but they did not lose all of it. C13 has also lowered its profit margin in order to cover the additional costs and avoid raising its prices so it can retain the same customers. Those three companies realised that the risk of Arab Spring has affected everyone in their supply chain and knew that in order to keep their long-term collaboration with those suppliers and customers they needed to share part of those risks with them as if they did not do so, this indirect risk might eventually lead to suppliers or customers no longer being able to deal with the company.

Three companies (C09, C10, and C13) have started adopting sustainable supply chain practices. C09 and C10 have done this by implementing a solar energy system to reduce the continuous increase in energy unit costs. However, C13 did this by increasing its inventory level so it would not have any material shortage that might deter acceptance of new deals or customers.

Another company (C12) has started to develop a risk management culture. It did this by lowering its prices to even lower than cost (Starting from 2017) as a result of the high competition in the dairy sector, as it otherwise could have lost all its sales in the market.

Only two companies (C09 and C13) have started to use practices related to structure. C09 engaged in restructuring and reallocation of jobs and laid off the unneeded roles. On the other hand, C13 worked harder to prevent losing the markets that it already has by adding more lines on a continuous basis to fill the market with a variety of its products instead of sticking to a limited number of items.

1.6.3. Did nothing

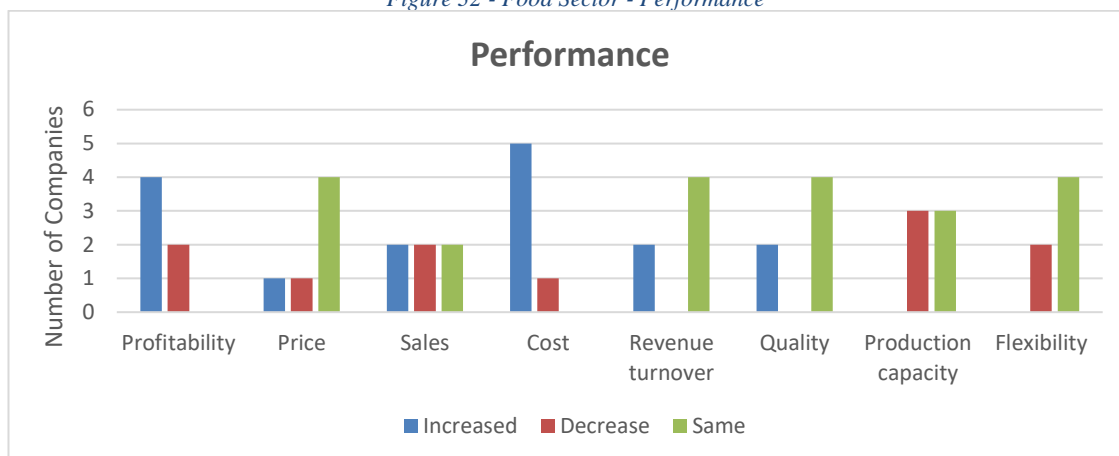
Only one of the interviewed companies (C14) has not adopted any supply chain resilience practices. This could be because this company is considered a relatively new company. Meanwhile, none of the other five companies has used trust practices or collaboration practices.

1.7. Performance

“Policies and corporate philosophy are growing slowly and must be flexible in order to survive where every year a small development takes place to push the company forward” (Owner of C10, 2019). However, according to C11 owner (2019), “skilful workers went to the Saudi Arabian, Egyptian and Emirati markets, given that these markets are stronger than the Jordanian market. Refugees in Jordan do not prefer to work because there are grants that give them a monthly salary without work and this salary will be suspended if the refugee starts to work”. This could prevent the growth or the improvement of the company’s performance. On the other hand, C13 owner (2019) believes that “The skilled workers in Jordan are insufficient and as a result of the opportunities abroad, after working for a short period in the Jordanian market, the foreign markets are attracting these skilled workers. This affects the efficiency of work in general and the efficiency of other workers who could have benefitted from the efficiency of skilled workers. Also, the ability to learn is much higher for the Syrian or Egyptian worker than for the Jordanian worker”. This would directly impact the company’s product quality, as the more qualified employees the company has, the better the product it will produce.

C12 owner (2019) has stated that *“Currently, companies salute their companies by overburdening them (loans). As if you are currently in the middle of the sea, you cannot go back, and you cannot carry-on”. Also, “the economic policy must change to prevent the collapse of companies and the economy in the country”.*

Figure 32 - Food Sector - Performance



Performance for all the companies has been affected due to the turmoil. However, they have not been affected in the same way, as is shown in Figure 32 Profitability has increased for four companies and decreased for the other two companies. Price has changed for only two companies, with one of them increasing the price while the other decreased the price. Costs for five out of six companies have increased and for some of them this increase came from fixed costs whereas for others it came from material costs. Only one company has benefitted from the Arab Spring by being able to reduce its costs. Revenue turnover has worsened for two companies, while for the other four companies it stayed the same. Also, two companies have been able to improve their product quality, while the rest kept the same pattern of quality improvement as before the Arab Spring. On the other hand, three companies had to reduce their production capacity due to lower demand or reduce losses due to selling at prices below costs, while the other three companies kept the production rate the same. With regard to flexibility, for two companies it has worsened and it has stayed the same for the rest of the companies.

Table 28 - Food Sector - Performance

Performance	C09	C10	C11	C12	C13	C14
Profitability	Profitability decreased by 40%	Profitability has slightly increased	Profitability increased at the beginning, then profitability decreased; the company is still making profits	Since 2017 15% annual loss	2011-2016 the profit margin increased annually by 50% Profit margin decreased from 5% to 3%	Only in 2018 did the company not achieve any profits
Price	Product price increased	Prices kept the same	Stayed the same	Stayed the same	Stayed the same	Lower prices
Sales	Sales decreased	Sales have increased	Stayed the same	Sales decreased	Sales have increased	Stayed the same
Cost	Fixed costs have increased	Raw materials cost increased	Costs increased by 45%	Costs increased by 5% annually Taking loans to save itself	Cost per unit increased by 25%. Transport costs have increased dramatically	Raw materials cost decreased
Revenue turnover	Stayed the same	Revenue turnover has increased	Stayed the same	Revenue turnover doubled	Stayed the same	Stayed the same
Quality	Stayed the same	Stayed the same	Quality increased by 50%	Stayed the same	Stayed the same	Mechanics development has stopped even though quality has improved
Production capacity	Stayed the same	Stayed the same	Stayed the same	Stopped full production capacity	Stayed the same	Stayed the same

Flexibility	Shipping time has increased.	Production flexibility decreased	Stayed the same	Stayed the same	Stayed the same	Stayed the same
Positive Impact	No positive impact	Increase in exports to Europe, Syrian workers, and export to Qatari market increased	No positive impact	No positive impact	Better preparation for the future, use advanced technology, make better quality products, and enter new markets	No positive impact

As shown in Table 28, two out of six companies' profitability and sales declined at the beginning of the turmoil (C09 and C10), then C10 increased its sales to finally reach an increase in sales (Higher sales than before the turmoil). Three companies' profitability and sales increased at the beginning of the turmoil but then started to drop due to market saturation and the economic situation in the country (C11, C12, and C13).

Cost changes have influenced all the companies. Taxes, energy and shipping costs have increased significantly. One out of six companies (C10) has faced an increase in raw materials prices while two out of six companies have gained a decrease in raw materials prices (C11 and C14). Two out of six companies (C10 and C13) have increased their production, two out of six companies (C09 and C12) have decreased their production, and two out of six companies (C11 and C14) have maintained their previous production levels. One out of six companies (C09) had to increase its product price, whereas one out of six companies (C12) decreased its product price. Only one out of six companies (C12) has been losing money in the past two years and only 1/6 companies has had one year with no profit at all.

C13's owners (2019) believe that *"The company should not produce a product that has a high-profit margin, as this margin will lure others to enter the market and compete with you, and thus lose the entire profit margin. Thus, the company must search for a product that has a reasonable profit margin that enables the product to stay in the market and achieve a reasonable profit, which makes it difficult for others to enter the market and compete with you within this margin"*.

According to the C12 owner (2019), *"The government has a weak vision. It wants to improve but does not have the know-how to do this"*. Also, he stated that *"the private sector should be the one who runs the government sector because it is more successful, like what happened with the Orange Telecom Company, potash, or phosphate"*.

1.8. Positive impact

C13's owner (2019) declared that *"The Arab Spring gave the company more incentive to improve the image of the company. Therefore, the company considers that, in general, the benefit from the Arab Spring is greater than the harm"*.

As shown in Table 28, only two out of six companies (C10 and C13) have said that this turmoil has a positive impact due to the increasing spread outside the region, working on improving the quality of the product, and technological improvement for the factory. C10 said that this turmoil has enlarged its market and enabled it to enter new markets, also helping it to attract qualified workers.

From C13's perspective, this crisis motivated industrial companies, in general, to prepare themselves for the future and to develop within their industry, use modern technological methods, and invest better in their sector, hoping that the future will be better and that companies' readiness will be better in terms of the markets. This crisis helped industrial companies to search for new markets and strive to find out what the customer needs, and thus expand their activities and

develop them for the future. Thus, companies may avoid similar crises in the future due to the diversity of their markets.

1.9. Factors that led to adopting supply chain resilience practices

Table 29 - Food Sector - Supply Chain Resilience Driver/Barrier

Driver/ Barrier	C09	C10	C11	C12	C13	C14
There is no protection for the local industry as there is in European countries.	x	x	x	✓	x	✓
The effect of the external environment	✓	✓	✓	✓	✓	✓
Competition	✓	✓	✓	✓	✓	✓
Inventory	x	✓	✓	✓	✓	✓
Financial solvency	✓	✓	✓	✓	✓	✓
Compan's history and customer loyalty	✓	✓	✓	✓	✓	✓
Relationship with supply chain	✓	✓	✓	✓	x	x
Communication through the supply chain	✓	x	✓	✓	x	x
Export and import to Arab Spring countries and countries who faced its consequences	✓	✓	✓	✓	✓	✓
The closure of the Syrian border	✓	✓	✓	✓	✓	✓
New shipping methods	✓	✓	✓	x	✓	x
Multiple suppliers, customers, products	✓	✓	✓	x	✓	x
Production cost or product price	✓	✓	✓	✓	✓	x
Unstable economy	✓	✓	✓	✓	✓	✓
New laws in exporting countries	✓	✓	✓	✓	✓	✓
Participating in exhibitions	✓	x	✓	✓	x	x
An alternative source of power	✓	✓	x	x	x	x
Product Nature	✓	✓	✓	✓	✓	✓
Product Quality	x	x	x	✓	✓	x
Product certificates	x	✓	✓	x	✓	✓
Switching cost	✓	✓	✓	✓	✓	✓
Advanced machines	x	x	✓	x	✓	x
Highly qualified labour	x	✓	x	x	✓	✓
Laws that protect the European product from external competition	✓	x	x	x	x	x
Jordan has good relations with all countries and it has a good product reputation.	x	x	x	x	✓	x
Entering non-traditional markets	x	x	x	x	✓	x
Moving the company location, opening a branch for the company, or opening a representing office outside the Arab Spring region.	✓	x	x	x	x	x
Jordanian workers do't have the required efficiency, commitment, or obligation toward their work. Also, there is not enough labour.	x	x	✓	x	x	x

Several factors have led to adopting (Driver) and not adopting (Barrier) supply chain resilience practices. Table 29 shows how each factor has influenced one or more supply chain practices:

(1). There is no protection for the local industry as there is in European countries. This barrier has led to the adoption of collaboration.

(2). The effect of the external environment. This driver/ barrier has led to the adoption of risk and revenue sharing, visibility, and risk management culture.

(3). Four out of six companies have adopted supply chain resilience practices to better overcome internal and external competition, while two out of six believed that they are in a better position than their competitors. Two out of six companies have been influenced due to the volume of sales and profit margin. This driver/ barrier has led to the adoption of collaboration, risk management culture, and adaptive capability.

(4). Four out of six companies have been affected due to the raw materials inventory level. This driver/ barrier has led to the adoption of visibility.

- (5). Financial solvency. This driver/ barrier has led to the adoption of risk and revenue sharing, visibility, and adaptive capability.
- (6). The company's level of experience and history (Old) in the marketplace has had a high influence on which supply chain resilience practices to adopt and at what level. This driver/ barrier has led to the adoption of agility and risk management culture.
- (7). Relationship with the supply chain. This driver/ barrier has led to the adoption of agility, information sharing, and risk and revenue sharing.
- (8). Communication through the supply chain. This driver/ barrier has led to the adoption of information sharing and adaptive capability.
- (9). Export and import to Arab Spring countries. This driver/ barrier has led to the adoption of visibility.
- (10). The closure of the Syrian border. This driver/ barrier has led to the adoption of visibility.
- (11). New shipping methods. This driver/ barrier has led to the adoption of visibility.
- (12). Multiple suppliers, customers, or products. This driver/ barrier has led to the adoption of risk management culture, adaptive capability, and structure
- (13). Production cost or product price. This driver/ barrier has led to the adoption of risk and revenue sharing, visibility, risk management culture, adaptive capability, and structure.
- (14). Having a hard to predict market and environment has also affected all the companies, especially when working in a dependent market. This driver/ barrier has led to the adoption of risk and revenue sharing.
- (15). Having new laws and regulations, whether internally or externally, has affected all the companies. This driver/ barrier has led to the adoption of risk and revenue sharing and adaptive capability.
- (16). Participating in exhibitions. This driver/ barrier has led to the adoption of collaboration.
- (17). Two out of six companies started to use alternative sources of power. This driver/ barrier has led to the adoption of sustainability.
- (18). Product Nature. This driver/ barrier has led to the adoption of adaptive capability.
- (19). Product Quality. This driver/ barrier has led to the adoption of adaptive capability.
- (20). Product certificates. This driver/ barrier has led to the adoption of risk and revenue sharing.
- (21). Switching cost and customer efficiency. This driver/ barrier has led to the adoption of a risk management culture.
- (22). Advanced machines. This driver/ barrier has led to the adoption of sustainability.
- (23). Highly qualified labour. This driver/ barrier has led to the adoption of adaptive capability.

Additionally, barriers that have influenced one company include such as Laws that protect the European product from external competition, Jordan's good relations with all countries, and its good product reputation, entering non-traditional markets, moving the company's location, opening a new branch for the company, or opening a representing office outside the Arab Spring

region. Additionally, Jordanian workers do not have the required efficiency, commitment, or obligation toward their work, there is not enough labour. These drivers/ barriers have led to the adoption of agility and adaptive capability.

1.10. Theoretical Lens-- Institutional Theory

The institutional environment can strongly influence the adoption of resilient supply chain practices and force the companies to change in order to better adapt to the environment. For this sector this has happened through:

1.10.1. Coercive isomorphism

Coercive isomorphism can result from formal or informal pressure on companies by the government, other companies in the market, or by society; this pressure can result in practice adoption by the companies; however, this adoption does not necessarily mean higher efficiency (Kauppi, K., 2012).

Applying coercive isomorphism to the food sector has resulted in: new laws and regulations and competition that have forced the companies to make some modifications, such as changes in Jordanian law on exporting that have made companies focus more on the local market (C10, C11, C12, C13, C14), the issuance of the certificate of conformity for Saudi Arabia (C09, C10, C11, C12, C14), changing the shipping method (C09, C10), stopping markets to reduce the instability coming from them (C13), looking at the possibility of entering new markets and whether they can meet the entry requirements of such as European markets (C09, C10, C13). Other consequences include: starting to use alternative sources of power when the cost increased rapidly (C09, C10), increasing communication within the supply chain (C12), finding alternative ways to receive the prices of the goods in countries that are facing a collapse in the banking system such as happened in Libya and Iraq (C10) when some companies had to add more cash to increase the liquidity in their companies, this cash coming from the owners' own money or from loans (C11, C12, C13), trying to predict future demand (C11 and C12), preparing the company for the future (C13), setting up short term goals (C11), keeping inventory (C10, C11, and C13), better utilising their employees and cutting unnecessary jobs, as well as looking for more specialised employees and making better use of their employee's knowledge and cutting unnecessary costs (C09, C11, C12), also, entering new stronger markets, whether traditional or non-traditional, to overcome those lost, for example, entering Europe, Canada and the USA (C09 and C13), adding new lines to gain better spread across the market (C10, C13, C14), work on packaging material by some companies to improve their sales, while other companies had to lower its quality due to unavailability or cutting costs or sharing costs (C10, C12), working on improving customer service and product quality (C13), changes to production specifications (C12 and C13), and reducing profit margins (C10, C12, C13).

1.10.2. Mimetic isomorphism

Mimetic isomorphism can result from imitation due to uncertainty; the more the company is uncertain how to reach its goal, the more it will start to copy successful companies in its area/ sector. This kind of isomorphism is more about companies worrying about failure rather than attempting to recreate what has already been successful in the market, without having to be the one to develop a new strategy; however, following the lead of other companies might not result

in replication of their success as every organisation has its own particular context (Kauppi, K., 2012).

Applying mimetic isomorphism to the food sector has resulted in companies that are working in this uncertain and hard to predict environment starting to adopt some practices that their competitors are using, such as having multiple suppliers and customers (C09 and C10), because they have seen this work successfully for other companies and found that it is a possible strategy in their companies.

1.10.3. Normative isomorphism

Normative isomorphism can result from professionalisation whereby personnel from each speciality decide the rules and methods for their speciality, which will result in people with the same education and experience processing cases in a similar way, and will eventually lead to creating homogeneity.

