



Exploring the Risk Management Approach in Jordanian Companies: A Logistics Perspective

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ABSTRACT

This study aims to discover the effectiveness of risk management system in Jordanian logistics companies by analyzing Profemi Jordan Company, in terms of main sources of risks that have a critical impact on supply chain's operations and the beneficially of the currently adopted prevention and mitigation strategies. Employing the qualitative approach, data were collected from 150 managers and employees working at Profemi Jordan Company, Amman branch, through conducting in-depth interviews from 2023 until 2024. The findings suggest that suppliers' reliability and geopolitical threats are the major sources of risks in supply chains. The study shed light on how adopting productive supplier evaluation processes and continuously monitoring different supply chain operations and processes can help companies prevent or mitigate potential risks proactively, which assist with enhancing supply chains' resiliency and robustness. Lastly, enhancing companies' risk management strategy required diversifying suppliers and emphasizing cutting-edge technologies to avoid or moderate impacts of potential risks. This study contributes as the first of its kind in exploring qualitatively the risk management approach in Jordanian logistics operations context elucidating major risks sources in supply chains and providing recommendations for decision-makers to improve risk management strategies.

Keywords: Risk Management, Supply Chain, Profemi Jordan Company, Prevention Strategies, Mitigation Strategies

JEL Classifications: L23, D81

1. INTRODUCTION

Supply chains worldwide severe from networks complexity, starting with supplying inputs to delivering goods or services to consumers (Christopher, 2016; Okoye et al., 2024). This challenge was increased by the globalization of business operations, forcing supply chains' decision makers to create effective risk management strategies to protect supply chain operations from risk impacts and to gain a competitive advantage through the curtain harsh competitions (Mentzer, 2004; Bier et al., 2020). Throughout the new business environment, supply chain risk management practices have a crucial role in the success of organizations in different sectors, to prevent or mitigate multiple types of risks that would disrupt the business operations, like economic and political volatility and vulnerabilities across supply chains (Prajogo and Sohal, 2006; Bier et al., 2020).

To achieve an effective risk management in supply chains, risks should be identified clearly, assessed correctly and mitigated as can as possible to improve supply chains' resiliency and stability (Jüttner, 2005; Can Saglam et al., 2021). Several sources of risks in supply chains can be defined, like disruptions in logistics activities, suppliers' failures and geopolitical tensions, allowed to impact negatively the organization's productivity (Blackhurst et al., 2008; Xu et al., 2020).

With increases in supply chain complexity, as a consequence, robust risk management strategies are extremely required, to navigate the preventable risks and to mitigate the impact of potential risks, that will occur defiantly and their effect harms the business operations, if they happen (Tang, 2006; Can Saglam et al., 2021). To explore risks management strategies in Jordanian Logistics organizations, Jordanian leading and supply

chain management organization, called Profemi Jordan Company, was studied, due to their experience in performing operations within a competitive, unstable and risky environment and their robust risk management strategies to have a recovered supply chain (Alan et al., 2014). Profemi Jordan Company manages several logistics activities in supply chains, comprising transportation, warehousing, distribution and procurement, which made it play a crucial role in logistics market in Jordan (Alan and Remko, 2011). The company's deliberated role forced it to face a variety of risks impacted its operations, like market fluctuations, changes in legal environment and disruptions in supply chains. These risks should be effectively managed to ensure the organization's stability and resiliency (Kleindorfer and Saad, 2005; Can Saglam et al., 2021).

Therefore in this context, this research aims to define the significant risks that have a vital influence in logistics activities, assess the effectiveness of currently applied risk prevention and mitigation strategies, and evaluate the existing practices for managing risk management in supply chains. These objectives are planned to be achieved by exploring the risk management approach in Profemi Jordan Company. Finally, the research provides recommendations to optimize the currently applied risk management practices in Profemi Jordan Company.

