



Cambridge
International

Professional Research Thesis

Titled

**COVID-19, Metaverse, and Russian-Ukraine
War Impact on Reshaping
The Global Supply Chain Management**

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Supervisor Signature

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Declaration

I hereby declare that the work presented in this thesis has not been submitted for any other degree or professional qualification and that it is the result of my own independent work.

Mohamed Khamis Fathallah Haraz

Date: 23rd Of June 2022.

Acknowledgments

I lost my dad while waiting for my master's degree and have finished this thesis without him. I would like to include a dedication page for him, but I'm not really sure what to say. I know I would like something really short, but more than "I dedicate this thesis to my dad."

I was thinking of including something about how I know how proud he was even though he won't be around to see me graduate. Or perhaps referencing how I hope my dedication to my field in Postgraduate stays as strong as his dedication to his own field (Engineering). I dedicate this work to his soul, and I ask God to have mercy on him.

I would like to thank my small family: My wife and my kids for their support to me during the last ten years to get all these degrees, I haven't managed to find too many words and I'm lost for words to thank them for their support, however, I'm very happy and I thank God for that.

Alexandria on the 23rd of June 2022.

Table of contents

Contents

Declaration	ii
Acknowledgments	iii
Table of contents	iv
Abstract	vii
Chapter 1: Introduction	9
1.1 Background and aims	9
1.1.1 Supply Chain Management SCM	9
What is Supply Chain Management (SCM)?	Error! Bookmark not defined.
Supply chain key elements:	Error! Bookmark not defined.
The history of supply chain management	Error! Bookmark not defined.
Why is Supply Chain Management Important?	Error! Bookmark not defined.
1.2 Five Parts of SCM Activity:	Error! Bookmark not defined.
1.1.2 The Plan Or Strategy:	Error! Bookmark not defined.
1.1.3 The source	Error! Bookmark not defined.
1.1.4 Manufacturing.....	Error! Bookmark not defined.
1.1.5 Delivery and logistics	Error! Bookmark not defined.
1.1.6 Return System.....	Error! Bookmark not defined.
1.3 Supply Chain and Logistics Management:	Error! Bookmark not defined.
1.3.1 Keywords	Error! Bookmark not defined.
History and definitions of logistics Management:	Error! Bookmark not defined.
The relationship of logistics to supply chain management:	Error! Bookmark not defined.
defined.	
Logistics and supply chain definitions in practice:	Error! Bookmark not defined.

COVID-19, Metaverse and Russian-Ukrainian War Impact on Reshaping the Global
Supply Chain Management

Discussion.....**Error! Bookmark not defined.**

Conclusions**Error! Bookmark not defined.**

Chapter 2: THE IMPACT OF COVID-19 ON THE GLOBAL ... Error! Bookmark not defined.

ECONOMY AND GLOBAL SUPPLY CHAIN Error! Bookmark not defined.

2.1 Introduction.....**Error! Bookmark not defined.**

2.2 Global Economic Crisis.....**Error! Bookmark not defined.**

2.3 Economic Policy Failure?**Error! Bookmark not defined.**

2.4 The Impact of the Covid-19 Pandemic on the Supply Chain of Agricultural
Products**Error! Bookmark not defined.**

2.6 Disrupted Commodities and Supply Chain.....**Error! Bookmark not defined.**

Chapter 3: Industrial Revolution 4.0 and supply chain Sustainability Error! Bookmark
not defined.

3.1 Introduction.....**Error! Bookmark not defined.**

3.2 The supply chain ecosystem.....**Error! Bookmark not defined.**

3.3 The evolution of the digital supply chain**Error! Bookmark not defined.**

3.4 Core elements and new Technologies.....**Error! Bookmark not defined.**

**Chapter 4: Overview: Technology Roadmap of the Future Trend of Metaverse based
on IoT, Blockchain, AI Technique.**..... Error! Bookmark not defined.