Applying normative isomorphism to the food sector has had the following results: working on being the best in the market by hiring and attracting the best qualifications and working on increasing the employees' loyalty to maintain a professional network (C10). Having the best minds working for the company will help it to have better knowledge and experience and eventually become stronger in the market. Also, companies have tried to obtain product certificates (C11, C13, and C14).

1.11. The influence of Arab Spring

Previous section have shown that all the companies in the food sector have been influenced by the Arab Spring. However, the level of influence is not the same for all those companies. In this section, the expected rationale behind this variation in influence will be discussed. As a start, the overall influences for the companies (C09-C14) during the past period were:

C09: Loss of markets at the beginning, then entering new markets; overall, the company returned to the same position as before Arab Spring.

C10: Loss of markets at the beginning, then returning to the same markets in other ways, additionally, expanding in some markets; the overall position of the company improved slightly.

C11: Loss of markets at the beginning, then entering new markets; overall, the company is still trying to return to the same position as before Arab Spring.

C12: Increase in sales at the beginning due to the increase in the population, then a decrease due to an increase in competition. Overall, the company is struggling to get back to its position before the Arab Spring.

C13: Better spread across markets at the beginning of Arab Spring, then a decrease in sales, and finally entering new markets. Overall, the position of the company improved slightly.

C14: Challenges in entering an unstable market and attempting to compete while maintaining a profit. The company is working on entering new markets.

It was noticeable when conducting the interviews that companies did not know anything about supply chain practices and the importance of adopting them. Even those companies who adopted them before the Arab Spring did so as a result of being in the market for a long time and facing a

number of disruptions during their operation period, which led them to pro-actively adopt Arab Spring resilience practices as a reaction to previous disruptions.

Those companies who applied supply chain resilience practices even before the Arab Spring (C09 and C10) were faster to react to this disruption. And they were the ones who were able to reduce the negative impact from it on their companies.

Companies faced market losses at the beginning (C09, C10, and C11), with all the market losses coming from the external markets, while their sales in the local market have increased, as in the cases of C12 and C13, due to the increase in population (refugees coming to Jordan).

Companies' reactions toward markets under disruption impacted on their continuing existence in them. For example, C09 and C11 both work in the chocolate industry. Although C09 tried to recover its trade in the Tunisian market after losing it due to the Arab Spring, it found that its efforts seemed to be worthless and the company decided not to make any more efforts to retrieve markets lost due to the turmoil, C11 tried to expand its existence in the Saudi market and to enter Qatar market to overcome the lost markets. On the other hand, companies such as C10 stuck with the same markets, but at different sales volumes, through changing their shipping methods or routes for such as the Syrian, Iraqi, and Yemeni markets. Meanwhile, C13 decided not only to increase its presence in the markets it still had but also to enter new non-traditional markets to take advantage of the current situation and of the fact that they have potential customers (refugees) in such as the American and Canadian markets.

The necessity of the product has played a key role in terms of the impact of this disruption. For instance, while both C09 and C10 had adopted SCR practices previously and have added more practices, C10 suffered less negative impact as it provides a more essential product. Also, the degree of market spread had a great impact on the negative influence. This can be seen when looking at C10 and C12, for example. Both of those companies provide essential products, however, C12 relied solely on the local market, which was of benefit at the beginning of the turmoil but turned into a disaster after the market became saturated, especially when new competitors joined the market and companies started to sell at loss just to reduce the overall losses and lower the risk of having to leave the market.

Companies that relied on a single supplier for an essential production material have been affected more than companies that have relied on multiple suppliers. This can be seen in C10 and C13, which could be considered as similar companies; they both have an essential product, have a long history in the market, have a wide market, and have multiple product lines. However, C13 has multiple suppliers which led to it not being affected with regard to its production flexibility, while C10's flexibility has decreased. Moreover, C13's revenue turnover time has not been affected, while it has increased with C10, which means that the company is taking more time now to get back its revenue.

Product life or expiry period played an important role in the level of impact of this turmoil. For instance, C10 and C12 both produce essential products, and while it could be said that C12's products are more essential, the product life is usually just days, which has worsened the negative impact on this company and made it harder for it to enter external markets as C10 is doing, since the latter's products usually have a life of years.

Inventory/ shipping requirements also affected companies such as C13 and C14. In the case of C14, their products tend to take up a lot of space even though they are lightweight, which means that shipping them is more expensive, especially since they are low priced items, and these high shipping expenses would have an intolerable effect on the company's profit margins. Moreover, in terms of C09 and C11, even though the product size and prices can be considered reasonable for shipping, due to the product's nature there are certain conditions for shipping, such as having a stable cool temperature to prevent damage to the food.

Looking at the previous outcomes, it is noticeable that the more supply chain resilience practices the company applies the better equipped it is to overcome the disruption it faces. Among the interviewed companies, C10 and C13 were the only two companies that had achieved some level of improvement after the Arab Spring. Those two companies have adopted five out of nine SCR practices and they provide essential products. C09 has adopted four out of nine practices, which can still be considered as favourable given the fact that it supplies nonessential products, and those practices helped it to get back to the same position as before the turmoil. Meanwhile, C11 only adopted three out of nine practices which in some respects helped it to monitor the situation but it still has not regained its original position. C12 has only adopted two out of nine practices, which may indicate why it is struggling to survive even though it provides essential products. Finally, C14 is the only interviewed company that did not adopt any practices, which could be due to its ignorance of them and its lack of experience in the market; this has resulted in the company being unstable and at continuous risk of collapse.

2. Qualitative Data: Example 2: Printing and Packaging Sectors

2.1. Introduction

According to the Jordan Chamber of Industry (2021), “The importance of this sector lies in it being an important and integral part of all commodities as the packaging industry plays an essential role in all industries without exception. Its importance is based on the fact that it represents the link between the product and the consumer. This sector is considered one of the integrative sectors of all other industrial sectors. Rather, it is an integral part of some food, pharmaceutical and chemical industries. Packaging, print and design quality contributes to product promotion. The Jordanian products in this sector are of good quality.”.

Figure 33, Figure 34, and Figure 35 show relevant statistics from the Jordan Chamber of Industry regarding the printing and packaging sector.

Figure 33 - The Number of Establishments Operating in the Printing & Packaging Sector During the Years 2010-2018

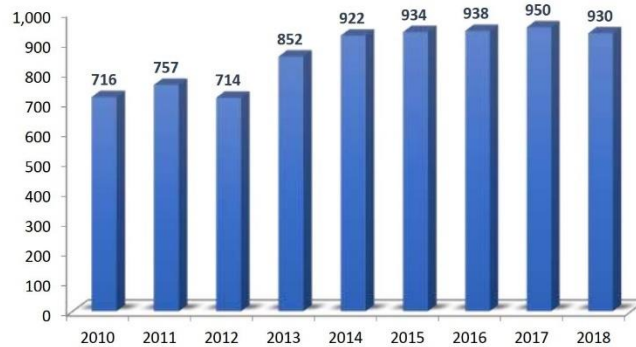


Figure 34 - Production Volume of the Printing & Packaging Sector - million JOD

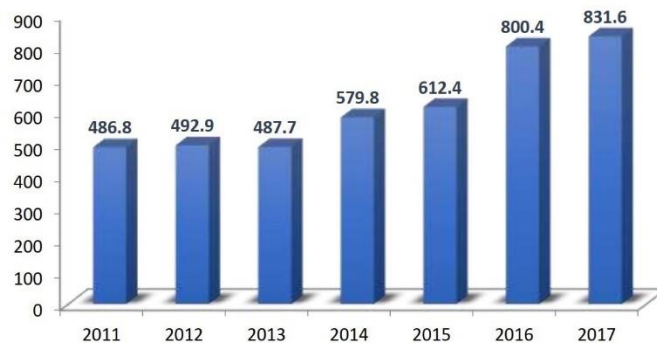
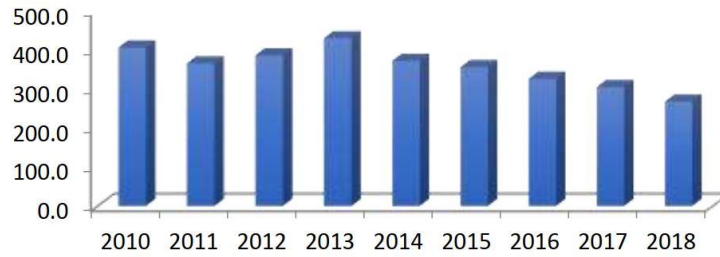


Figure 35 - Exports of the Printing & Packaging Sector - 2010-2018 million JOD



This sector has been chosen for analysis as all the interviewed companies from all the sectors have mentioned that their companies' printing and packaging have been affected due to the instability in the surrounding area and in most of the cases they had no choice but to rely on the local market to fulfil their production requirements.

Companies C22-C28 are all engaged in printing and packaging and have experienced different levels of impact from this turmoil. These differences in impact derive from the different levels at which the company is spread across the market (number of customers and their locations), the type of product they have, the different levels of supply chain resilience, and the way they have reacted to the turmoil. The below tables (30-36) show the comparisons between those companies:

Table 30 - Printing and Packaging - Company General Information

Company	C22	C23	C24	C25	C26	C27	C28
Establishment year	1979	1993	2001	1958	1992	1989	1998
Product Type	Carton packaging and recycling	Plastic bags, plastic containers for ready-made meals, plastic cups, ready meals cork packing dishes and packaging.	Production supplements; Food packages and paint packages	Nylon bags, Garden furniture, Bubble roll, Stretch Tape.	Cardboard, and Packaging cartons (industrial, agricultural and food packaging).	Printing and Packaging (Folding box and duplex board), Carton Industry (Corrugated box), Printing and Packaging for export.	Specialised in the manufacture of food packaging materials (Disposable materials)
Import	Before	Local market; Waste from printing presses, newspapers and magazines	Saudi Arabia (Mainly), in addition to Kuwait and Qatar	Raw materials: Saudi Arabia and the United Arab Emirates. Machines: Turkey.	Saudi Arabia (mainly), Qatar, UAE, and Kuwait	Syria (25%), Lebanon, Saudi Arabia	America, Europe (Germany, Switzerland, and France), the Middle East (Saudi Arabia, Beirut, and Syria) and China.
	After	Same	Same	Same	Same	Saudi Arabia (90%), Europe (Great Britain, and Germany), Canada, and America. Stop: Syria, Lebanon.	Same
Export	Before	Mainly Syria and Iraq	From 2003-2011 about 10% to the local market, 80% to Iraq, and 10% of it to the countries of the region (Saudi Arabia, Qatar, Syria, Yemen, Lebanon, and neighbouring countries).	Local market, Egypt, Libya, Iraq, Saudi Arabia, UAE, Kuwait, Oman, and Qatar	Local market, Palestine, Saudi Arabia, Syria, Iraq, and Egypt	Mainly local market and export to neighbouring countries.	Local market, exports to ten of the neighbouring countries: in the Middle East (Iraq, Palestine, and Israel), Gulf (Qatar and Saudi Arabia) and Britain.
	After	Stop: Iraq (2003) then turned to the local market	Stop: Syria and Lebanon (2011)	Stop: Egypt, Libya, and Iraq	Stop: Syria, Iraq and Egypt	Stop: Iraq.	Stop: Iraq.

As shown in Table 30, C22-C28 companies from the printing and packaging sector, with different establishment years, have been interviewed. The comparisons have been conducted based on the following criteria:

2.2. Product Type

Companies interviewed in the printing and packaging sector not only exhibited diversification between companies but also some diversification within the same company as explained below.

C22 specialises in producing carton packaging and recycling. However, due to the Arab Spring, in 2012, the factory was closed and the machines were sold to a Saudi company. It was agreed to give the Saudi company the know-how and in return C22 will take the entire production of the Saudi factory to market and sell it in the region. C22 will provide raw materials by collecting printing waste from printing presses, pressing it and sending it to Saudi Arabia to be kneaded and re-sent. Then the Saudi company will import egg cartons back to C22 for it to sell them to other parties.

Regarding C23, when the company started, it used to work in stationery production. Then in 2003, due to the Iraqi war it had to change to the manufacture of plastic bags. In 2008, due to the worldwide financial crisis, the company also started to manufacture plastic containers for ready-made meals, then in 2012, due to the Arab Spring's escalation, plastic cups production was added, and finally, in 2014, due to closure of the Syrian border, C23 began to make ready meals cork packing dishes and packaging.

In the case of C24, it specialises in production supplements, food packages and paint packages. It manufactures all sizes of plastic packaging and cups. It also provides packaging for various food industries and various other industries.

When C25 was first established it specialised in manufacturing religious rosaries, haberdashery, combs, and sticks. However, it has switched to making nylon bags in all colours, in addition to garden furniture, bubble roll, and stretch tape. In total, the company manufactures 13 types of plastic materials.

Meanwhile, C26 specialises in manufacturing cardboard in all its forms and manufacturing packaging cartons (industrial, agricultural and food packaging).

C27 has three factories: the first factory engages in printing and packaging (folding boxes and duplex board), the second in carton industry (Corrugated box), and third in printing and packaging for export, which combines the activities of the two other factories (lamine boxes).

Finally, C28 specialise in the manufacture of food packaging materials (disposable materials). The company operates from an industrial complex consisting of 12 different factories, all of which make disposable materials related to food packaging.

2.3. Import of Raw Materials

The raw material is a very important factor in production for manufacturing companies. Changing raw material providers could put companies at the risk of their product quality declining, which would influence their customers' loyalty. This puts manufacturers in a position where they need to be extra careful when choosing their suppliers. *“Replacing the supplier is very difficult, especially when it comes to printing materials, as it is the first interface of the product to the*

company's customers and their clients. Any change in it will be very noticeable, and if it is not exactly as usual, it may lead to the loss of customers" (C27 Owner, 2019).

Four out of seven of the interviewed companies (C24, C26, C27, and C28) have been importing raw materials from Arab Spring countries and countries that faced its consequences. For two out of those companies (C26 and C28) importing has been affected. In the case of C26, since their raw material imports from Syria stopped they have had to rely on other suppliers to provide replacement materials. Also, their imports from Lebanon had stopped due to bad quality. This was not a result of the Arab Spring but of the generally lower quality from that region. Meanwhile, C28's imports from Lebanon and Turkey had to stop due to the closure of the Syrian border but this did not have a high impact because this company has three suppliers for each material. Regarding the other two companies (C24 and C27), C24's imports have not been affected as it used to import machinery from Turkey and this will in any case be shipped by sea. As for C27, its importing of raw materials from Lebanon (inks) was affected as a result of the Arab Spring. The method of transporting these materials has changed from land to sea but the company continued importing from the same supplier while bearing the increased costs of transportation and time because this is a key material in their production and they cannot risk changing as this might result in them losing their customers. In addition, C27's importing of raw materials (Templates) from Syria was not affected, as the Syrian company opened a branch and factory in Jordan. At first, the company resorted to importing from Egypt for a short period of time, then returned to rely on the Syrian company. In both cases, the company's performance has been influenced but all of the companies have managed to overcome this influence.

2.4. Export to Customers

The companies' supply chain starts with raw materials that are processed through different levels and different companies to finally achieve the finished goods and in order for the chain to be completed companies need an end customer to consume them. *"The Arab Spring was a blessing in disguise, as the Arab Spring helped the company to enter new markets, in addition to the company recently being able to return to its previous markets such as the Lebanese, Iraqi and Saudi markets."* (C28 Owner, 2019). Just as the Arab Spring forced companies to go out of their traditional markets and to start thinking about expanding even further, it also had an influence on trade agreements. According to the C28 owner, when this (The Arab Spring) happened it opened the company's eyes to the importance of having a diversified market and pushed the company to think about and actually enter non-traditional markets. It also increased the company's work volume in the local market.

The interviewed companies exported to a wide range of countries as shown in Table 30. All the companies used to export to Arab Spring countries (i.e. Syria, Iraq, Lebanon, Egypt, Yemen, and Libya), but none of those companies were able to continue dealing with their customers in those countries. Indeed, C22 was forced to close all its external markets and instead to focus on the local market. The Arab Spring came as a hit to this company with regard to its customers; therefore, it had to make some changes (selling the know-how to the Saudi company in return for controlling its production and markets) to its company structure and this eventually helped it to overcome the market losses. C23, meanwhile, suffered its biggest hit before the Arab Spring due to the U.S. -Iraq war. Then, after the start of the Arab Spring, the Syrian market was unable to export to Iraq and the Iraqi market turned to the Jordanian market, with C23 relying heavily on exporting to Iraq (80% of production) Which led to another hit due to the closure of the Syrian border. In addition, the Arab Spring affected C23 by stopping its exports to Syria and Lebanon and the company was under pressure to increase its presence in its other markets to compensate for the lost markets. C23 tried to enter European markets to overcome the lost markets but found this hard: *"As the entry requirements for the European markets are extremely high. Even though the company worked on hiring Syrian labour to benefit from the European agreement to facilitate*

entry to its markets. However, in reality, this agreement was not implemented” C23 Owner (2019).

In the cases of C24, C25, and C26 they were no longer able to export to countries facing the Arab Spring, but this has not affected those companies at all as they have compensated for the lost markets in the local market, as companies in the local market who used to import similar products from outside Jordan have had no choice but to start dealing with local businesses. Even though C25 dramatically increased its exports to Syria from 2011-2018, the export used to be done through the traditional ways and the UN. In the case of C27, “*The impact of the Iraqi market was what motivated the company to start working with the British and American markets (2016)*”. C28 has also lost its market in Arab Spring countries but has likewise compensated in the local markets and with companies who have started dealing with local businesses and has also started to import to non-traditional markets such as American and European markets (Germany (2017), Britain (2018), Italy, Sweden (2013), Holland (2019)).