So, this study answers the following questions;

- Q₁: What are the essential risks faced the logistics activities of Profemi Jordan Company?
- Q₂: Are the applied risk management practices in Profemi Jordan Company effective in preventing or mitigating risks?
- Q₃: How can Profemi Jordan Company enhance the currently risk management system?

The following sections are organized as follows; a comprehensive literature review was conducted and divided into sub-sections; main sources of risks influence logistics operations, the applied risk management strategies in organizations, risk management system in Profemi Jordan Company, and finally the generated theoretical model is exposed. Then, the adopted method for exploring the research questions is presented in the Methodology section. Subsequently, the results are delivered, by examining the collected data in the analysis section. The results are discussed deeply and benchmarked with related literature, to evaluate their consistency, and an emerging model is illustrated in the discussion chapter. Lastly, a summarization is performed in the conclusion section, ending with recommendations for Profemi Jordan Company, to optimize their risk management system accordingly.

2. LITERATURE REVIEW

2.1. Main Sources of Risks Influence Logistics Operations

The resiliency, robustness and safety of supply chains would be disrupted when they sever from macro and micro risks that threat their continuity (Kadry et al., 2017). According to Krykavskyy et al. (2023), different supply chains in Ukraine were interrupted due to main geopolitical risk factors; COVID-19 pandemic and Russian-Ukraine war. Krykavskyy et al. (2023) has adopted a bibliometric analysis, a statistical analysis and a survey to

explore the impact of these geopolitical risk factors on local supply chains. The results show that not only the local supply chains are affected with COVID-19 and Russian-Ukraine war, but also the global supply chains are being unbalanced, where several fluctuations of global GDP, delays in deliveries, shifts in flexibility and differentiation in supply chains' structures, are observed. The Ukrainian logistics sector, in specific, has severed from the predetermined geopolitical risk factors, allowed to huge damages in logistics links, lack of durability and efficiency (Krykavskyy et al., 2023). In the same line, Odulaja et al. (2023), have examined the impact of geopolitical risks of the uncertain and volatile business environment on modern supply chains. The explorations disclosed that several risk factors are threat the resiliency of supply chains related to suppliers diversification, technological improvements and applied policy in organizations (Odulaja et al., 2023).

Arowosegbe et al. (2024) in their study has agreed with previous literature in terms of risk sources by developing a framework to manage risks, starts with a comprehensive risk identification process. They defined that, major risks threaten the shipping and logistics operations are natural disasters, geopolitical challenges and cyber security risks. As claimed by Arowosegbe et al. (2024), the predefined risks impact supply chains negatively, through changes in supplying sources, increasing in shipping costs and supplying delays. Moreover, Bednarski et al. (2024) has supported literature; the geopolitical disruptions are one of the major sources of risks attack supply chains and logistics operations. Okoye et al. (2024), affirmed the responsibility of geopolitical vagueness on the stability of supply chains in United States and Africa, listed in political instability, customs inefficiency. Richert and Dudek (2023) study's findings share the same view as previous ones, where after they conducted a semi-quantitative assessment, they found the most critical risk impacts supply chains harmfully nowadays, are external-environment crisis.

2.2. Applied Risk Management Strategies in Organizations

To manage risks effectively in currently uncertain business environment, proactive risk management practices should be applied through the supply chain, by implementing a qualified risk management map (Richert and Dudek, 2023; Roscoe et al., 2020). Odulaja et al. (2023) recommended adopting proactive risk management practices, like aligning with cutting-edge technologies to prevent or mitigate risks, helps in improving the effectiveness of risks managing process and sustaining the supply chain resiliency (Nina and Ethan, 2019). Furthermore, Arowosegbe et al. (2024) encouraged diversifying supplying sources and their transportation paths and not relying on a single-sourced point, adopting advanced technologies like real-time tracking and monitoring systems and advanced analytics models, monitoring improvements of geopolitical threats and assessing changes in trade policies worldwide, enable addressing risks and manage them proactively, which reflecting on supply chain's resiliency and flexibility.