4.1 Introduction.....**Error! Bookmark not defined.**

4.2 Metaverse, IoT, Blockchain, Artificial Intelligence.....**Error! Bookmark not
defined.**

4.2.1 METAVERSE TECHNIQUES.....**Error! Bookmark not defined.**

4.3 The World From physical reality to the Internet and The Metaverse **Error!
Bookmark not defined.**

4.3.1. Multilayer networks:**Error! Bookmark not defined.**

4.3.2. Sliding Doors: Network-bridging Multi-sided Platforms: **Error! Bookmark not
defined.**

COVID-19, Metaverse and Russian-Ukrainian War Impact on Reshaping the Global
Supply Chain Management

4.3.3. From the Internet to the Metaverse:**Error! Bookmark not defined.**

Chapter 5: THE IMPACT OF RUSSIAN, UKRAINE WAR ON GLOBAL SUPPLY CHAIN-

FOOD-ENERGY & FINANCE **Error! Bookmark not defined.**

5.1 Introduction**Error! Bookmark not defined.**

5.2 Developing countries under the Sword of Damocles: **Error! Bookmark not defined.**

5.3 Food, energy, and finance in more detail:**Error! Bookmark not defined.**

A- Food**Error! Bookmark not defined.**

B- Energy**Error! Bookmark not defined.**

C- Finance**Error! Bookmark not defined.**

D-Trade disruptions and transport costs**Error! Bookmark not defined.**

6.0 Conclusion & Recommendations **Error! Bookmark not defined.**

6.1 Conclusion**Error! Bookmark not defined.**

6.0 Conclusion & Recommendations **Error! Bookmark not defined.**

6.2 Recommendations**Error! Bookmark not defined.**

References..... **Error! Bookmark not defined.**

Abstract

Since the eighties of the last century, Toyota has adopted a Just-In-Time (JIT) as a production management approach or manufacturing technique, The just-in-time, or JIT, inventory system is a strategy in which orders of raw materials for manufacturing are aligned closely with production schedules.

In a JIT system, companies keep on hand only materials that will be immediately used for the production of goods. As there should not be an accumulated or obsolete stock items, and the argument was that this inventory causing incurs the firm heavy costs for its management, Moreover it will be transferred to be an obsolete item over time accordingly, The importance of relying on inventory management decreased in the modern business environment, but after Covid-19 pandemic which affected very significantly on global supply chains, and we saw with the first lockdown the countries and business firms struggled to obtain the raw materials, the companies stopped working and the global supply of strategic commodities decreased, Which prompted us to reconsider the importance of inventory management, and its strong impact on countries and business firms by focusing on the important and growing role of supply chain management overall, This view was reinforced by the recent events of the Russian-Ukrainian war, which had a profound effect. The impact on the global supply of basic goods and services and the direct impact on the supply chain management, we will discuss in this research all these effects and how to use the tools of the Fourth Industrial Revolution to improve and develop the role of supply chain management to avoid the direct and expected impacts of any other global crises.

On the other hand, the COVID-19 pandemic, and the Russian - Ukrainian war have caused considerable damage to various industries worldwide. Availability and supply of a wide range of raw materials, intermediate goods, and finished products have been seriously disrupted. Global supply chains (GSCs), which had shown a high level of robustness and resiliency against several disruptions in recent decades are genuinely compromised.

COVID-19, Metaverse and Russian-Ukrainian War Impact on Reshaping the Global Supply Chain Management

Using a critical reading and a causal analysis of facts and figures, this research aims to investigate the COVID-19 pandemic and the Russian - Ukrainian war have impacts on the effectiveness and responsiveness of Global supply chains (GSCs) and to propose a set of managerial insights to mitigate their risks and enhance their resilience in various industrial sectors. The study showed that the COVID-19 pandemic and the Russian - Ukrainian war have resulted in unprecedented disruptions to the mechanics of most Global supply chains (GSCs) such as pharmaceuticals, food, electronics, the automotive industry, etc. Unlike previous major disruptions,

COVID-19 and the Russian - Ukrainian war have adversely affected Global supply chains (GSCs) throughout all their stages with major turbulences in manufacturing, processing, transport, and logistics, as well as significant shifts in demand. The analysis pinpointed that enhancing the supply chain resilience is the main key driver to reducing vulnerability in disruptive times. Furthermore, the analysis indicated that the Global supply chains (GSCs) after COVID-19 and the Russian - Ukrainian war will tend to be shorter through revamped strategies focusing more and more on relocations and back-shoring.

Chapter 1: Introduction

1.1 Background and aims

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1.1.1 Supply Chain Management SCM

One of the most challenging aspects of running a business is supply chain management (SCM). Especially for organizations with a complex network of business activities, supply management will be more difficult. If this stage can't complete correctly, errors will arise, eventually leading to higher manufacturing and distribution expenses. Because manual control is prone to errors, SCM requires effective supply chain management.

COVID-19, Metaverse and Russian-Ukrainian War Impact on Reshaping the Global
Supply Chain Management