According to the C28 owner, entering new markets was difficult and required time and effort from the company. For instance, entering the American market required three years, participating in many exhibitions, and hiring a specialised consultant in that market. Entering the American market was the hardest because this market is not accustomed to importing such materials from the Middle East, and has some concerns about dealing with companies in the Middle East. Therefore, the company has acquired all the documentation needed to help the American market to trust the company’s work, to the extent that the company is considered as one of the large companies in Jordan, it is one of the supported companies, its financial position is good, it is committed to quality and delivery, and has an excellent reputation. Companies in the USA market also sent an investigator from an external company (third-party company) to verify the validity of the information sent and to verify that the company actually exists. Therefore, when entering the British market and European markets, C28 has relied on its experience gained entering the USA market. As the C28 owner commented, “*Once you have the reference that you are selling to someone in a new market it will be easier to enter other markets in that market region*”.

2.5. Disruptions

Disruptive events are happening continuously, and no one can predict what and when they might happen. Acknowledging that, C28 Owner agrees that “*The Arab Spring helped the companies to see that nothing should be taken for granted all the time and that they have to be always ready to accept and deal with any new situation*” (2019). Meanwhile, C25’s owner believes that “*Jordan lives on the misfortunes of its neighbours. We are the tender chest and the fatherly embrace*” (2019). As when any similar situation happens, Jordan is usually one of the first countries to step up to help and in return Jordan receives considerable financial support that eventually benefits not only the harmed countries’ population but also helps the Jordanian population.

Table 31 - Printing and Packaging Sector - Disruption Events

Disruption	C22	C23	C24	C25	C26	C27	C28
Syrian borders closure	✓	✓	✓	✓	✓	✓	✓
Full capacity production	✓	✓	✓	✓	✓	✓	✓
Transportation and shipment	✗	✓	✗	✓	✓	✓	✓
Production cost	✓	✓	✓	✓	✓	✓	✗
Changes in regulations	✓	✓	✓	✓	✓	✓	✗
Instability and wars in neighbouring countries	✓	✓	✓	✓	✓	✓	✓
The economic and savings approach	✗	✗	✓	✗	✗	✓	✗
New markets entry requirements	✓	✓	✗	✓	✗	✓	✓
Women’s empowerment	✗	✗	✗	✗	✗	✓	✓

Other	The cardboard industry is made up of approximately 80% paper.	Struggles with regard to their shipping lorries	N/A	Financial guarantee	Obtain facilities or exemptions.	The Leading mentality	Depreciation of machinery
	The raw materials for this industry are in constant decline.			The local market is not financially secure.		The local market is not looking at the product certificates	

“The Arab Spring should have happened 20 years ago. This turmoil helped the companies to thrive and grow. It also helped in receiving loads of financial and technical support that led to the development of the factory and the skilling of the employees. And it forced the companies to get out of their comfort zone by entering new markets and expanding in the exciting ones.” (Owner of C24, 2019). The Arab Spring has affected companies' operations not only in countries facing this turmoil but also in the surrounding countries such as Jordan, as shown in Table 31. Companies in Jordan have been affected differently depending on several factors, and the effects on the interviewed companies in the Printing and Packaging sector can be summarised in as follows:

The Arab Spring has disrupted all companies' operations due to: closure of the Syrian borders which has led to those companies being affected either directly by losing the Syrian market or indirectly by losing Iraqi, Lebanese, and Turkish markets (Table 31). For instance, when the Arab Spring occurred, C22's exports stopped completely. This was one of the main reasons behind the suspension of work and the decision to sell the factory, in addition to the strong competition from Saudi Arabia and the low costs compared to the low fuel prices in Saudi Arabia.

For C22 and C23, the loss of markets at the beginning of the Arab Spring led to an excess of products they were unable to sell, as well as the inability to operate at the full production capacity of the factory. This also has led to an increase in the costs borne by the factory, especially with the presence of machines that operate on the principle of mass production and are subject to high depreciation and have a high cost. However, in the cases of C24, C25, C26, C27 and C28, even with the markets lost at the very beginning of the turmoil and the need to produce at under full capacity, those companies managed to increase their production and sales, they have increased the production capabilities and they are working on further increasing them. When they lost some of their markets they turned to their current markets and expanded in them. Those companies did not allow this disruption and loss of markets to stop them; instead, they immediately attempted to compensate for the lost markets and to expand in the current markets to be able to return to their full production capacity.

This also has led to another disruption in the form of increased transportation cost which has affected five out of seven companies (C23, C25, C26, C27, and C28). This has affected the sales volume, costs, and profit margin. However, C22 was not affected by this as it currently works only on the local market. Neither was C24 affected by this as it has since the Arab Spring developed its factory and started to rely on robots for production, which has helped in lowering other costs to offset the additional shipping costs.

According to the interviewed companies, production costs in Jordan are higher than production costs in other countries such as Turkey, Egypt and Saudi Arabia, mainly due to fuel prices, production expenses, labour expenses, and taxes. The price of a kWh of electricity has risen to 10 piasters (equivalent to 0.10 JOD), while it is 3-4 piasters in neighbouring countries. The rise in customs prices and the change in customs tariffs are due to the continuous change in the applicable laws, with customs duties in Jordan in 21- segments.

Changes in regulations either internally or externally have affected six out of seven of the interviewed companies. Those changes came without a previous warning and affected them directly in multiple ways, as Table 32 shows.

Table 32 - Printing and Packaging Sector - Regulation Change

Regulations that have changed	C22	C23	C24	C25	C26	C27	C28
Unqualified labour	✗	✓	✓	✓	✓	✓	✗
Jordan's continuous change of regulations	✗	✓	✓	✓	✓	✗	✗
Changes in shipping laws	✓	✓	✓	✓	✗	✓	✗
Additional shipping expenses	✓	✓	✓	✓	✓	✓	✗

The following summarises the changes to regulations in the past period that have been mentioned by the interviewees:

Unqualified labour: the imposing of unqualified labour from Jordanian's labour force and prevention of use of foreign labour above the allowed quota. The Jordanian labour law states the percentage of Jordanian labour in each company depends on the nature of the business and the sector. C25's owner believes (2019) that *"Today's workers do not have the same corporate loyalty and responsibility as they once did. They demand two days off a week"*.

Jordan's continuous change of regulations: the frequent changes in the cabinet led to continuous changes in governing laws. In order to reduce the economic impact on the country, the government had to increase taxes and electricity costs. Moreover, the Jordanian government imposed a 2% tax on previously exempted goods and a 5% tax on exports. Also, while previously exempted in Jordan, exports are now subject to sales tax (16% of the price). Additionally, C25's owner mentioned the *"Stopping of the implementation of the law that allowed companies in the field to work with alternative energy (Solar Power). This is as a result of the issuance of a decision to reorganise the energy in the manufacturing sector in general and not to permit use of the governmental lands in the desert to implement those solar cells"* (2019). Meanwhile, C26's owner (2019) stated: *"The Jordanian law does not protect Jordanian industrialists, but it provides facilities to foreign competitors in the free zones, such as tax exemptions for a period of ten years from income tax, which is 14% of net income, and from sales tax 16%, which makes it difficult for Jordanian industrialists"*.

Changes in shipping laws: some countries have changed their shipment laws, which also influenced shipping in Jordan. For example, Jordanian shipping vehicles are no longer allowed to cross the border into Iraq, which means hiring one vehicle for shipping from the factory to the Iraqi border and another one from the Iraqi border to the customer. Also, exempting import of raw materials due to the lack of related production machinery in Jordan has stopped. This has affected all the companies except for C26 as they are exempt from exporting tax.

Additional shipping expenses: additional shipping costs for Saudi Arabia added a 5% tax on exports to it.

Even though some of those changes in regulations might have affected all the interviewed companies, Table 32 only shows what has been explicitly mentioned by the interviewees.

Instability and wars in neighbouring countries have affected all the interviewed companies, through affecting their import and export from other countries as suppliers demanded a financial guarantee to protect their rights before supplying to the company.

The economic and savings approach means that customers, due to the bad state of the economy, have started saving for the unpredictable future and only spend on essential items. According to the C24 owner, *"We are a consumer society, any additional income for the individual consumers they will consume it, which means prompting another sector to benefit from it, and thus it helps in reanimation of the production sectors as a whole"*.

New markets' entry requirements: there is a slowdown in entering new markets due to the lack of guarantees by the new companies or the request for many facilities that the company may not be able to provide, such as asking for long payment periods at a time when the company must pay sales tax (16%) on the products that have been sold but not got paid for yet Also, this could be due to high entry requirements such as those for entering the American and European markets.

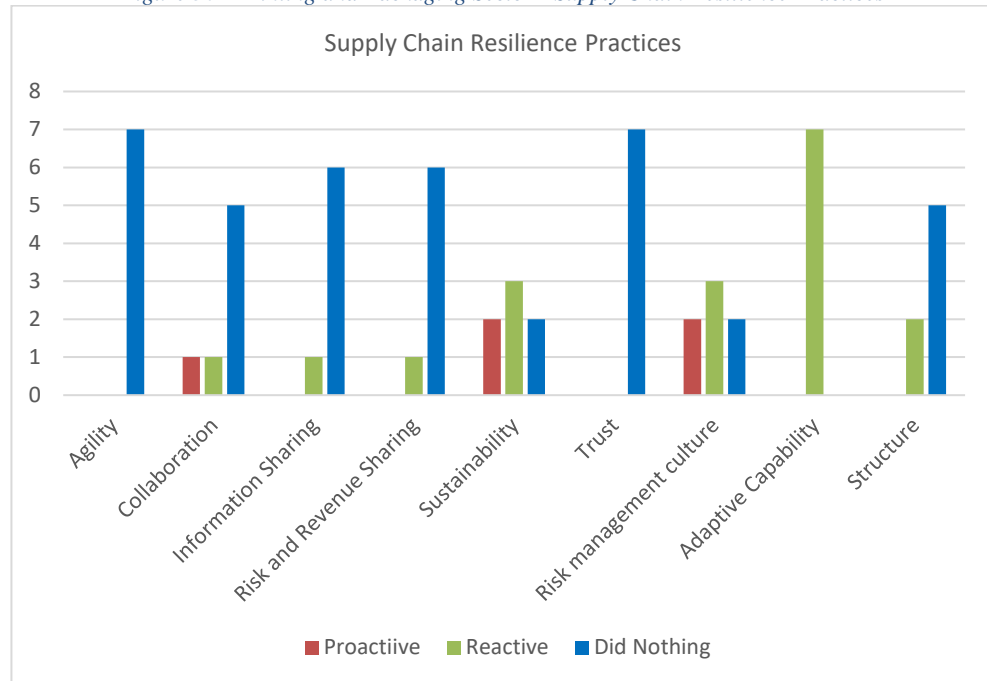
Women's empowerment: finding women to work in factories is hard as society considers and expects women to limit their potential to work in such jobs. This led the companies to issue an internal law specifying the percentage of female workers in their factories. This was a disruption for the interviewed companies as they had to look for women to fulfil these roles and it was hard to find them. In some cases, after being hired for a position the female employees would quit their job due to family or societal pressure, which put the companies in a position of having to start over in finding the right candidate.

While various disruptions have affected the companies, only one company has claimed to be affected by all of the identified disruptions. For C22 the cardboard industry is made up of approximately 80% paper which makes it highly reliant on a limited and always declining source for its production. Also, the raw materials for this industry are in constant decline as a result of the general trend towards obtaining electronic copies instead of paper copies such as newspapers (production has fallen from 100,000 newspapers per day to 20,000 newspapers per day). Meanwhile, C23 has struggled with regard to its shipping lorries; for example, an export car with a value equivalent of \$66,000 was stolen by al-Qaeda in 2006. Another example is a container of plastic dishes that was exported to Saudi Arabia, where it was completely destroyed under the pretext of inspection because the car was suspicious. Furthermore, C25's suppliers demanded a financial guarantee to protect their rights before supplying the company. Also, for C25, the local market is not financially secure. For instance, one of the commercial markets (Arjan Mall) had six branches and was one of the company's customers and was taking the goods up until March 2019, then in April 2019 they closed their branches and left without warning and without paying their full financial dues, with the required goods still being stored with C25. C26 has found that Jordanian legislation for companies wanting facilities or exemptions requires long routine transactions with complicated conditions and procedures, which makes it difficult to apply for and to obtain them. Furthermore, C27 found that the mentality of the first generation who started running the company was not supportive of applying for product certificates since they did not see any benefit from them, but the mentality of the second generation was supportive of this idea and in order to convince them to change their minds, they searched for supportive bodies for such certificates, and in the end, the company obtained these certificates which allowed them to enter the European market. Finally, C27 claimed that one of the problems with the local market is its failure to look at the product certificates that the company holds and instead to look mainly at the prices, apart from companies that export globally as their packaging has to comply with specific standards and specifications.

“Any company should have higher diversification in its markets and products, as this helps it to overcome disruption that it faces. reduces the risk of it, and if possible, to take advantage of any situation that it comes across” (C28 Owner, 2019).

2.6. Supply chain resilience practices

Figure 36 - Printing and Packaging Sector - Supply Chain Resilience Practices



As Figure 36 shows, most of the companies were more likely not to adopt supply chain resilience practices. However, those companies who adopted some of those practices were more likely to be reactive rather than proactive. Five companies were adopting supply chain resilience practices (C22, C25, C26, C27 and C28) before the Arab Spring, while the rest of the companies, C23 and C24, have started to implement more practices after seeing what other companies in the sector are doing as they believe that imitating the surviving companies would also help them to survive. Also, as Table 33 shows it is more likely for companies not to adopt supply chain resilience practices than to adopt them. It is noticeable that companies tend not to adopt any practice that would lead to any kind of information sharing throughout the supply chain and to focus on practices related to adaption and survival. This is because they do not have the confidence to trust others, especially with critical information that could influence the company's position in the market or might affect its competitiveness.

Table 33 - Printing and Packaging Sector - Supply Chain Resilience Practices

SCR Practices	C22	C23	C24	C25	C26	C27	C28
Agility	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied
Collaboration	Reactive	Not applied	Not applied	Not applied	Not applied	Not applied	Proactive
Information Sharing	Not applied	Not applied	Reactive	Not applied	Not applied	Proactive	Reactive
Risk and Revenue Sharing	Not applied	Reactive	Not applied	Not applied	Not applied	Reactive	Not applied
Sustainability	Proactive & Reactive	Not applied	Reactive	Not applied	Reactive	Proactive	Reactive
Trust	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied
Visibility	Reactive	Reactive	Reactive	Reactive	Proactive	Reactive	Reactive
Risk management culture	Not applied	Reactive	Reactive	Proactive & Reactive	Not applied	Not applied	Proactive & Reactive
Adaptive Capability	Reactive	Reactive	Reactive	Reactive	Reactive	Reactive	Reactive
Structure	Reactive	Proactive & Reactive	Not applied	Not applied	Not applied	Reactive	Not applied

2.6.1. SCR Practices Proactive Adoption

Proactive supply chain resilience can be defined as companies' ability to structure their companies in a way that helps them to predict and overcome any sudden or unpredicted disruption that they might face and in a way that would help them to maintain control over their function and, if possible, to have a better position in the market which could lead to gaining a competitive advantage (Ponis and Koronis, 2012).

C28 has demonstrated collaboration through being one of the few companies in Jordan that exports goods for other companies, which is a sign of cooperation and assistance. The company is integrating its work with that of other Jordanian companies by making agreements with these companies in order to help them export their goods abroad. This has been one of the company's policies since its establishment, with the company believing in the principle that two hands are better than one.

Information sharing for C27 involved communication with one of the customers in the Iraqi market, as he alerted the company about what might happen as a result of the turmoil, but the company did not take it into consideration as it believes that business involves risk that must be taken despite the threat of disruptions in order to continue working to achieve a return to the product.

Sustainability has been adopted by three out of seven companies. C22 has from the very beginning concentrated on supporting the idea of sustainability; it uses all the waste from the presses, which is placed in the mixers to be turned into fibres and then turned into egg dishes, apple dishes and fruit dishes. C27 has the slogan "*Go green, it's clean*" as it seeks to reduce the negative effects on the environment and sells the rest of the production to recycling companies and obtains certificates from them that explain what will be done with this waste. Meanwhile, C28 has three suppliers for each raw material and started with this practice when it obtained several certificates including 14000 for the environment.

Risk management culture has been adopted by C25 in the form of a policy in place in the company not to rely on a single supplier. When the company needs raw materials, it requests most of the quantity from the main supplier and requests the remaining part from another supplier, to avoid the risk of not receiving the materials in case the main supplier has any sort of disruption; therefore, for each raw material, the company relies on more than one supplier. C26, on the other hand, has a policy of controlling demand, as it always keeps a stock of its raw materials (3 months stock) in order to maintain the workflow even if there is a delay in the arrival of raw materials. Finally, C28 has three suppliers for each raw material and started with this practice when it obtained several certificates such as ISO9001 for quality and 22000 for food safety.

2.6.2. SCR Practices Reactive Adoption

Reactive supply chain resilience can be defined as companies' ability to respond to and recover from disruption after it happens in a way that helps it get back to its previous status or a better one with minimum losses in the shortest possible time (Chowdhury and Quaddus, 2017).