Bednarski et al. (2024) reviewed systematically related literature to discover how geopolitical disruptions can be managed, and

they concluded that, implementing cutting-edge technologies, like blockchain, AI and 3D-printing, led to optimize supply chain transparency (Nina and Ethan, 2019). Okoye et al. (2024) study is in accordance with previous literature, where they defined that, implementing new-generated technologies in tracking transportation and analyzing data facilitates mitigating risks' impact and improving global supply chains' resiliency.

2.3. Risk Management System in Profemi Jordan Company

The leading edge company, Profemi Jordan, adopts a systematically successful approach to manage risks across the supply chain, starts with identifying and assessing potential risks, by leverage different methods, like risk workshops, brainstorming discussions and consultations of specialists in the domain, in order to distinguish all types of risks hit logistics, like suppliers' breakdowns, logistics disruptions and along those lines (Pettit et al., 2010; Liu et al., 2020). Following that, risks are assessed through evaluating each risk likelihood and impact, using risks matrices and quantitative models, which contributes effectively to prioritize risks, in order to define which should be managed straightaway and which should be postponed overtime (Klibi, 2009; Liu et al., 2020).

In the end of risks assessment process, the organization is permitted to determine the prevention and mitigation strategies. In supply chain risks management, prevention strategies are applied proactively to address and figure out risks before occurrence. One of the critical strategies to prevent risks across supply chains is evaluating suppliers through assessing their financial stability, capabilities in production and commitment to quality standards, to avoid any disruptions by suppliers' breakdowns (Christopher, 2016; Odutola, 2022). Additionally, suppliers' diversification is another strategy to avoid risks, entailing deals with multiple suppliers for each vital component, to prevent dependency on one source. This strategy helps in reducing potential risk generated from suppliers' disruptions in supply chains (Schönsleben, 2016). Nowadays, alongside with technological development, several technologically-based tools can be used to analyze and predict potential risks to manage them proactively, such as AI-driven predictive analytics and supply chain visibility systems (Hugos, 2024).

Several risks can't be prevented, but can be managed to mitigate their impact on the supply chain as can as possible. Different mitigation strategies are effective in reducing the risks' influence, like upholding safety stock in warehouses as a contingency plan, or adopting a risk-sharing strategy to mitigate their financial impact on one organization, as adopting insurance or creating partnerships (Khan and Burnes, 2007; Heizer and Render, 2015). Flexible supply chains that adapt with unpredictable changes rapidly are the most capable to respond effectively to risks (Pettit et al., 2010; Patel, 2023).

2.4. Theoretical Model

The results of Krykavskyy et al. (2023), Odulaja et al. (2023), Arowosegbe et al. (2024), Bednarski et al. (2024), Okoye et al. (2024) and Richert and Dudek (2023), confirmed that suppliers' reliability and geopolitical factors are the most frequently dedicated

sources of risks impact logistics globally. Additionally, Richert and Dudek (2023), Odulaja *et al.* (2023), Arowosegbe et al. (2024), Bednarski et al. (2024) and Okoye et al. (2024) in their studies exposed how the currently applied mitigation and prevention strategies are effective and beneficial in different contexts related to logistics, specifically, the strategies that build on adopting cutting-edge technologies and diversifying supplying sources. Reviewing the contemporary literature related to identifying main sources of risks affecting the resiliency and stability of logistics in different contexts and how these risks are being managed worldwide effectively, contributed to design a theoretical model, as illustrated in (Figure 1). The Figure describes the risks management approach applied in multiple logistics organizations worldwide. The model is studied qualitatively, as explained in the methodology section, to investigate potential sources of risks and the applied risks management strategies in Jordanian logistics company, Profemi Jordan Company, which helps in discovering how the Jordanian logistics aligning with globe concerning risks management.

3. METHODOLOGY

3.1. Research Design

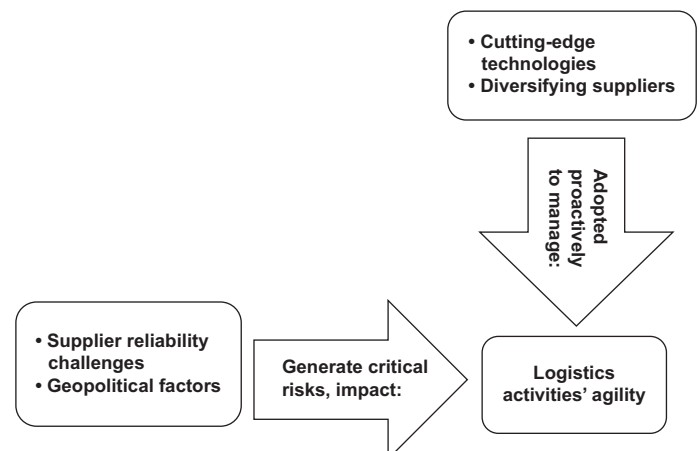
To test the validity of literature results, the consistency of Jordanian context with global one and to answer the research questions precisely, the qualitative research approach was utilized (Haq, 2015). Adopting this exploratory approach assists in discovering the Jordanian risk management approach, specifically the logistics sector, by collecting and interpreting data (Kohlbacher, 2006).

3.2. Interviews

The process of collecting data qualitatively was started in the beginning of 2023 until the last quarter of 2024, in order to extensively understand the applied risk management strategies at Profemi Jordan Company. The research sample was selected according to convenience sampling and the snowballing strategy (Voss et al., 2002). The interviewing process consisted of 150 participants to guarantee diversification of the study's population.

In-depth interviews were conducted with 150 interviewees, consisting of managers and employees within the context of

Figure 1: Impact of main risk sources on logistics activities and the applied risk management strategies. (Source: Authors' own work)



risk management at Profemi Company/Amman branch, from the beginning of 2023 until the end of 2024. The qualitatively gathered data was collected after answering structured questions, categorized into three sections; the main observed risks facing logistics activities within the organization's environment, the currently applied risk management practices at the organization, explicitly the prevention and mitigation strategies and if there is any challenges has faced the organization during implementing the risk management practices. The interviews were conducted in English language, to ensure data related to the applied supply chain risk management in the company is accurate and in the same meaning the interviewees describe. The involved contributors are engaged directly to the process of managing supply chain risks; identifying potential risks, assessing and evaluating their impact and selecting the effective mitigation or prevention practice to handle risks.

To improve the research reliability, each interviewee was provided with the interview guideline by his/her official e-mail in the day before the interview day, to allow participants familiarize with questions and prepare their answers. Additionally, data of each interview was collected and interpreted in the same day, to maintain data credibility.

3.4. Analysis

The qualitatively collected data was analyzed to answer the pre-defined research questions unambiguously.

RQ (1): What are the essential risks faced the logistics activities of Profemi Jordan Company?

As part of the interview, participants were asked to describe the most observed risks noticed during performing the company's logistics activities and have a harmful impact on the company's supply chain. Questions in this concern were presented to participants; to capture what are the types of risks faced the logistics activities of Profemi Jordan Company and the main sources of these risks. As shown in (Table 1), results demonstrate that, main origins of major risks face the supply chain of Profemi Jordan Company and create a considerable impact on its operations are associated with supplier reliability and geopolitical factors.

The analysis process of gathered data reveals that, the supplier reliability factor has the highest risk impact on the supply chain of profemi Jordan Company, where 55% of participants affirm the reliability issues of suppliers have a major influence on the operations of the company, which creates significant challenges district the

supply chain, like delays in deliveries, instable products quality and high dependency on a limited number of essential suppliers. These supplier-related risks have a significant effect on the company, which answers RQ (1). Furthermore, the surrounding geopolitical factors show a high risk impact on the company, where 50% of participants confirmed this indication. They identified the main geopolitical risks that have a high impact are; political instability in the region and variations in trade regulations. This result answers RQ (1).