Collaboration has been adopted only by C22. In 2012, C22's factory was closed due to the Arab Spring, and the machines were sold to a Saudi company. An agreement was reached with the Saudi company for C22 to give it the know-how, provided that the entire production of the Saudi factory was sent to C22 for selling it in the market. In return, the Jordanian company provides raw materials for industry and chemical materials, in addition to expertise on how to manufacture or maintain equipment.

Risk and Revenue Sharing has been adopted by C27 due to the turmoil; C27's suppliers have shared the increase in costs for raw materials with the company. Also, C27 did not charge the increased costs of raw materials to its customers.

C22 continued in adding to its Sustainability practice through applying to the Ministry of Energy for a loan of 350,000 JOD (support for industrialists) for a period of five years, without bank interest, in return for reducing energy consumption, based on the submission of a feasibility plan and implication plan showing how it works (JREEEF, 2021). The company presented a study on the existence of newer machines than the ones currently used and that would offer better production with a higher production capacity and less energy consumption, in order to work on re-production of egg dishes in Jordan. C22 also submitted a request to convert to use of solar energy in order to reduce costs and is waiting for approval. Meanwhile, C24 believes that the plastic industry within the scope of the company's work, in general, does not harm the environment. The new containers weigh 12 g, compared to 20 g in the past, which means that smaller quantities go for recycling. In the case of C26, the production remnants are taken by recycling companies and used as their raw materials. Finally, C28 recently (2019) signed a support coordination agreement with the Canadian government in order to push people to use (Compostable and biodegradable materials) instead of using plastic. The new material degrades within three months, while plastic usually takes 100 years to degrade.

Risk management culture, in C23's case, has been obtained through compensating first-hand for the lost markets. This means that the losses incurred as a result of the turmoil that occurred are compensated for in a timely and with almost the same efficiency as previously. In the case of C24, every three years, the company renews its production lines to maintain its competitiveness. C24 also relies on artificial intelligence more than on the skills and competencies of its employees, which it has done by purchasing robots to work in the factory. Finally, C25 has also started to search for new markets to avoid similar crises in the future, and one of the markets that the company seeks to reach is the African market.

Adaptive capabilities have been adopted by all the interviewed companies. C22 started adopting it by searching for supportive bodies like JEDCO who would offer grants to work on developing the factory in order to increase competitiveness and improve productivity by bringing in more advanced mechanisms to their factory and into Jordan and also in order to reduce dependence on other countries.

The machines that were used by C23 in the factory were old and consumed high energy, but due to the high energy prices, they were replaced by newer machines with lower energy consumption, which helped to reduce the unit cost, but the company costs increased generally due to the costs of the machines themselves (15,000-20,000 JOD was the price of the machine).

Meanwhile, C24 has been working on increasing the number of employees, opening additional local and foreign markets, attracting new customers, increasing productivity, purchasing newer machines, and increasing marketing of its products. It has increased the number of employees to adapt to the increase in production.

C25 has worked to reduce labour, reduce working hours, reduce expenses and reduce storage in order to increase its opportunity to continue in the market. Another method used to reduce costs is to stop using the company's lorries and ask companies that own freight cars to send their cars to receive their goods. The decrease in the employees' number was due to the owner's belief that this will help in lowering the company costs. C25 also worked to accept requests from more customers, but on the condition that a bank guarantee was provided.

C26's adopted capabilities came in the forms of business development and introducing new lines of business in order to attract new customers.

On the part of C27, every time the company adds new features to its product it offers it for the customer for the first period for free as one of the marketing methods in order to push them to try it and encourage them to start ordering it. This reflects its focus on the quality of the product and adding value. C27 has faced some internal pressures as a result of declining sales, with costs and obligations remaining on the company, which led to the suspension of salary increases for workers for that year.

Regarding C28, the company increased its focus on the domestic market to compensate for the export loss, it trained employees, and focused on marketers (Salesforce programme) in order to strengthen the local market. The company also gave training courses in production (Lean manufacturing) and began to work on the Japanese method (KAIZEN method) for the development of production processes, as well as working on Inventory management to reduce waste and storage costs.

C27 established a factory and another branch of the company outside Jordan, in Egypt (2019), as it has the necessary raw materials for production at lower costs, which means production at lower costs and less risk than having only one branch in one country. Although expanding the company will result in a higher overall risk, they think it will still be lower in the case of a disruption that could result in losing the whole business.

2.6.3. Did nothing

Eventually, all companies have adopted at least two supply chain resilience practices. However, none of the interviewed companies has adopted agility or trust. Regarding practices related to information sharing and risk and revenue sharing, most of the companies (six out of seven) have not adopted them. Also, most of the companies (five out of seven) have not adopted practices related to collaboration and structure. This has happened mainly due to a lack of knowledge and recognition of the importance of those practices or the unwillingness of companies to share their companies' details.

2.7. Performance

Achieving a reasonable profit is the main goal for any company except for the nonprofitable company. Even if for some time the company faced a decrease in its profit or some losses, that can be acceptable as long as it is not happening on a continual basis. The owner of C24 agrees with this principle and confirms that *“The general rule says stopping the loss is profitable and therefore no one works and loses and anyone who says otherwise is a liar. What usually happens with the company is only a decrease in the profit rate, which means that companies must increase the percentage of their sales to achieve the same previous profit rate”*. Also he says, *“Some companies calculate losses differently, such that they seek a certain profit rate, and when a lower percentage is achieved, the difference is considered a loss, or if they receive purchase orders to a degree that exceeds their production capacity which results in them being unable to produce the goods they consider the value of the order as lost value”*. This means that even if a company says that it is losing money, it does not necessarily mean that it actually has a minus profit margin; instead it may just be facing a decline in its sales and profit.

Figure 37 - Printing and Packaging Sector – Performance

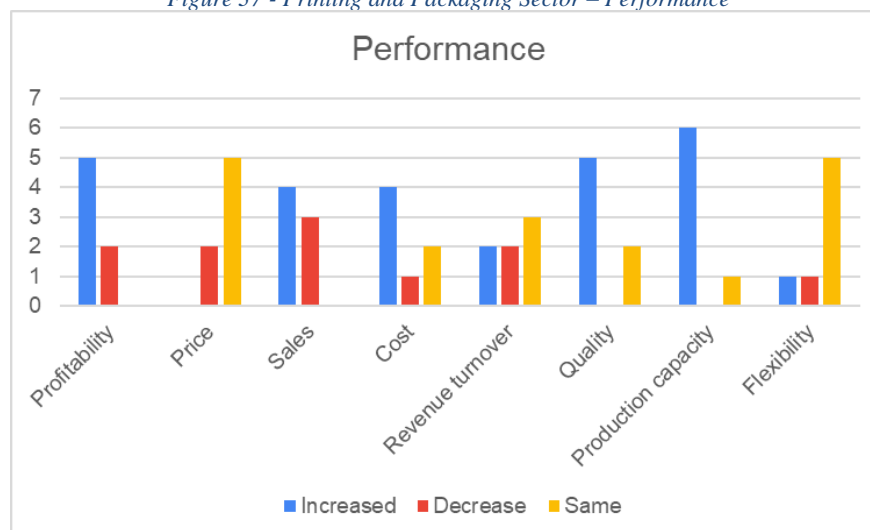


Figure 37 generally shows that the printing and packaging sector has a better performance. Were it shows that five out of seven companies have managed to improve their profitability. Two companies reduced their costs. Four companies increased their sales. And five companies improved their product quality.

Table 34 - Printing and Packaging Sector - Performance

Performance	C22	C23	C24	C25	C26	C27	C28
Profitability	Increased	Decreased	Increased	Decreased	Increased	Increased	Increased
Price	Stayed the same	Stayed the same	Decreased	Stayed the same	Stayed the same	Stayed the same	Decreased
Sales	Increased	Increased	Increased	Increased	Increased	Increased	Increased
Cost	Increased	Increased	Decreased	Increased	Increased	Stayed the same	Stayed the same
Revenue turnover	Stayed the same	Stayed the same	Increased	Increased	Stayed the same	Decreased	Decreased
Quality	Stayed the same	Stayed the same	Increased	Stayed the same	Stayed the same	Increased	Stayed the same
Production capacity	Stayed the same	Increased	Increased	Increased	Increased	Increased	Increased
Flexibility	Stayed the same	Stayed the same	Increased	Decreased	Stayed the same	Stayed the same	Stayed the same
Positive Impact	Increased	Decreased	Increased	Decreased	Increased	Increased	Increased

According to C28’s owner (2019) “The harm was greater than the benefit, due to the fact that the benefit requires more time to achieve”.

In this sector the profitability has been affected as follows (see Table 34): for C22, at the beginning of the turmoil there was a 35% loss, but after selling the machines to Saudi Arabia (2012) the profit became 7-9%, as they became the only provider for the region and they have benefitted from manufacturing in Saudi Arabia at lower costs. Regarding C23, overall, its profitability has increased. Meanwhile, for C24, the sudden cessation of foreign markets, and the fact that the company depends on 25% of its production going to those markets have led to surplus production for customers in the Arab Spring countries where the company cannot sell it to any other customers. Additionally, the cost of storing it became greater than its value, therefore, the company sold some of these goods and destroyed the rest. This was initially a loss for the company; however, they have compensated for the lost markets from the local market and within the same year (2012). In the case of C25, in the past, the company's profit was 45-50% annually,

now this profitability has decreased to 20%. C26's net profit was 8-12% of sales but in 2016 its net profit was 5-6% from sales, in 2017 the net profit was 1.5% from sales due to the high prices of paper globally as a result of forest burning, and in 2018 net profit was 5% of sales. C27's overall profitability has improved. However, C28's profit margin decreased by 10% from 2011-2019, which was due to the closure of foreign markets and the increase in competition on the local market, which led companies to resort to reducing prices in order to increase their market share. Nevertheless, its market share and number of markets has increased, which led to an increase in the profitability.

Regarding sales, C22 experienced a sharp decline in sales as it relied only on exports and used to export to the Arab Spring countries; therefore, it started to work on the local market. They already have suppliers from Saudi Arabia offering lower prices, however, when they started with the alliance their sales slightly improved. In the case of C23, after the turmoil in Syria, the production capacity of the company doubled because Iraq was importing from Syria, and as a result of the suspension of the Syrian market, traders in Iraq went to Jordan. And in 2015 the company's trade in the Iraqi market stopped and the company could not gain indemnity from the local market; in addition, trading with the Yemeni and Lebanese markets stopped. Meanwhile, C24 turned to the local market to overcome the lost markets, which led to an increase in its sales in the local market to a degree that compensated for the loss of foreign markets. Moreover, the local market demand increased by 40%, as the local companies that used to import from Syria, Egypt and Turkey were no longer able to import and resorted to the local market, which increased sales for local companies. C25 found that at the beginning of the Arab Spring its exports to Syria increased dramatically, reaching 1,000,000, but then stopped completely in 2018. Exports were carried out directly or through the United Nations or associations. The company's sales rose to 17,000,000-18,000,000 per year, and the percentage of exports was 40%, but at present, the company's exports have stopped, causing the company's sales to fall by half. C26's sales have increased due to the increased number of companies opening in Jordan and also because of the closure of some competing markets. In the case of C27, the company's sales decreased for a while due to indirect reasons, as the company's customers who depend on the Iraqi market decreased or stopped their buying and thus the amount of demand from the company decreased just for that period even though the overall sales have increased. C28's sales increased in the local market and exports, but the ratio of its sales in the local market to exports is still the same at 80%:20%. However, the company has a goal of reaching 60% of its production going for export by 2023.

Costs for the interviewed companies have been influenced in various ways. C22's costs increased due to the need to export raw materials and the need to complete the production stage outside Jordan and all the related costs. For C23, the monthly fuel bill increased by the equivalent of 7,000-8,000 JOD per month during the time when the old machines were in use the factory as they consumed a lot of energy, but due to the high energy prices, they were replaced by newer machines with lower energy consumption. However, the costs increased in general due to the costs of the machines themselves (15,000-20,000 JOD was the price of the machine). Regarding C24, its overall costs have decreased due to the use of new machinery and robots which increased the production rate dramatically, while the fixed costs stayed the same and were divided among a higher number of products. C25's costs increased by 60% due to the increase in energy and labour costs; the cost in Jordan of a kilo of electricity is 10 piasters, while it is 3-4 piasters in neighbouring countries. For C26 costs have increased by 15-25% since 2011. C27's costs have stayed the same due to the increase in the prices of ink and decrease in the prices of paper. Finally, C28's costs increased by 2% as a result of purchasing new machines and depreciation of their value.

Regarding revenue turnover for the interviewed companies, it stayed the same for C22, C23, and C26 but improved for C24. For C25, it is taking 120-180 days nowadays, while previously it used to take 30-60 days. Meanwhile, for C27, the time taken has halved. And finally, for C28, it used to take 75-90 days and now it takes approximately 130-140 days, which is a result of market pressure on the company to sell in credit instead of selling in cash.

In terms of the influence on quality, C22, C23, C25, C26 and C28 reported that it had stayed the same, whereas C24 and C27 stated that quality has improved due to the use of new and improved machinery.

Regarding the influence on production capacity, for C22 it stayed the same, while for C23, it doubled at the beginning and then it declined. C24 has enlarged its factory and imported new machines to keep pace with the increased demand for production and to increase the production capacity of the factory. C25 reported that it increased up until 2018 and then it decreased. C26's sales increased after the Arab Spring, as the company expanded its activities and increased the number of machines in the factory. Production capacity was increased by C27 due to the increase in demand. And finally, C28's production capacity and speed have improved by 10%-50% depending on the production line.

In respect of the interviewed companies' flexibility, C22, C23, C26, C27 and C28 reported that it stayed the same. C24 has found that flexibility of its production has improved, while C25's production flexibility has worsened.

The printing and packaging sector has been affected positively by the Arab Spring and it had a strong positive impact on those companies, mainly because manufacturing companies in Jordan who used to import from outside Jordan (e.g. Turkey) have started to buy from manufacturing companies in Jordan's printing and packaging sector due to the Arab Spring. The level of benefit varies between the companies, for instance, C24 has benefitted the most, whereas C25 did not take advantage of the situation.

2.8. Positive impact

The printing and packaging sector is one of the sectors that have benefitted from the Arab Spring as explained in the previous sections. *"Companies are an interconnected chain. If a company can operate, this means that other companies operate according to their scope of work. For example, if the plastic factory is able to work, this means that it will consume raw materials and that another company is working and asking it for storage packages that it needs to display its goods in the markets and stores where the consumer buys"* (C24 Owner, 2019). Hence, this could be considered as a win-win situation where for one company to work other companies have also to work to complete the chain. However, according to the owner of C28 (2019), *"The harm was greater than the benefit due to the fact that the benefit takes more time to be achieved"*; even if the benefit is higher than the loss, it does not happen as fast as the loss.

C22 is considered as the company most affected by the turmoil among those interviewed in the printing and packaging sector. Even so, it still believes that the Arab Spring has brought it some positive impacts in terms of such as governmental support and external funds that have helped it to survive and stay in the market when none of its local competitors was able to do so.

According to C23, the Arab Spring has not had positive impact on the company.

However, the C24 owner believes that the Arab Spring should have happened 20 years ago. It came with benefits to everyone as if any sector is working in the market, this will lead to the activation of the rest of the sectors. This is of course in addition to the amount of support and funds that the companies have received as a result of the Arab Spring.

C25 stated that the Arab Spring has brought lots of support to Jordan, especially financial support. It also brought qualified labour into the workforce.

For C26 one of the advantages of the Arab Spring is that Syrian suppliers have moved their factories to Jordan, which has helped to obtain raw materials more quickly and at nearly the same

cost. Another advantage of the Arab Spring is that a group of Syrian companies transferred their businesses to Jordan, which led to an increase in demand for packaging materials.

C27 viewed the Arab Spring as providing the motivation to start working with the British and American market (2016). Also, there is the support that external entities have provided.

Finally, C28 regarded the Arab Spring as a blessing in disguise, as it helped in entering new markets, in addition to enabling it to return to its previous markets. Also, the funds obtained by the company contributed greatly to the development of its work helping it to remain in the market and to benefit from the current situation. Another positive effect of the Arab Spring is that it encouraged the company to think broadly and adjust its future vision, in addition, to focus on global markets that have better stability and growth.

2.9. Support

According to the C22 owner (2019), “Without the support received from the supporting authorities, the company would not have been able to continue”. Funds provided at the beginning of the turmoil were higher than they are now. Table 35 illustrate what type of funds, who got it, and related details to it.