Otherwise, 45% of participants define that, the logistics disruptions has a high risk impact on the company's operations, but less than those of supplier reliability and geopolitical factors. Additionally, the technological issues and the regulatory changes, gained the least impact, as shown in (Table 1), where 40% of participants defined the regulatory changes has a high risk impact on the company and 25% of participants shows that technological issues have a high risk impact too. So the risk factors of logistics disruptions, technological issues and regulatory changes are not considered as an answer to RQ (1).

RQ (2): Are the applied risk management practices in Profemi Jordan Company effective in preventing or mitigating risks?

Regarding risk management practices implemented in the company, participants were asked, as open-ended questions in the interviews, about the applied prevention and mitigation strategies they have work in or notice other departments in the organization try to manage and their effectiveness. (Table 2) shows several currently applied risk management practices and their effectiveness on the supply chain operations of Profemi Jordan Company, based on participants' answers.

According to the results, 45% of participants claimed that the applied supplier evaluation processes at the company to assess and select suppliers based on, is a highly effective practice to manage potential risks, but 15% of participants asserted that this practice is slightly effective and 10% of them posited that it is not effective at all, which indicated that more improvements on the evaluation process of suppliers are required. Also, 35% of contributors see that conducting contingency planning to manage risks is moderately effective and 30% of them declared that this practice is highly effective and beneficial to deal with risks. Otherwise, 35% of participants still do not agree with the effectiveness of the used contingency planning in their company to manage risks. Accordingly, contingency planning at Profemi Jordan Company is effective, but more resilient plans are imperative for uncertain events.

The applied technological solutions at Profemi Jordan Company to manage risks, like using blockchain and predictive analytics tools, are seen moderately effective from 40% of participants of the company and only 25% of them defined that these applied technological solutions are highly effective. These results show that the applied technologies at Profemi Jordan Company to manage risks are still in the development stage or need updates to be productive.

In addition, 40% of participants confirmed that continuously monitoring of different supply chain operations and processes

Table 1: Risk factors that impact the operations of Profemi Jordan Company

Risk factor	High impact (%)	Moderate impact (%)	Low impact (%)	No impact (%)
Supplier reliability	55	30	10	5
Geopolitical factors	50	35	10	5
Logistical disruptions	45	25	25	5
Technological issues	25	30	30	15
Regulatory changes	40	25	25	10

Source: Authors own work

Table 2: The currently applied risk management practices at Profemi Jordan Company and their effectiveness

Risk management practice	Highly effective (%)	Moderately effective (%)	Slightly effective (%)	Not effective (%)
Supplier evaluation processes	45	30	15	10
Contingency planning	30	35	25	10
Technological solutions	25	40	20	15
Continuous monitoring	40	30	20	10
Crisis management protocols	20	30	30	20

Source: Authors own work

is highly effective to avoid or mitigate risks at profemi Jordan Company and only 10% of them don't support this perspective. As well, only 20% of contributors affirmed that the currently applied crisis management protocols are highly effective in managing risks at Profemi Jordan Company, which indicates that these protocols required a considerable optimization to manage effectively potential crisis that threat the productivity of the supply chain. According to these results, the applied risk management practices at the company are only partially effective, the currently applied risk management approach to prevent and mitigate risks across the supply chain is beneficial, but with recommended improvements on these strategies. So, the results answer RQ (2).

Q3: How can Profemi Jordan Company enhance the currently risk management system?

In the last section of the interview, participants were asked straight to the point, if adopting cutting-edge technological solutions and diversifying suppliers will improve the risk management strategy at Profemi Jordan Company, and as a result of analyzing related data, a significant part of the research sample at the company has demonstrated the requirement for diversifying suppliers to optimize the applied risk management strategy at Profemi Jordan Company, where more than half of participants confirmed that suppliers' reliability is one of the major source of risks that threat the company's operations across the supply chain, like delays in deliveries, instable products quality and high dependency on a limited number of essential suppliers. So, diversifying suppliers would enhance the applied risk management strategy at the company. Additionally, in light of 25% of participants don't agree that the applied technological solutions nowadays have considerable effectiveness to manage risks at the company, these technologies should be updated or improved to create an extensive impact, which answers Q (3).

4. DISCUSSION

4.1. Findings Discussion

This study focuses on exploring the environment of risks management in Jordanian Logistics organizations, by discovering main sources of risks threat logistical activities, how these organizations deal with potential risks and do these risk management strategies effective and beneficial. Profemi Jordan Company was under scope in this study to define the research statement.

The findings reveal that Profemi Jordan Company, as an organization performing logistics activities, suffers, like other global logistics organizations, from risks mainly associated with

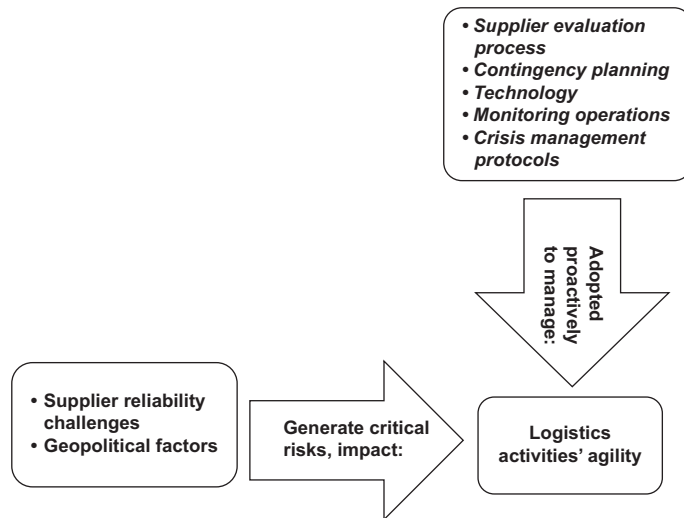
supplier reliability and geopolitical factors, which are displayed in delays in deliveries, instable products quality and high dependency on a limited number of suppliers. This result is consistent with Krykavskyy et al. (2023), Odulaja et al. (2023), Arowosegbe et al. (2024), Bednarski et al. (2024), Okoye et al. (2024) and Richert and Dudek, (2023). Furthermore, the outcomes highlighted on the applied risk management strategies by Profemi Jordan Company, where the results demonstrated that the currently applied risk management approach at Profemi Jordan Company to prevent and mitigate risks across the supply chain is beneficial, but still suboptimal, need more improvement to be fully effective. The adopted strategies nowadays by the company; supplier evaluation process, contingency planning, technological solutions, continuously monitoring supply chain operations and crisis management protocols, are beneficial to manage risks, but not in the required effectiveness as stated by Richert and Dudek (2023), Odulaja et al. (2023), Arowosegbe et al. (2024), Bednarski et al. (2024) and Okoye et al. (2024). Finally, according to the results, Profemi Jordan Company would enhance their currently applied risk management system, by adopting cutting-edge technological solutions and diversifying suppliers, which is aligned with previous literature, where multiple studies encouraged investing in technological infrastructure to improve the effectiveness of risk management strategies and reducing potential inaccuracies when performing risks management stages (Odulaja et al., 2023; Arowosegbe et al., 2024; Bednarski et al., 2024; Okoye et al., 2024). Independency on one-source of supplying is another recommended strategy to apply for enhancing risk management strategy in Profemi Jordan Company, where diversifying supplying sources allows organizations to control supplier-related challenges, this result is harmonious with stated finding in literature (Arowosegbe et al., 2024).

Fundamentally, this research proves that the Jordanian logistics context coincides with global context, in terms of potential risk sources that generate critical threats on logistics activities. Also, there is a considerable match between local and global environments in the applied risk management practices to mitigate and prevent risks.

4.2. Empirical Model

After analyzing the data gathered from a significant leading Jordanian logistics company, Profemi Jordan Company, and studying the alignment of empirical results with literature, the empirical model was designed, as pictured in (Figure 2), showing the impact of main risk sources on logistics activities of Profemi Jordan Company and the main applied risk management strategies the company adopted to prevent or mitigate risks. New emerging dimensions are dedicated in *Italic*.