Table 35 - Printing and Packaging Sector - Support

Support	C22	C23	C24	C25	C26	C27	C28
Jordanian Government	The Ministry of Energy offered support for industrialists through a loan of 350,000 for 5 years without bank interest, in return for reducing energy consumption, based on the submission of a study showing how it works.	N/A	N/A	N/A	N/A	N/A	There was support from the Chambers of Industry to participate in the exhibitions. The Central Bank of Jordan provided concessional loans to the industrial sector with a ceiling of 2,000,000 Jordanian JOD at a reduced interest rate. The company obtained this loan in 2015 but did not apply for the full amount.
JEDCO	Got a grant for 100,000 euros to buy printers to make labels or print on cartons. Part of the support (20,000 out of 100,000) was for training programmes for engineers and marketing.	Obtaining support in the amount of 100,000 JOD. Get a second support worth 80,000 JOD	Twice: 30,000 in 2018 and 50,000 in 2019.	A grant 100,000 euros.	N/A	N/A	Funds for purchasing machines, participating in exhibitions and studying foreign markets. The company obtained three separate funds from JEDCO, equivalent to 120,000 Jordanian JOD.
Jump	N/A	N/A	N/A	A grant 70,000 euros.	N/A	N/A	N/A
Turkey	N/A	N/A	N/A	A loan in 2014 amounting to 60,000 euros.	N/A	N/A	N/A
EPRD (a European bank)	N/A	N/A	N/A	N/A	N/A	The company applied for financial support for auditing (2016), as this was one of the prerequisites for entering the European market. The support covered 60% of the costs of the certificates. As the cost of each certificate is 2,000-3,000, the company has obtained seven certificates.	The company received support that helped it appoint a consultant to enter the US market.

2.10. Factors that led to adopting supply chain resilience practices

Table 36 - Printing and Packaging Sector - Supply Chain Resilience Driver/ Barrier

Driver/ Barrier	C22	C23	C24	C25	C26	C27	C28
There is no protection for the local industry as there is in European countries.	✓	x	x	x	✓	x	x
The effect of the external environment	✓	x	✓	✓	✓	✓	✓
Competition	✓	✓	✓	✓	✓	✓	✓
Inventory	x	✓	✓	✓	✓	✓	✓
Financial solvency	✓	✓	✓	✓	✓	✓	✓
Company's history and customer loyalty	x	x	x	✓	✓	✓	✓
Relationship with supply chain	✓	✓	x	✓	x	✓	✓
Communication through the supply chain	✓	x	✓	x	x	✓	✓
Export and import to Arab Spring countries and countries who faced its consequences	✓	✓	✓	✓	✓	✓	✓
The closure of the Syrian border	✓	✓	✓	✓	✓	✓	✓
New shipping methods	x	x	✓	x	x	x	✓
Multiple suppliers, customers, products	x	✓	✓	✓	✓	x	✓
Entering non-traditional markets	x	✓	✓	x	x	✓	✓
Production cost or product price	x	✓	x	✓	x	✓	✓
Unstable economy	✓	✓	✓	✓	✓	✓	✓
New laws in exporting countries	✓	✓	✓	✓	✓	✓	x
Participating in exhibitions	x	x	x	x	x	✓	✓
Moving the company location, opening a branch for the company, or opening a representing office outside the Arab Spring region.	x	✓	x	x	x	✓	x
Product Nature	✓	✓	✓	x	✓	✓	✓
Product Quality	x	x	x	x	✓	✓	✓
Product certificates	x	x	x	x	x	✓	✓
Switching cost	✓	✓	✓	✓	✓	✓	✓
Advanced machines	✓	✓	✓	✓	x	✓	✓
Jordanian workers don't have the required efficiency, commitment, or obligation toward their work. Also, there is not enough labour.	x	x	x	✓	x	✓	x
Highly qualified labour	✓	✓	✓	x	x	✓	x
Lack of specialised training, external expert training or even support for it.	x	x	x	x	✓	✓	✓
The facilities provided by the Turkish government to the foreign industrialist are better than the facilities provided by the Jordanian government to the foreign industrialist.	x	✓	x	x	x	x	x
Indirect influence due to the impact of the Arab Spring on their customers.	x	x	x	x	x	✓	x
Shipping on behalf of other companies	x	x	x	x	x	x	✓
An alternative source of power	✓	x	x	x	x	x	x

Several factors have led to adopting (Driver) and not adopting (Barrier) supply chain resilience practices Table 36 shows how each factor has influenced one or more supply chain practices:

- (1). There is no protection for the local industry as there is in European countries. This driver/ barrier has led to the adoption of adaptive capability.
- (2). The effect of the external environment. This driver/ barrier has led to the adoption of Information Sharing and Visibility.
- (3). Two out of seven companies have adopted supply chain resilience practices to better overcome internal and external competition, while five out of seven believed that they are in a better position than their competitors. Three out of those five companies believe they can compete internationally. This driver/ barrier has led to the adoption of collaboration, visibility, risk management culture, and adaptive capability.
- (4). Four out of seven companies have been affected due to the raw materials inventory level. This driver/ barrier has led to the adoption of visibility and adaptive capability.

- (5). Financial solvency. This driver/ barrier has led to the adoption of adaptive capability.
- (6). The company's level of experience and history (old) in the marketplace has had a high influence on which supply chain resilience practices to adopt and at what level. This driver/ barrier has led to the adoption of risk management culture and adaptive capability.
- (7). Relationship with the supply chain. This driver/ barrier has led to the adoption of information sharing, risk and revenue sharing, and visibility
- (8). Communication through the supply chain. This driver/ barrier has led to the adoption of information sharing, visibility, and adaptive capability
- (9). Export and import to Arab Spring countries. This driver/ barrier has led to the adoption of visibility and adaptive capability.
- (10). The closure of the Syrian border. This driver/ barrier has led to the adoption of visibility.
- (11). New shipping methods. This driver/ barrier has led to the adoption of visibility.
- (12). Multiple suppliers, customers, or products. This driver/ barrier has led to the adoption of Risk management culture and adaptive capability.
- (13). Entering non-traditional markets. This driver/ barrier has led to the adoption of visibility and adaptive capability.
- (14). Production cost or product price. This driver/ barrier has led to the adoption of risk and revenue sharing, visibility, adaptive capability, and structure.
- (15). Having a hard to predict market and environment has also affected all the companies, especially when working in a dependent market. This driver/ barrier has led to the adoption of information sharing and structure.
- (16). Having new laws and regulations, whether internally or externally, has affected all the companies. This driver/ barrier has led to the adoption of risk and revenue sharing and adaptive capability.
- (17). International exhibitions. This driver/ barrier has led to the adoption of visibility.
- (18). Moving the company location, opening a branch for the company, or opening a representing office outside the Arab Spring region. This driver/ barrier has led to the adoption of visibility and structure.
- (19). Product Nature. This driver/ barrier has led to the adoption of sustainability and visibility.
- (20). Product Quality. This driver/ barrier has led to the adoption of adaptive capability.
- (21). Product certificates. This driver/ barrier has led to the adoption of risk management culture and sustainability.
- (22). Switching cost and customer efficiency. This driver/ barrier has led to the adoption of visibility and adaptive capability.
- (23). Advanced machines. This driver/ barrier has led to the adoption of sustainability, visibility, risk management culture, and adaptive capability.

(24). Jordanian workers don't have the required efficiency, commitment, or obligation toward their work. Also, there is not enough labour. Even though this barrier has a huge impact on companies, it did not lead to any supply chain resilience practices adoption as according to those companies there was nothing that they could do.

(25). Highly qualified labour. This driver/ barrier has led to the adoption of collaboration.

(26). Lack of specialised training, external expert training or even support for it. This driver/ barrier has led to the adoption of adaptive capability.

Additionally, barriers that have influenced one company include such as the facilities provided by the Turkish government to the foreign industrialist being better than the facilities provided by the Jordanian government to the foreign industrialist, indirect influence due to the impact of the Arab Spring on their customers, shipping on behalf of other companies, and one company started to use alternative sources of power. Those drivers/ barriers have led to the adoption of collaboration and sustainability.

2.11. Theoretical Lens - Institutional Theory

The institutional environment can strongly influence the adoption of resilient supply chain practices and force the companies to change in order to better adapt to the environment. For this sector this has happened through:

2.11.1. Coercive isomorphism

Coercive isomorphism can result from formal or informal pressure on companies by the government, other companies in the market, or by society; this pressure can result in practice adoption by the companies; however, this adoption does not necessarily mean higher efficiency (Kauppi, K., 2012).

Applying coercive isomorphism to the printing and packaging sector has resulted in:

Manufacturing costs in Jordan are higher than the costs in neighbouring countries (electricity, expenses and taxes), which makes it difficult for local companies to enter the European and American markets (C22 and C23, C25) as their competitors are more capable of doing so and they can add a price challenge to the competition.

Also, starting to use alternative sources of power when the cost increased rapidly (C22 and C23).

Jordan's size and potential customers play a role in influencing the production capacity of the factory, as the factory cannot produce large quantities without the presence of markets to dispose of them (C22, C23, and C25).

Change in exporting laws (C22, C24, C25). For instance, for C22 the tax added to the export of raw materials by the Jordanian government, which was then removed it as there was no local alternative. Additionally, for C24 and C25 the tax added to exports to Saudi Arabia.

Lack of governing laws to protect exports to war zone countries such as Iraq (C23, C25, C27, and C28). Meaning that they had no choice but to take the risk or lose the market.

Changing the shipping method (C27). This incurred added risk, time, and cost.

Governments in some countries, such as Turkey and Iran, support companies that export, but this is not the case in Jordan (C23, C26).

Specifications and standards for export to European and American markets differ from those for Arab countries (C23, C25, C27, and C28).

Jordanian markets have low entry requirements (C25, C26, and C27).

Obtaining facilities or exemptions requires long routine transactions with complicated conditions and procedures, which makes them difficult to apply for and obtain (C26).

Advising other companies to adopt successful supply chain resilience practices (C24 and C28).

Lack of alternative suppliers or monopoly on raw materials (C22 and C23). Which puts the company under the continuous pressure of trying to find an alternative or losing the business.

Companies' reliance on the local market (C23, C24, C25, C26, C27, and C28). Due to the closure of external markets and the need to replace lost customers.

Entering new markets that can be considered as richer markets or non-traditional markets (C23, C24, C25, C27, and C28).

The company renews its production lines to maintain its competitiveness (C22, C23, C24, C25, C26, C27, and C28).

Changing the production capacity of the factory (C24).

Stopping markets to reduce their unpredictability (C28).

Companies reducing their existence in the market (C22).

Participating in exhibitions (C27).

There are attempts to open a regional office outside Jordan (C23, C25, and C27). To reduce the risk of the region and to increase the company's existence to avoid future disruptions by being in multiple locations.

Adapting new marketing methods or increasing their current ones (C24 and C27).

Participating in exhibitions (C27).

Lowering profit margins through selling at a cost in return for staying in the market (C22 and C23).

Some companies had to add more cash to increase the liquidity in their companies, this cash coming from the owners' own money, funds or from loans (C22, C23, C24, C25, C26, C27, and C28).

New machinery consumes lower energy, however, the price of the machinery itself and the depreciation on it are relatively high (C22, C23, C27).

Hard to predict the market (C25, C26, and C27), which increases the risk of uncertainty and not knowing when and how much raw material the company should order.

Preparing the company for the future (C24).

Keeping inventory to avoid raw material delays, missing materials, change in prices, or disruption to supply (C26 and C27).

Foreign labour efficiency and adequacy (C24, C25, C26, C27, and C28). And the pressure of having a limited amount of this expert labour.

Customer Service/ product quality (C27 and C28).

Adjusting the number of working employees by laying off unnecessary jobs (C22, C23, and C25) or hiring new ones (C24, C26, C27, and C28).

Lack of encouragement for developing the business (C25). The government does not do enough to motivate the business owners to develop their companies.

Finding supportive bodies to help in developing their business (C22).

Financial protection and payments (C25).

Increase communication within the supply chain (C27).

Public safety C28).

2.11.2. Mimetic isomorphism

Mimetic isomorphism can result from imitation due to uncertainty, the more the company is uncertain how to reach its goal the more it will start to copy successful companies in its area/ sector. This isomorphism is more about companies worrying about failure rather than attempting to recreate what has already been successful in the market, without being the one to develop a new strategy; however, following the lead of other companies might not result in replication of their success as every organisation has its own particular context (Kauppi, K., 2012).

Applying mimetic isomorphism to the printing and packaging sector has resulted in:

Social pressure for recycling and reducing the use of plastic (all companies). New markets were opened far from the countries in the region of the turmoil, such as in Africa, Europe, and America (C23, C25, C27, and C28).

Women's empowerment as society does not always accept women working in a factory (C27 and C28).

Keeping communication with their suppliers (C25).

Relying on companies' branches (C23).

Alliance with other companies (C22 and C28).

Companies' tendency to become more sustainable, environmentally friendly, and increase the recycling level (C22, C24, C26, and C27).

2.11.3. Normative isomorphism

Normative isomorphism can result from professionalisation whereby personnel from each speciality decide the rules and methods for their speciality, which will result in people with the

same education and experience processing cases in a similar way, and will eventually lead to creating homogeneity.

Applying normative isomorphism on the printing and packaging sector has resulted in:

The Jordanian government used to charge 35 JOD for every ton of printing waste sent to Saudi Arabia, in order to reduce the waste being sent outside Jordan, but recently, in the middle of 2019, the government agreed to exempt C22 from this amount due to the lack of kneaders doing this work in Jordan.

The use of robots to work in the factory (C24), to benefit from artificial intelligence, increase productivity, and reduce the reliance on employees.

Companies' managerial mentality stops them from reaching international markets (C24 and C27).

Customers' lack of awareness regarding product certificates that the company holds and looking mainly at the prices required to obtain them (C27 and C28).

Starting to obtain certifications or training (C22, C27, and C28).

Employee's skill/ knowledge (C24).

2.12. The influence of Arab Spring

"The impact of the Arab Spring was on the spot, meaning it was overnight" (C28 Owner, 2019).

Overall, the influences of the Arab Spring on the interviewed companies from the printing and packaging sector were as follows:

For C22: Overall, the company is managing to return to its previous status and working on developing its machinery and employees' skills. Even though the Arab Spring had a direct negative impact on the company at the beginning of the turmoil, the funds and support from external parties have benefitted the company a lot and helped it to survive and develop its production

For C23: Overall, the company benefitted a lot at the beginning of the turmoil. Then, due to the closure of the Syrian borders the company lost its main market. However, the company worked on entering new markets and overcoming the lost ones, and even improved its spread worldwide. This is in addition to the fact that it received external funds.

For C24: Overall, the company wishes that Arab Spring had happened 20 years ago as it has had a very positive impact on the company. It has helped in improving the quality of work, improving production rate, reducing cost, developing the factory, and increasing the company's profitability.

For C25: Overall, the company has benefitted from the Arab Spring, in that it increased its sales and profitability to 40-50%. Then the profit declined, but the company is still achieving 20% profit annually. The company benefitted from the Arab Spring taking place in Syria but was harmed due to the closure of the borders and the inability to reach the Lebanese market, which was controlled by Iran.

For C26: Overall, the Arab Spring had more of a positive than a negative impact. The company's production, sales, and profitability have increased. The competition had little influence on the company as any customer who switched to another company subsequently returned to it due to

the high quality that the company provided. Even so, the company has applied for external funding but has not yet gained approval for it.

For C27: Overall, the company has benefitted from the Arab Spring, which helped it to increase production, sales, profit, and enter new markets. Also, the funds that came due to the Arab Spring helped it to acquire a quality certificate that will help it to spread further into non-traditional markets.

And finally, for C28: Overall, the company's position after the Arab Spring is better than before, as a result of the company's vision and its ability to deal with this crisis.

This research hopes to contribute to the supply chain resilience literature through its efforts to investigate and address one of the research gaps in this area. Also, this research hopes to help practising managers in general and those in the developing countries in particular to better understand the importance of the SCR concept and how to use it in their companies in order to increase their flexibility, avoid disruptions, and, where possible, to gain advantage from such disruptive situations.

Reference

- Abdelzaher, D., Latheef, Z. and Abdelzaher, A. (2017) 'Recovering from conflict and uncertainty post Arab Spring', *International Journal of Conflict Management*, 28(2), pp. 222–244. doi: 10.1108/IJCMA-02-2016-0005.
- Abe, M. and Ye, L. (2013) 'Building Resilient Supply Chains against Natural Disasters: The Cases of Japan and Thailand', *Global Business Review*, 14(4), pp. 567–586. doi: 10.1177/0972150913501606.
- Ahi, P. and Searcy, C. (2013) 'A comparative literature analysis of definitions for green and sustainable supply chain management', *Journal of Cleaner Production*. Elsevier Ltd, 52, pp. 329–341. doi: 10.1016/j.jclepro.2013.02.018.
- Akhter, B., Uddin, M. B. and Jahan, L. B. (2018) 'Theories of Supply Chain Management: A Critical Analysis', *The Cost and Management*, 46(01), pp. 1–6.
- Alhassan, A., L. Li, K. Reddy, and G. Duppatti. 2021. "The Relationship Between Political Instability and Financial Inclusion: Evidence from Middle East and North Africa." *International Journal of Finance and Economics* 26: 353–374. doi:10.1002/ijfe.1793.
- Alhojailan, M. I. (2012) 'Thematic Analysis : A Critical Review of Its Process and Evaluation', *WEI International European Academic Conference Proceedings*, 1(2011), pp. 8–21.
- Ali, I. and Gölgeci, I. (2019) 'Where is supply chain resilience research heading? A systematic and co-occurrence analysis', *International Journal of Physical Distribution and Logistics Management*, 49(8), pp. 793–815. doi: 10.1108/IJPDLM-02-2019-0038.
- Ali, I., Nagalingam, S. and Gurd, B. (2017), "Building resilience in SMEs of perishable product supply chains: enablers, barriers and risks", *Production Planning & Control*, Vol. 28 No. 15, pp. 1236-1250.
- Ali, J. (2008) 'Issues in supply chain management in Indian agriculture', *Food for Policy*, 83, pp. 195–225. doi: 10.1017/UPO9788175968462.008.
- Aljazeera (2020) "*What is the Arab Spring, and how did it start?*". Available at: <https://www.aljazeera.com/news/2020/12/17/what-is-the-arab-spring-and-how-did-it-start> (Accessed: 1 May 2022).
- Altay, N., Ramirez, A., (2010). "Impact of disasters on firms in different sectors: implications for supply chains". *J. Supply Chain Manag.* 46 (4), 59–80.
- Ambulkar, S., Blackhurst, J. and Grawe, S. (2015) 'Firm's resilience to supply chain disruptions: Scale development and empirical examination', *Journal of Operations Management*. Elsevier B.V., 33–34, pp. 111–122. doi: 10.1016/j.jom.2014.11.002.
- Arayssi, M. and Fakih, A. (2017) 'Finance–growth nexus in a changing political region: How important was the Arab Spring?', *Economic Analysis and Policy*. Elsevier B.V., 55, pp. 106–123. doi: 10.1016/j.eap.2017.05.001.
- Aronson, J. (1995) 'A Pragmatic View of Thematic Analysis', *The Qualitative Report*, 2(1), pp. 1–3. doi: 10.46743/2160-3715/1995.2069.
- Ayers, J. (2001) 'Defining Supply Chain Management', *Journal of Business Logistics*, 22(2), pp. 1–25. doi: 10.1201/9781420083934.ch2.