Figure 2: Impact of main risk sources on Profemi Jordan Company's logistics activities and the applied risk management strategies. (Source: Authors' own work)



5. CONCLUSION

5.1. Theoretical Implications

To build a robust supply chain, effective risk management strategies are fundamental to ensure the stability of companies' operations, which will be reflected in their agility and success in the market. This study has analyzed the situation at Profemi Jordan Company to contribute to proving that suppliers' reliability and geopolitical factors are major sources of risks in supply chains. Additionally, adopting productive supplier evaluation processes and continuously monitoring different supply chain operations and processes can help companies effectively to prevent or mitigate potential risks, which assist with enhancing supply chains' resiliency and robustness. Lastly, enhancing companies' risk management strategy required diversifying suppliers and adopting cutting-edge technologies to avoid or moderate impacts of potential risks.

Ultimately, in this research multiple recommendations are provided to facilitate obtaining an effective risk management strategy in Profemi Jordan Company specifically, beginning with assessing risks frequently, highlighting on suppliers' reliability, geopolitical risks and market changes, in order to diagnosing potential risks and reacting proactively instead of being reactive.

Furthermore, Profemi Jordan Company is recommended to improve their relationships with suppliers, by building collaborations with crucial suppliers to manage risks successfully. Integration with suppliers will facilitate conducting effective communications with them, expand bilateral trust and engage them in processes close to the company, which will streamline information sharing and identifying potential risks as a team.

Also, the company can avoid single-source risks by diversifying suppliers and not depending on limited supply base, which helps in minimizing challenges related to suppliers' failures, variations in quality and likewise. Besides, with well-developed

contingency plans drafting alternative suppliers of crucial ones, variant transportation paths and systematic communication process, Profemi Jordan Company can confront potential risks professionally with less impact on its operations. Finally, Profemi Jordan Company should adopt cutting-edge technologies and data analytics tools to enhance the process of managing risks effectively and efficiently, where a sophisticated tracking and tracing systems, a real-time-based monitoring mechanisms and predictive risks identification tools would promote effective performance monitoring and critical decision making at the company.

This study makes multiple contributions, limited literature has focused in their research on risk management from the logistics perspective, otherwise this study interprets each result according to logistics operations. Additionally, this study enrich literature with a Jordanian context, where there is a considerable absence of Jordanian literature in studying risks impact on Jordanian logistics operations and how Jordanian logistics organizations manage these risks.

5.2. Practical Implications

The study recommends adopting cutting-edge technologies, like real-time tracking and monitoring systems and advanced analytics models, blockchain, AI and 3D-printing technologies. Also, the study highlighted on the necessity for multiple sources of supplying and not relying on one source. The adoption of these critical strategies enhances the effectiveness of risk management process. It emphasizes the significance of decision makers being updated with new emerging technologies in risk management domain, leveraging their characteristics to optimize the organization's risk management system, reflecting on reducing the harm impact of risks on logistics operations. Additionally, the study concentrates on diversifying supplying sources and not making the continuity of organizations' logistics relying on one supplier. Moreover, the study provides several recommendations to Profemi Jordan Company to improve the effectiveness of their risk management process, where any other logistics company has same circumstances as Profemi Jordan Company, can benefit from the recommendations, like assessing risks frequently, highlighting on suppliers' reliability, geopolitical risks and market changes and integrating with their suppliers.

5.3. Future Research Directions

The study has focused specifically on Profemi Jordan Company to explore the main risk sources on Jordanian logistics operations and to define the most effective prevention and mitigation strategies to manage risks, so the results of this study can't be extrapolated. Hence, it is recommended to explore more the Jordanian Logistics companies, in order to generalize results. Additionally, the quantitative approach for exploring the Jordanian risk management of logistics operations is missing, suggesting to consider questionnaire-based research.

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