- Korbi, F., Slimane, K. and Triki, D. (2021) 'How do international joint ventures build resilience to navigate institutional crisis? The case of a Tunisian-French IJV during the Arab-Spring', *Journal of Business Research. Elsevier Inc.*, 129(May 2020), pp. 157–168. doi: 10.1016/j.jbusres.2021.02.059.
- Baldwin, R., (2011) 'Trade And Industrialisation After Globalisations 2nd Unbundling: How Building And Joining A Supply Chain Are Different And Why It Matters', *National Bureau of Economic Research Working Papers*, No. 17716.
- Barq-rs. El Shaarawy, T. I. (2016). "The general situation of Jordan in light of the Syrian refugee crisis". Available at: <https://barq-rs.com/1768-2/>. (Viewed 02 February 2019).
- Beissinger, M., Jamal, A., & Mazur, K. (2012). Who participated in the Arab spring? A comparison of Egyptian and Tunisian revolutions. *Princeton University*, USA.
- Beamon, B. M., (1999) 'Measuring Supply Chain Performance', *Production and Operations Management*.
- Bhagwat, R. and Sharma, M. K. (2007) 'Performance measurement of supply chain management: A balanced scorecard approach', *Computers and Industrial Engineering*, 53(1), pp. 43–62. doi: 10.1016/j.cie.2007.04.001.
- Birhanu, A. and Wezel, F. C. (2020) 'The competitive advantage of affiliation with business groups in the political environment: Evidence from the Arab Spring', *Strategic Organization*. doi: 10.1177/1476127020952174.
- Bleady, A., Ali, A. H. and Ibrahim, S. B. (2018) 'Dynamic capabilities theory: Pinning down a shifting concept', *Academy of Accounting and Financial Studies Journal*, 22(2), pp. 1–16.
- Bozarth, C.C., Warsing, D.P., Flynn, B.B., Flynn, E.J., 2009. The impact of supply chain complexity on manufacturing plant performance. *J. Oper. Manage.* 27 (1), 78–93.
- Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3(2), pp. 77–101. doi: 10.1191/1478088706qp063oa.
- Braun, V. and Clarke, V. (2014) 'What can "thematic analysis" offer health and wellbeing researchers?', *International Journal of Qualitative Studies on Health and Well-being*, 9, pp. 20–22. doi: 10.3402/qhw.v9.26152.
- Britannica (2013) *Arab Spring pro-democracy protests*. Available at: <https://www.britannica.com/event/Arab-Spring> (Accessed: 1 May 2022).
- British Broadcasting Corporation (BBC) (2013) "Nokia: The rise and fall of a mobile giant".. Available at: <https://www.bbc.com/news/technology-23947212> (Accessed: 1 Dec, 2022).
- British Broadcasting Corporation (BBC) (2019) "Huawei's next phone will not have Google apps". Available at: <https://www.bbc.com/news/technology-49508121> (Accessed: 1 Dec, 2022).
- British Broadcasting Corporation, (BBC) (2013). "Arab uprising: Country by country – Egypt". BBC [Viewed 14 February 2019]. Available from: <https://www.bbc.co.uk/news/world-12482291>.
- British Broadcasting Corporation, (BBC) (2013). "Arab uprising: Country by country – Libya". BBC [Viewed 14 February 2019]. Available from: <https://www.bbc.co.uk/news/world-12482311>.
- British Broadcasting Corporation, (BBC) (2013). "Arab uprising: Country by country – Syria". BBC [Viewed 14 February 2019]. Available from: <https://www.bbc.co.uk/news/world-12482309>.
- British Broadcasting Corporation, (BBC) (2013). "Arab uprising: Country by country – Tunisia". BBC [Viewed 14 February 2019]. Available from: <https://www.bbc.co.uk/news/world-12482315>.

- British Broadcasting Corporation, (BBC) (2013). “Arab uprising: Country by country – Yemen”. BBC [Viewed 14 February 2019]. Available from: <https://www.bbc.co.uk/news/world-12482293>.
- Brusset, X. and Teller, C. (2017), ‘Supply chain capabilities, risks, and resilience’, *International Journal of Production Economics*, Elsevier, Vol. 184 No. June 2016, pp. 59–68.
- Bucheli, M. and Salvaj, E. (2013), “Reputation and political legitimacy: ITT in Chile, 1927-1972”, *Business History Review*, Vol. 87 No. 4, pp. 729-755.
- Buckley, P.J., Chen, L., Clegg, J. and Voss, H. (2020), “The role of endogenous and exogenous risk in FDI entry choices”, *Journal of World Business*, Vol. 55 No. 1.
- Business Creation (2018). *COMPARISON FAMILY BUSINESS THEORIES: SYSTEM THEORY, AGENCY THEORY, RESOURCES BASED THEORY and STEWARDSHIP THEORY Part 2*. Available at: <https://bbs.binus.ac.id/business-creation/2018/06/comparison-family-business-theories-system-theory-agency-theory-resources-based-theory-and-stewardship-theory-part-2/>. (Accessed 27 July 2022).
- Bustinza, O., Arias-Aranda, D. and Gutierrez-Gutierrez, L. (2010), “Outsourcing, competitive capabilities and performance: an empirical study in service firms”, *International Journal of Production Economics*, Vol. 126 No. 2, pp. 276-288.
- Button, K., Martini, G. and Scotti, D. (2016) ‘Impacts of the Arab Spring on trade in airline services’, *Applied Economics Letters*, 23(7), pp. 532–535. doi: 10.1080/13504851.2015.1085632.
- Canadian Broadcasting Corporation (CBC) (2011) “Ericsson to leave Sony Ericsson”. Available at: [\(https://www.cbc.ca/news/science/ericsson-to-leave-sony-ericsson-1.1089970#:~:text=LM%20Ericsson%20and%20Sony%20Corp,billion%20euros\(%241.46%20billion\)\)](https://www.cbc.ca/news/science/ericsson-to-leave-sony-ericsson-1.1089970#:~:text=LM%20Ericsson%20and%20Sony%20Corp,billion%20euros(%241.46%20billion)) (Accessed: 1 Dec, 2022).
- Çankaya, S. Y., Saglam, Y. C. and Sezen, B. (2022) ‘Mapping the landscape of organizational theories for future research themes in supply chain risk management’, *Asia-Pacific Journal of Business Administration*. doi: 10.1108/APJBA-07-2021-0345.
- Cao, M. and Zhang, Q. (2011) ‘Supply chain collaboration: Impact on collaborative advantage and firm performance’, *Journal of Operations Management*. Elsevier B.V., 29(3), pp. 163–180. doi: 10.1016/j.jom.2010.12.008.
- Centobelli, P., Cerchione, R. and Ertz, M. (2019) ‘Managing supply chain resilience to pursue business and environmental strategies’, (July), pp. 1–32. doi: 10.1002/bse.2428.
- Chae, B. (2009) ‘Developing key performance indicators for supply chain: An industry perspective’, *Supply Chain Management*, 14(6), pp. 422–428. doi: 10.1108/13598540910995192.
- Chan, F. T. S. and Kumar, N. (2007) ‘Global supplier development considering risk factors using fuzzy extended AHP-based approach’, *Omega*, 35(4), pp. 417–431. doi: 10.1016/j.omega.2005.08.004.
- Chatelard, G. (2010) ‘Jordan : A Refugee Haven To cite this version : HAL Id : halshs-00514403’.
- Chen, I. J. and Paulraj, A. (2004) ‘Towards a theory of supply chain management: The constructs and measurements’, *Journal of Operations Management*, 22(2), pp. 119–150. doi: 10.1016/j.jom.2003.12.007.
- Cheng, J.-H. and Lu, K.-L. (2017) ‘Enhancing effects of supply chain resilience: insights from trajectory and resource-based perspectives’, *Supply Chain Management: An International Journal*, 22(4), pp. 329–340. doi: 10.1108/SCM-06-2016-0190.

- Chowdhurya, M. H. and Quaddus, M. (2017) 'Supply chain resilience : Conceptualization and scale development using dynamic capability theory', *Intern. Journal of Production Economics*. Elsevier B.V., 188(September 2015), pp. 185–204. doi: 10.1016/j.ijpe.2017.03.020.
- Clarke, V. and Braun, V. (2017) 'Thematic analysis', *Journal of Positive Psychology*. Routledge, 12(3), pp. 297–298. doi: 10.1080/17439760.2016.1262613.
- Collins, C. S. and Stockton, C. M. (2018) 'The Central Role of Theory in Qualitative Research', *International Journal of Qualitative Methods*, 17(1), pp. 1–10. doi: 10.1177/1609406918797475.
- Companies Control Department (2022). "Corporate inquiry". Available at: <https://portal.ccd.gov.jo/searchcriteria> (Accessed: 1 July, 2022).
- Companies Control Department, (2018). "Capital registered in companies, distributed by types of companies - Agriculture". Companies Control Department.
- Companies Control Department, (2018). "Capital registered in companies, distributed by types of companies - Construction". Companies Control Department.
- Companies Control Department, (2018). "Capital registered in companies, distributed by types of companies - Manufacture". Companies Control Department.
- Companies Control Department, (2018). "Capital registered in companies, distributed by types of companies - Services". Companies Control Department.
- Companies Control Department, (2018). "Capital registered in companies, distributed by types of companies - Trade". Companies Control Department.
- Companies Control Department, (2018). "Companies according to their status during the period from 01/01/2011 to 21/07/2018". Companies Control Department.
- Conz, E., & Magnani, G. (2020). A dynamic perspective on the resilience of firms: A systematic literature review and a framework for future research. *European Management Journal*, 38(3), 400–412.
- Cooper, M. C., Lambert, D. M. and Pagh, J. D. (1997) 'Supply Chain Management: More Than a New Name for Logistics', *The International Journal of Logistics Management*, pp. 1–14. doi: 10.1108/09574099710805556.
- Council on Foreign Relations (2020) *The Arab Spring at Ten Years: What's the Legacy of the Uprisings?*. Available at: <https://www.cfr.org/article/arab-spring-ten-years-whats-legacy-uprisings> (Accessed: 1 May 2022).
- Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Cumming, D., O. Rui, and Y. Wu. 2016. "Political Instability, Access to Private Debt, and Innovation Investment in China." *Emerging Markets Review* 29: 68–81. doi:10.1016/j.ememar.2016.08.013.
- Curado, C. and Bontis, N. (2006) 'The knowledge-based view of the firm and its theoretical precursor', *International Journal of Learning and Intellectual Capital*, 3(4), pp. 367–381. doi: 10.1504/IJLIC.2006.011747.
- Cutting-Decelle, A., Young, B., Das, B., Case, K., Rahimifard, S., Anumba, C., and Bouchlaghem, D., (2007) 'A review of approaches to supply chain communications: From manufacturing to construction', *Electronic Journal of Information Technology in Construction*, 12(May 2005), pp. 73–102. doi: 1.

- Darendeli, I., Hill, T., Rajwani, T., & Cheng, Y. (2021). "Surviving the Arab Spring: Socially beneficial product portfolios and resilience to political shock. ahead-of-print (ahead-of-print)" *Multinational Business Review*. <https://doi.org/10.1108/MBR-11-2019-0156>.
- Darendeli, I.S. and Hill, T.L. (2016), "Uncovering the complex relationships between political risk and MNE firm legitimacy: insights from Libya", *Journal of International Business Studies*, Vol. 47 No. 1, pp. 68-92.
- Datta, P. 2017. "Supply Network Resilience: A Systematic Literature Review and Future Research." *The International Journal of Logistics Management* 28 (4): 1387–1424.
- DAVIDSON WRITER (2022). Literary Analysis: "Applying a Theoretical Lens". Available at: <https://davidsonwriter.davidson.edu/literary-analysis-applying-a-theoretical-lens/>. (Accessed 27 July 2022).
- De Villa, M.A., Rajwani, T., Lawton, T. and Mellahi, K. (2018), "To engage or not to engage? a study of corporate political activities in emerging markets with high institutional risk", *Global Strategy Journal*, Vol. 9 No. 2, pp. 208-242.
- Denscombe, M. 2010. *The Good Research Guide: For Small-scale Social Research Projects*.
- McGraw-Hill. Frith, H. and Gleeson, K. 2004. Clothing and Embodiment: Men Managing Body Image and Appearance. *Psychology of Men & Masculinity* 5(1), p. 40.
- Deshpande, A. R. (2012) 'Supply Chain Management Dimensions, Supply Chain Performance and Organizational Performance: An Integrated Framework', *International Journal of Business and Management*, 7(8), pp. 2–19. doi: 10.5539/ijbm.v7n8p2.
- Dolgui, A., Ivanov, D., Rozhkov, M., 2020. "Does the ripple effect influence the bullwhip effect? An integrated analysis of structural and operational dynamics in the supply chain". *Int. J. Prod. Res.* 58 (5), 1285–1301.
- Droge, C., Jayaram, J. and Vickery, S. K. (2004) 'The effects of internal versus external integration practices on time-based performance and overall firm performance', *Journal of Operations Management*, 22(6), pp. 557–573. doi: 10.1016/j.jom.2004.08.001.
- Dubey, R., Gunasekaran, A., Childe, S., Wamba, S., Roubaud, D., and Foropon, C. (2021) 'Empirical investigation of data analytics capability and organizational flexibility as complements to supply chain resilience', *International Journal of Production Research. Taylor & Francis*, 59(1), pp. 110–128. doi: 10.1080/00207543.2019.1582820.
- Dubey, R., A. Gunasekaran, S. J. Childe, T. Papadopoulos, C. Blome, and Z. Luo. 2019. "Antecedents of Resilient Supply Chains: An Empirical Study." *IEEE Transactions on Engineering Management* 66 (1): 8–19.
- Dubey, R., Gunasekaran, A., Childe, S.J., Fosso Wamba, S., Roubaud, D. and Foropon, C. (2019), "Empirical investigation of data analytics capability and organizational flexibility as complements to supply chain resilience", *International Journal of Production Research*, available at: <https://doi.org/10.1080/00207543.2019.1582820> (accessed June 6, 2019).
- Ebrahimi, S. M., Genovese, A. and Kumar, N. (2017) 'Structure-integration relationships in oil and gas supply chains', *International Journal of Operations &*, 38(2), pp. 424–445. doi: <http://dx.doi.org/10.1108/MRR-09-2015-0216>.
- El Baz, J. and Ruel, S. (2021) 'Can supply chain risk management practices mitigate the disruption impacts on supply chains' resilience and robustness? Evidence from an empirical survey in a COVID-19 outbreak era', *International Journal of Production Economics*, 233(June 2020), pp. 1–12. doi: 10.1016/j.ijpe.2020.107972.

- Elbanna, S., Abdelzaher, D. M., & Ramadan, N. (2020). "Management research in the Arab World: What is now and what is next?" *Journal of International Management*, 26(2).
- Elzarka, S. M. (2013) 'Supply chain risk management: The lessons learned from the Egyptian revolution 2011', *International Journal of Logistics Research and Applications*, 16(6), pp. 482–492. doi: 10.1080/13675567.2013.846307.
- Eqtsad.net, (2014). 441 "Syrian companies registered in Jordan within 10 months". Available at: <https://www.eqtsad.net/news/article/8508/>. (Accessed 04 February 2019).
- Erkens, D. H., Hung, M. and Matos, P. (2012) 'The theory of corporate finance', *Journal of Corporate Finance journal*, 18(1), pp. 389–411. doi: 10.1016/j.jcorp.
- Rosza, E. N., Abu-Dalbouh, W., Al-Wahishi, A., Bahgat, G., Baskin, G., Berger, L., Guney, N. A., Khalil, A., Podeh, C., Shaban, O. (2012) 'The Arab Spring It's impact on the region and the middle east conference', *Academic Peace Orchestra Middle East*, 9/10, p. 20.
- Fiksel, Joseph, Mikaella Polyviou, Keely L. Croxton, and Timothy J. Pettit. 2015. "From Risk to Resilience: Learning to Deal with Disruption." *MIT Sloan Management Review* 56 (2): 79.
- Flynn, B.B., Huo, B. and Zhao, X. (2010), 'The impact of supply chain integration on performance: A contingency and configuration approach', *Journal of Operations Management*, Vol. 28 No. 1, pp. 58–71.
- Frynas, J.G. and Mellahi, K. (2003), "Political risks as firm-specific (dis)advantages: evidence on transnational oil firms in Nigeria", *Thunderbird International Business Review*, Vol. 45No. 5, pp. 541-565.
- Yang, Ga, M., Hong, P., Modi, S. (2011) 'Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms', *Intern. Journal of Production Economics*. Elsevier, 129(2), pp. 251–261. doi: 10.1016/j.ijpe.2010.10.017.
- Gasiorek, M. (2013) 'The Arab Spring Implications for Economic Integration', *Centre for Economic Policy Research and Forum*.
- Genovese, A., Lenny Koh, S.C., Kumar, N. and Tripathi, P.K. (2013), 'Exploring the challenges in implementing supplier environmental performance measurement models: A case study', *Production Planning and Control, Taylor & Francis*, Vol. 25 No. 13–14, pp. 1198–1211. doi: 10.1080/09537287.2013.808839.
- Ghosh, S. (2016) 'Political transition and bank performance: How important was the Arab Spring?', *Journal of Comparative Economics*. Elsevier B.V., 44(2), pp. 372–382. doi: 10.1016/j.jce.2015.02.001.
- Gopal, P. R. C. and Thakkar, J. (2012) 'A review on supply chain performance measures and metrics: 2000-2011', *International Journal of Productivity and Performance Management*, 61(5), pp. 518–547. doi: 10.1108/17410401211232957.
- Gunasekaran A., Patel C. and Tirtiroglu E., (2001), Performance measures and metrics in a supply chain environment, *International journal of operations and production management*, vol. 21, n° 1.
- Gunasekaran, A. and Kobu, B. (2007) 'Performance measures and metrics in logistics and supply chain management: A review of recent literature (1995-2004) for research and applications', *International Journal of Production Research*, 45(12), pp. 2819–2840. doi: 10.1080/00207540600806513.
- Gunasekaran, A., Choy, K.-L., Papadopoulos, T., Irani, Z. and Filippi, L. (2015), 'Performance measures and metrics in outsourcing decisions: A review for research and applications', *International Journal of Production Economics, Elsevier*, Vol. 161, pp. 153–166.

- Gunasekaran, A., Hong, P. and Fujimoto, T. (2014), 'Building supply chain system capabilities in the age of global complexity: Emerging theories and practices', *International Journal of Production Economics*, Vol. 147 No. PART B, pp. 189–197.
- Halldorsson, A. Kotzab, H., Mikkola, J., and Skjott-Larsen, T. (2007) 'Complementary theories to supply chain management', *Supply Chain Management*, 12(4), pp. 284–296. doi: 10.1108/13598540710759808.
- Halldórsson, Á., Hsuan, J. and Kotzab, H. (2015) 'Complementary theories to supply chain management revisited – from borrowing theories to theorizing', *Supply Chain Management*, 20(6), pp. 574–586. doi: 10.1108/SCM-06-2015-0228.
- Hassini, E., Surti, C. and Searcy, C. (2012) 'A literature review and a case study of sustainable supply chains with a focus on metrics', *International Journal of Production Economics*. Elsevier, 140(1), pp. 69–82. doi: 10.1016/j.ijpe.2012.01.042.
- Hazena, T., Sahla, J., Fräsera, C., Donnenbergc, M., Scheutzd, F., and Rasko, D. (2013) 'Refining the pathovar paradigm via phylogenomics of the attaching and effacing *Escherichia coli*', *Proceedings of the National Academy of Sciences*, 110(31), pp. 12810–12815. doi: 10.1073/pnas.1306836110.
- Hitt, M. A., Xu, K. and Carnes, C. M. (2016) 'Resource based theory in operations management research', *Journal of Operations Management*. Elsevier Ltd, 41(January 2019), pp. 77–94. doi: 10.1016/j.jom.2015.11.002.
- Hitt, M.A., (2011). Relevance of strategic management theory and resrach for supply chain management. *J. Supply Chain Manage.* 47 (1), 9–13.
- Ho, W., Zheng, T., Yildiz, H. and Talluri, S. (2015), "Supply chain risk management: a literature review", *International Journal of Production Research*, Vol. 53 No. 16, pp. 5031- 5069.
- Holweg, M., Pil, F.K., 2008. Theoretical perspectives on the coordination of supply chains. *J. Oper. Manage.* 26 (3), 389–406.
- Hopp, W. J., Irvani, S. M. R. and Liu, Z. (2012) 'Supply Chain Disruptions', *Supply Chain Disruptions: Theory and Practice of Managing Risk*, pp. 21–49. doi: 10.1007/978-0-85729-778-5.
- Humphrey, J., (2003) 'Globalization and Supply Chain Networks: the Auto Industry in Brazil and India', *Global Networks*, 3: 121141.
- Ianchovichina, E. and Ivanic, M. (2016) 'Economic Effects of the Syrian War and the Spread of the Islamic State on the Levant', *World Economy*, 39(10), pp. 1584–1627. doi: 10.1111/twec.12400.
- International Labour Organization. (2015). "Access to work for Syrian refugees in Jordan: a discussion paper on labour and refugee laws and policies". Available at: http://www.ilo.org/beirut/publications/WCMS_357950/lang--en/index.htm (Accessed 24 Aug. 2018).
- Jajja, M. S. S., Chatha, K. A. and Farooq, S. (2018) 'Impact of supply chain risk on agility performance: Mediating role of supply chain integration', *International Journal of Production Economics*. Elsevier B.V., 205 (September 2017), pp. 118–138. doi: 10.1016/j.ijpe.2018.08.032.
- Javadi, M. and Zarea, K. (2016) 'Understanding Thematic Analysis and its Pitfall', *Journal of Client Care*, 1(1), pp. 22–27. doi: 10.15412/j.jcc.02010107.
- Jiménez, A. and Alon, I. (2018), "Corruption, political discretion and entrepreneurship", *Multinational Business Review*, Vol. 26 No. 2, pp. 111-125.

- Jiménez, A., Benito-Osorio, D., Puck, J. and Klopff, P. (2018), “The multi-faceted role of experience dealing with policy risk: the impact of intensity and diversity of experiences”, *International Business Review*, Vol. 27 No. 1, pp. 102-112.
- Jiménez, A., Puche-Regaliza, J.C., Jiménez-Eguizabal, J.A. and Alon, I. (2017), “Political discretion and corruption: the impact of institutional quality on formal and informal entrepreneurship”, *European J. Of International Management*, Vol. 11 No. 3, pp. 280-300.
- Jiménez-Jiménez, D. and Sanz-Valle, R. (2011) ‘Innovation, organizational learning, and performance’, *Journal of Business Research*. Elsevier Inc., 64(4), pp. 408–417. doi: 10.1016/j.jbusres.2010.09.010.
- John, A. and Lawton, T. (2017), “International political risk management: perspective, approaches and emerging agendas”, *International Journal of Management Reviews*, Vol. 20 No. 4, pp. 847-879.
- Jordan Renewable Energy & Energy Efficiency Fund (JREEEF) (2021). Available at: http://jreeef.memr.gov.jo/En/Pages/About_JREEEF (Accessed 24 June. 2021).
- Jüttner, U. and Maklan, S. (2011) ‘Supply chain resilience in the global financial crisis: an empirical study’, *Supply Chain Management: An International Journal*, 16(4), pp. 246–259. doi: 10.1108/13598541111139062.
- Jüttner, U., Peck, H., Christopher, M., 2003. “Supply chain risk management: outlining an agenda for future research”. *Int. J. Logist.* 6 (4), 197–210.
- Kahveci, M. (2019) ‘From spring to winter? An analysis of “Arab spring” impacts on Turkey and MENA region foreign trade with gravity approach’, *Asian Economic and Financial Review*, 9(12), pp. 1320–1334. doi: 10.18488/journal.aefr.2019.912.1320.1334.
- Kakabadse, A., Kakabadse, N., 2005. “Outsourcing: current and future trends”. *Thunderbird Int. Bus. Rev.* 47 (2), 183–204.
- Kamalahmadi, M. and Parast, M.M. (2016), ‘A review of the literature on the principles of enterprise and supply chain resilience: Major findings and directions for future research’, *International Journal of Production Economics*, Elsevier, Vol. 171, pp. 116–133.
- Kaplan, R. and Norton, D. (1996) ‘Strategy & Leadership’, *Iss Strategy & Leadership*. doi: 10.1108/SL-06-2015-0054.
- Kauppi, K. (2012) ‘Extending the use of institutional theory in operations and supply chain management research: Review and research suggestions’, *International Journal of Operations and Production Management*, 33(10), pp. 1318–1345. doi: 10.1108/IJOPM-10-2011-0364.
- Kauppi, K. and Luzzini, D. (2021) ‘Measuring institutional pressures in a supply chain context: scale development and testing’, *Supply Chain Management*, (August). doi: 10.1108/SCM-04-2021-0169.
- Ketchen, D. J. and Giunipero, L. C. (2004) ‘The intersection of strategic management and supply chain management’, *Industrial Marketing Management*, 33(1), pp. 51–56. doi: 10.1016/j.indmarman.2003.08.010.
- Ketchen, D. J. and Hult, G. T. M. (2007) ‘Bridging organization theory and supply chain management: The case of best value supply chains’, *Journal of Operations Management*, 25(2), pp. 573–580. doi: 10.1016/j.jom.2006.05.010.
- Ketchen, D. J., Tomas, G. and Hult, M. (2011) ‘Building theory about supply chain management: Some tools from the organizational sciences’, *Journal of Supply Chain Management*, 47(2), pp. 12–18. doi: 10.1111/j.1745-493X.2011.03220.x.

- Ketchen, D.J. and Giunipero, L.C. (2004), 'The intersection of strategic management and supply chain management', *Industrial Marketing Management*, Vol. 33 No. 1, pp. 51–56.
- Khan, M. 2014. The Economic Consequences of the Arab Spring. *Atlantic Council of the United States*. Vol. 45, pp. 296–313.
- Kiger, M. E. and Varpio, L. (2020) 'Thematic analysis of qualitative data: AMEE Guide No. 131', *Medical Teacher*. Taylor & Francis, 42(8), pp. 846–854. doi: 10.1080/0142159X.2020.1755030.
- Kleindorfer, P., and Saad, G., (2005) 'Managing Disruption Risks in Supply Chains', *Production And Operations Management*, Vol. 00, No. 0, pp. 1-17.
- Klomp, J. (2021) 'The Arab Spring and the International Defense Market', *Business and Politics*, pp. 202–220. doi: 10.1017/bap.2020.11.
- Kumar, V., Bak, O., Guo, R., and Garza-Reyes, J., (2018) 'An empirical analysis of supply and manufacturing risk and business performance: a Chinese manufacturing supply chain perspective', *Supply Chain Management*, 23(6), pp. 461–479. doi: 10.1108/SCM-10-2017-0319.
- Kummer, S., Herold, D., and Schäfer, N. (2020) 'A systematic review of blockchain literature in logistics and supply chain management: Identifying research questions and future directions', *Future Internet*, 12(3). doi: 10.3390/fi12030060.
- Landeghem, R, Persoons. K. (2001) 'Benchmarking of logistical operations based on a causal model', *International Journal of Operations & Production Management*, 21 (1/2), pp. 254–266. doi: <http://dx.doi.org/10.1108/MRR-09-2015-0216>.
- Landgraf, T. (2012) 'Supply Chain Disruptions', *Above the Standard Procurement Group*, P. 1-26.
- Lau, A. K. W., and W. Lo. 2015. "Regional Innovation System, Absorptive Capacity and Innovation Performance: An Empirical Study." *Technological Forecasting and Social Change* 92: 99–114. doi:10.1016/j.techfore.2014.11.005.
- Leackcivilize, A. (2012) 'The Impact of Supply Chain Disruptions: Evidence from the Japanese Tsunami', *Job Market Paper*, P. 1-29.
- Leuz, C. and Oberholzer-Gee, F. (2006), "Political relationships, global financing, and corporate transparency: evidence from Indonesia", *Journal of Financial Economics*, Vol. 81No. 2, pp. 411-439.
- Longo, F. and Ören, T. . (2008) 'Supply chain vulnerability and resilience: A state of the art overview', *20th European Modeling and Simulation Symposium, EMSS 2008*, (i), pp. 527–533.
- López-Gamero, M. D., Molina-Azorín, J. F. and Claver-Cortés, E. (2009) 'The whole relationship between environmental variables and firm performance: Competitive advantage and firm resources as mediator variables', *Journal of Environmental Management*, 90(10), pp. 3110–3121. doi: 10.1016/j.jenvman.2009.05.007.
- Luck, B. T. (2016) 'Syrian refugees : Can Europe help Jordan turn a burden into a boon ?', pp. 1–8.
- Mansfeld, Y. and Winckler, O. (2015) 'Can this be spring? Assessing the impact of the "Arab Spring" on the Arab tourism industry', *Tourism*, 63(2), pp. 205–223.
- Maskel, B. (1989). Performance measures for world class manufacturing. *Management Accounting*, 5, 32–33.

- Meherishi, L., Narayana, S. A. and Ranjani, K. S. (2019) ‘Sustainable packaging for supply chain management in the circular economy: A review’, *Journal of Cleaner Production*. Elsevier Ltd, 237, p. 117582. doi: 10.1016/j.jclepro.2019.07.057.
- Melnyk, S.A., Closs, D.J., Griffis, S.E., Zobel, C.W. and Macdonald, J.R. (2014), “Understanding supply chain resilience”, *Supply Chain Management Review*, Vol. 18 No. 1, pp. 34-41.
- Merriam, S. B., & Tisdell, E. J. (2016). “Qualitative research: A guide to design and implementation”. *San Francisco, CA: Jossey-Bass*.
- Min, S., Zacharia, Z. G. and Smith, C. D. (2019) ‘Defining Supply Chain Management: In the Past, Present, and Future’, *Journal of Business Logistics*, 40(1), pp. 44–55. doi: 10.1111/jbl.12201.
- Mngadi, A. (2018) “The role of theory in research and practice”. *GRIN Verlag*.
<https://www.grin.com/document/444409>
- Mondragon, A.E.C., Lalwani, C. and Mondragon, C.E.C. (2011), “Measures for auditing performance and integration in closed-loop supply chains”, *Supply chain Management: An International Journal*, Vol. 16 No. 1, pp. 43-56.
- Morad, L. and Houssam, R. M. (2019) ‘Supply Chain Flexibility and Financial Performance “Morocco Case Study”’, in *7th International OFEL Conference on Governance, Management and Entrepreneurship: Embracing Diversity in Organisations*, pp. 86–97.
- Namdar, J., Li, X., Sawhney, R., and Pradhan, N., (2017) ‘Supply chain resilience for single and multiple sourcing in the presence of disruption risks’, *International Journal of Production Research*. *Taylor & Francis*, 7543(November), pp. 1–22. doi: 10.1080/00207543.2017.1370149.
- National Geographic (2019) *What was the Arab Spring and how did it spread?*. Available at: <https://www.nationalgeographic.com/culture/article/arab-spring-cause> (Accessed: 1 May 2022).
- National Legislative Bodies / National Authorities (1952), *The Constitution of The Hashemite Kingdom of Jordan*. Available at: <https://www.refworld.org/docid/3ae6b53310.html> (Accessed: 14 August 2022).
- Neely, A., Gregory, M. and Platts, K. (1995), A Literature Review and Research Agenda, *International Journal of Operations & Production Management*, Vol. 15, available at: <https://doi.org/10.1108/01443579510083622>.
- Niederman, F. and March, S. (2019) ‘The “theoretical lens” concept: We all know what it means, but do we all know the same thing?’, *Communications of the Association for Information Systems*, 44(1), pp. 1–33. doi: 10.17705/1CAIS.04401.
- Nikookar, E., Varsei, M. and Wieland, A. (2021) ‘Gaining from disorder: Making the case for antifragility in purchasing and supply chain management’, *Journal of Purchasing and Supply Management*. Elsevier Ltd, 27(3), p. 100699. doi: 10.1016/j.pursup.2021.100699.
- Northcentral University Library (2022). “*Research Process*”. Available at: <https://library.ncu.edu/researchprocess/theoreticalframeworks>. (Accessed 27 July 2022).
- Nowell, L., Norris, J., White, D., and Moules, N. (2017) ‘Thematic Analysis: Striving to Meet the Trustworthiness Criteria’, *International Journal of Qualitative Methods*, 16(1), pp. 1–13. doi: 10.1177/1609406917733847.
- OANDA, (2023). “*OANDA CURRENCY CONVERTER*”. Available at: <https://www.oanda.com/currency-converter/en/?from=TND&to=GBP&amount=1> Accessed: 1 January 2023).

- Olugu, E. U. and Wong, K. Y. (2012) ‘An expert fuzzy rule-based system for closed-loop supply chain performance assessment in the automotive industry’, *Expert Systems with Applications*. Elsevier Ltd, 39(1), pp. 375–384. doi: 10.1016/j.eswa.2011.07.026.
- Onwuegbuzie, A. J. and Johnson, R. B. (2006) ‘The validity issue in mixed research’, *Research in the schools*, 13(1), pp. 48–63. doi: 10.1016/j.jsis.2005.08.002.
- Organisation for Economic Co-operation and Development (2020). “*Enterprises by business size*”. Available at: <https://data.oecd.org/entrepreneur/enterprises-by-business-size.htm> (Accessed: 20 June 2022).
- Pakurár, M., Haddad, H., Nagy, J., Popp, J., and Oláh, J. (2019) ‘The impact of supply chain integration and internal control on financial performance in the Jordanian Banking Sector’, *Sustainability (Switzerland)*, 11(5). doi: 10.3390/su11051248.
- Panwar, A., Jain, R., Rathore, A., Nepal, B., and Lyons, A. (2018) ‘The impact of lean practices on operational performance—an empirical investigation of Indian process industries’, *Production Planning and Control*. Taylor & Francis, 29(2), pp. 158–169. doi: 10.1080/09537287.2017.1397788.
- Pettit, T. J., Croxton, K. L. and Fiksel, J. (2019) ‘The Evolution of Resilience in Supply Chain Management: A Retrospective on Ensuring Supply Chain Resilience’, *Journal of Business Logistics*, 40(1), pp. 56–65. doi: 10.1111/jbl.12202.
- Ponis, S. T., and E. Koronis. 2012. “Supply Chain Resilience: Definition of Concept and its Formative Elements.” *Journal of Applied Business Research* 28 (5): 921–929.
- Ponomarov, S. and Holcomb, M., (2009) ‘Understanding the concept of supply chain resilience’, *The International Journal of Logistics Management*, Vol. 20 No. 1, pp. 124-43. doi: 10.1108/09574090910954873.
- Prajogo, D.I. and Olhager, J. (2012), ‘Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration’, *International Journal of Production Economics*, Elsevier, Vol. 135 No. 1, pp. 514–522.
- Prime Minister of Jordan (2023). “*Government Data*”. Available at: <https://www.pm.gov.jo/ar/CustomPages/SearchGovernment> (Accessed: 1 January, 2023).
- Ramezani, J., & Camarinha-Matos, L. M. (2020). “Approaches for resilience and antifragility in collaborative business ecosystems”. *Technological Forecasting and Social Change*, 151, Article 119846.
- Remko, V. H. (2020) ‘Research opportunities for a more resilient post-COVID-19 supply chain – closing the gap between research findings and industry practice’, *International Journal of Operations and Production Management*, 40(4), pp. 341–355. doi: 10.1108/IJOPM-03-2020-0165.
- Researchcor (2020) “*Theoretical Lens*”. Available at: <https://researchcor.com/theoretical-lens/#:~:text=Theoretical%20lens%20in%20qualitative%20analysis,interpretive%20context%20of%20the%20mind>. (Accessed 27 July 2022).
- Robertson, C., Diyab, A., Al-Kahtani, A., “2013. A cross-national analysis of perceptions of corporate governance principles”. *Int. Bus. Rev.* 22 (1), 315–325.
- Rousseau, D. (2015) ‘General Systems Theory: Its Present and Potential’, *Systems Research and Behavioral Science*, 32(5), pp. 522–533. doi: 10.1002/sres.2354.
- Roy, O. (2012). “The transformation of the Arab world”. *Journal of Democracy*, 23(3), 5–18.
- Rózsa, E. N., (2012), “The Arab Spring Its Impact on the Region and on the Middle East Conference”, *Policy Brief For The Middle East*, NOS. 9/10, 1-20.

- Ruiz-Benítez, R., López, C. and Real, J.C. (2018), 'International Journal of Production Economics The lean and resilient management of the supply chain and its impact on performance', *Intern. Journal of Production Economics*, Elsevier B.V., Vol. 203 No. July 2017, pp. 190–202.
- Ryan, C., (2014), "Jordanian Foreign Policy and the Arab Spring", *Journal Essay*, Vol. XXI.
- Sacred Heart University (2022). "Organizing Academic Research Papers: Theoretical Framework". Available at: <https://library.sacredheart.edu/c.php?g=29803&p=185919>. (Accessed 27 July 2006).
- Sáenz, M.J., Revilla, E., (2014). "Creating more resilient supply chains". *MIT Sloan Manag Rev Summer issue*.
- Sahu, S. and Rao, K.V.S.S.N. (2020), "The thematic landscape of literature on supply chain management in India: a systematic literature review", *Benchmarking: An International Journal*, Vol. 28 No. 3, pp. 881-925.
- Sakka , O., Genoulaz, V., (2009) 'A model of Factors Inuencing the Supply Chain Performance', *INSA de Lyon, LIESP*. 6 pages. <hal-00389134>
- Saliba, I., (2016) "Refugee Law and Policy: Jordan". Loc.gov. Available at: <https://www.loc.gov/law/help/refugee-law/jordan.php> (Accessed 24 Aug. 2018).
- Santos, J. B. and Brito, L. A. L. (2012) 'Toward a subjective measurement model for firm performance', *BAR - Brazilian Administration Review*, 9(SPL. ISS), pp. 95–117. doi: 10.1590/S1807-76922012000500007.
- Sashi, C. M. (2012) 'Customer engagement, buyer-seller relationships, and social media', *Management Decision*, 50(2), pp. 253–272. doi: 10.1108/00251741211203551.
- Saunders, M., Lewis, P. and Thornhill, A. (2012) *Research Methods for Business Students*. 5th edn, *Research methods for business students*. 5th edn. Essex: Pearson Education Limited.
- Schmidt, W. and Raman, A. (2012) 'When supply-chain disruptions matter', *Harvard Business School, Cambridge, MA*, p. 34. doi: samsung/academico/material didatico/supply chain.
- Schmitt, A. J. and Singh, M. (2012) 'A quantitative analysis of disruption risk in a multi-echelon supply chain', *International Journal of Production Economics*. Elsevier, 139(1), pp. 22–32. doi: 10.1016/j.ijpe.2012.01.004.
- Scholten, K., Sharkey Scott, P., Fynes, B., 2019. Building routines for non-routine events: supply chain resilience learning mechanisms and their antecedents. *Supply Chain Manag.: Int. J.* 24 (3), 430–442.
- Scholten, K., Stevenson, M. and van Donk, D. P. (2020) 'Dealing with the unpredictable: supply chain resilience', *International Journal of Operations and Production Management*, 40(1), pp. 1–10. doi: 10.1108/IJOPM-01-2020-789.
- Scupola, A. (2009) 'SMEs' e-commerce adoption: Perspectives from Denmark and Australia', *Journal of Enterprise Information Management*, 22(1–2), pp. 152–166. doi: 10.1108/17410390910932803.
- Sellitto, M.A., Pereira, G.M., Borhardt, M., Da Silva, R.I. and Viegas, C.V. (2015), 'A SCOR-based model for supply chain performance measurement: Application in the footwear industry', *International Journal of Production Research*, Vol. 53 No. 16, pp. 4917–4926. doi: 10.1080/00207543.2015.1005251.
- Seuring, S. and Müller, M. (2008) 'From a literature review to a conceptual framework for sustainable supply chain management', *Journal of Cleaner Production*, 16(15), pp. 1699–1710. doi: 10.1016/j.jclepro.2008.04.020.

- Sharma, P., Leung, T. Y., Kingshott, R. P. J., Davcik, N. S., & Cardinali, S. (2020). Managing uncertainty during a global pandemic: An international business perspective.
- Sheffi, Y. (2005) 'BUILDING A RESILIENT SUPPLY CHAIN CAN HELP A COMPANY SURVIVE IN THE FACE OF A CALAMITOUS DISRUPTION', *IEE Manufacturing Engineer*, October/November, pp. 12–15.
- Sheffi, Y. (2005) 'Preparing for the Big One', *IEE Manufacturing Engineer*, (October/November), pp. 12–15.
- Sheffi, Y. and Rice Jr., J. B. (2005) 'A Supply Chain View of the Resilient Enterprise.', *MIT Sloan Management Review*, 47(1), pp. 41–48. doi: 10.1007/978-0-387-79933-9.
- Shepherd, C. and Günter, H. (2006) 'Measuring supply chain performance: Current research and future directions', *Behavioral Operations in Planning and Scheduling*, pp. 105–121. doi: 10.1007/978-3-642-13382-4_6.
- Siegel, J. (2007), "Contingent political capital and international alliances: evidence from South Korea", *Administrative Science Quarterly*, Vol. 52 No. 4, pp. 621-666.
- Singh, N. P. and Singh, S. (2019) 'Building supply chain risk resilience: Role of big data analytics in supply chain disruption mitigation', *Benchmarking*, 26(7), pp. 2318–2342. doi: 10.1108/BIJ-10-2018-0346.
- Singh, P.J., Feng, M. and Smith, A. (2006) 'ISO-9000 series of standards: comparison of manufacturing and service organizations', *International Journal of Quality and Reliability Management*, Vol. 23, No. 2, pp.122–142.
- Social Security Corporation (2019). "Companies Basic Companies Details Report". Social Security Corporation.
- Sodhi, M. M. S. and Tang, C. S. (2021) 'Supply Chain Management for Extreme Conditions: Research Opportunities', *Journal of Supply Chain Management*, 57(1), pp. 7–16. doi: 10.1111/jscm.12255.
- Soni, U., Jain, V. and Kumar, S. (2014) 'Measuring supply chain resilience using a deterministic modeling approach', *Computers and Industrial Engineering*. Elsevier Ltd, 74(1), pp. 11–25. doi: 10.1016/j.cie.2014.04.019.
- Sreedevi, R. and Saranga, H. (2017) 'Uncertainty and supply chain risk: The moderating role of supply chain flexibility in risk mitigation', *International Journal of Production Economics*. Elsevier Ltd, 193(July 2015), pp. 332–342. doi: 10.1016/j.ijpe.2017.07.024.
- Statistics Times., (2018). "Statistics Times". Available from: <https://statisticstimes.com/economy/gdp-nominal-vs-gdp-ppp.php> (Accessed 10 March 2018).
- Studycorgi (2020). "Supply Chain Management Theories". Available at: <https://studycorgi.com/supply-chain-management-theories/>. (Accessed 28 July 2022).
- Talib, F. and Rahman, Z. (2010), 'Talib, F. and Rahman, Z. (2010), "Studying the Impact of Total Quality Management in Service Industries ...", No. January 2010.
- Tan, K. C. (2001) 'A framework of supply chain management literature', *European Journal of Purchasing and Supply Management*, 7(1), pp. 39–48. doi: 10.1016/S0969-7012(00)00020-4.
- Tang, C. (2006) 'Robust strategies for mitigating supply chain disruptions', *International Journal of Logistics: Research and Applications*, Vol. 9, No. 1, P. 33–45.
- The Economist, (2009). "Idea: Supply-Chain Management". Available at <http://www.economist.com/node/13432670> (The Economist April 6 2019).

- The Guardian (2021) “*Arab spring: 10th anniversary*”. Available at: <https://www.theguardian.com/world/ng-interactive/2021/jan/25/how-the-arab-spring-unfolded-a-visualisation> (Accessed: 1 May 2022).
- The National (2011) “*The Arab Spring country by country*”. Available at: <https://www.thenationalnews.com/world/the-arab-spring-country-by-country-1.401358> (Accessed: 1 May 2022).
- The University of Sheffield. (2019). “*Research Services - Approval procedure*”. Available at: <https://www.sheffield.ac.uk/rs/ethicsandintegrity/ethicspolicy/approval-procedure> (Accessed 1 April, 2019).
- The World Bank, (2016). “*The Impact of Syrian Businesses in Turkey*”. Available at: <http://blogs.worldbank.org/arabvoices/impact-syrian-businesses-turkey>. (accessed 5 February 2019).
- Thorne S. 2000. “Data analysis in qualitative research”. *Evid-Based Nurs.* 3(3):68–70.
- Thoughtco (2019). “*8 Countries That Had Arab Spring Uprisings*”. Available at: <https://www.thoughtco.com/arab-spring-uprisings-2353039> (Accessed: 1 May 2022).
- Thoughtco, (2013). “*10 Factors That Led to the Syrian Uprising*” Available at: <https://www.thoughtco.com/top-10-reasons-for-the-uprising-in-syria-2353571> (Accessed 13 February 2019).
- Thoughtco, (2013). “*10 Reasons for the Arab Spring*”. Available at: <https://www.thoughtco.com/the-reasons-for-the-arab-spring-2353041>. (Accessed 13 February 2019).
- Thun, J.-H. and Hoenig, D. (2011) ‘An empirical analysis of supply chain risk management in the German automotive industry’, *International Journal of Production Economics*, 131(1), pp. 242–249. doi: 10.1016/j.ijpe.2009.10.010.
- Thyer, B. A. (2001) ‘What is the role of theory in research on social work practice?’, *Journal of Social Work Education*, 37(1), pp. 9–25. doi: 10.1080/10437797.2001.10779034.
- Todo, Y., Nakajima, K. and Matous, P. (2015) ‘How do supply chain networks affect the resilience of firms to natural disasters? Evidence from the great east Japan Earthquake’, *Journal of Regional Science*, 55(2), pp. 209–229. doi: 10.1111/jors.12119.
- Toni, A. De and Tonchia, S. (2001) “Performance measurement systems”. *International Journal of Operations & Production Management*. Vol. 21 No. 1/2, 2001, pp. 46-70.
- Trading Economics Website., (2018). Trading Economics Website. Available at: <https://tradingeconomics.com/indicators> (Accessed 16 May 2018).
- Tuckett, A. G. (2005) ‘Applying thematic analysis theory to practice: a researcher’s experience.’, *Contemporary nurse: a journal for the Australian nursing profession*, 19(1–2), pp. 75–87. doi: 10.5172/conu.19.1-2.75.
- Tukamuhabwa, B., Stevenson, M., Busby, J., and Zorzini, M., (2017) ‘Supply chain resilience : definition , review and theoretical foundations for further study’, *International Journal of Production Research*, 53(18), pp. 5592–5623. doi: 10.1080/00207543.2015.1037934.
- Ünlü, H. and Alshebami, A. S. (2022) ‘Source of fund, financial constraints, political instability, and firm innovation: empirical evidence from Arab Spring countries’, *Journal of Sustainable Finance and Investment*, 12(1), pp. 195–213. doi: 10.1080/20430795.2021.1964812.
- Veninga, W. and Ihle, R. (2018) ‘Import vulnerability in the Middle East: effects of the Arab spring on Egyptian wheat trade’, *Food Security*. Food Security, 10(1), pp. 183–194. doi: 10.1007/s12571-017-0755-2.

- Wieland, A. and Durach, C. F. (2021) 'Two perspectives on supply chain resilience', *Journal of Business Logistics*, 42(3), pp. 315–322. doi: 10.1111/jbl.12271.
- Wijethilake, C., & Lama, T. (2019). Sustainability core values and sustainability risk management: Moderating effects of top management commitment and stakeholder pressure. *Business Strategy and the Environment*, 28(1), 143–154. <https://doi.org/10.1002/bse.2245>
- Williams, M. and Moser, T. (2019) 'The art of coding and thematic exploration in qualitative research', *International Management Review*, 15(1), pp. 45–55.
- Witte, C., Burger, M., Ianchovichina, E. and Pennings, E. (2016), "Dodging bullets: the heterogeneous effect of political violence on greenfield FDI", Policy Research Working Paper 7914, World Bank Group, MENA Region, Office of the Chief Economist.
- Woon, K.C. (2000), 'Assessment of TQM implementation productivity leaders', *Business Process Management Journal*, Vol. 6 No. 4, p. 314-33-.
- Wu, K.-J. and Liao, C.-J. (2016), 'Industrial Management & Data Systems', *Industrial Management & Data Systems*, Vol. 116 No. 4, pp. 777–800.
- Xu, S., Zhang, X., Feng, L., Yang, W., 2020. Disruption risks in supply chain management: a literature review based on bibliometric analysis. *Int. J. Prod. Res.* <https://doi.org/10.1080/00207543.2020.1717011>. Forthcoming.
- Yayla, S., Yenyurt, S., Uslay, C., and Cavusgil, E. (2018) 'The role of market orientation, relational capital, and internationalization speed in foreign market exit and re-entry decisions under turbulent conditions', *International Business Review*. Elsevier, 27(6), pp. 1105–1115. doi: 10.1016/j.ibusrev.2018.04.002.
- Zhang, Z. and Sharifi, H. (2000) 'A methodology for achieving agility in manufacturing organisations', *International Journal of Operations & Production Management*, Vol. 20, No. 4, pp.496–513.
- Zhao, Y. and Zhang, W. J. (2013) 'Organizational theory: With its applications in biology and ecology', *Network Biology*, 3(1), pp. 45–53. doi: 10.0000/issn-2220-8879-networkbiology-2013-v3-0004.
- Zhou, H. and Benton, W. C. (2007) 'Supply chain practice and information sharing', *Journal of Operations Management*, 25(6), pp. 1348–1365. doi: 10.1016/j.jom.2007.01.009.
- Zhu, H. and Chung, C.N. (2014), "Portfolios of political ties and business group strategy in emerging economies: evidence from Taiwan", *Administrative Science Quarterly*, Vol. 59 No. 4, pp. 599-638.
- Zsidisin, G. A., Melnyk, S. A. and Ragatz, G. L. (2005) 'An institutional theory perspective of business continuity planning for purchasing and supply management', *International Journal of Production Research*, 43(16), pp. 3401–3420. doi: 10.1080/00207540500095613.
- White, G.O., III, Hemphill, T.A., Rajwani, T. and Boddewyn, J.J. (2020), "Does context really matter? The influence of deficient legal services on the intensity of political ties in the regulatory and legal arenas", *Multinational Business Review*, Vol.28 No. 3, doi: 10.1108/ MBR-05-2019-0046.