A Study of the Best Practices and Procedures of Risk Mitigation Techniques in Elastic Supply Chain Management in Government Sector in Jordan. "A Case Study on Arab Potash Company"

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Abstract

Recently, managing risks in the supply chain has taken on great importance due to the vulnerability of the supply chain and the importance of mitigating any disruptions that can affect the business. In a world of highly changeable events, the number of upcoming risks is increasing, and managers' strategies to mitigate these risks should be studied and noted to help mitigate similar issues in the future. Risks in the supply chain tend to occur infrequently but can have significant consequences for a company. Supply chain management has been crippled by the coronavirus epidemic, affecting various sectors. The study aims to explore ways to overcome and mitigate the risks that have been faced during crises such as the coronavirus pandemic. The Arab Potash Company was chosen to be tested as a case study to highlight their success story during the past two years, how they managed to achieve profits, and what their flexible adaptation strategies were that helped them maintain resilience during the pandemic, especially with the importance of potash in the agriculture industry and how it was affected by the border ban and social distance. Data from the company was collected from different teams along with interviews with heads of departments to conclude the basic steps and procedures that can help in mitigating risks and maintaining resilience in the business. The quantitative method was then applied by conducting a survey to test the relationship between different types of risks and responsiveness, performance, technology, and integration to support the qualitative findings of the research. The aim of the dissertation is to focus on the best practices and procedures of supply chain management that can avoid risks and help businesses survive during crises, especially in supply chain management, and more specifically on the elastic supply chain in the government sector in Jordan.

Keywords: Agriculture; flexibility; risk mitigation; risk management; supply chain.

INTRODUCTION

In today's interconnected corporate landscape, supply chain complexity has grown as a result of factors including shorter product life cycles, offshore, and integration. These complexities make supply chain risk avoidance unfeasible. Thus, supply chain management must highlight risk. It is an essential aspect of running business that must be addressed effectively for the company's success. Managing business risks decreases their impact. While there are many studies on risk management, there are surprisingly few on supply chain risk management, making it an intriguing and essential issue for this research. The research emphasizes supply chain risk management. Another goal is to specify the procedures that should be implemented in times of crisis to reduce vulnerability. The final goal is to study how the Arab Potash firm, the seventh biggest potash and minerals firm in the world, has survived the worldwide coronavirus epidemic since the end of 2019, while still producing profits in the previous two years. Examining the company's risk management and supply chain planning experience may assist other managers.

Potash is one of the most significant crop fertilizers, thus farmers must understand its supply chain. Potassium chloride is used for snow melting, metal recycling, and electroplating in many developed nations. Potassium chloride treats hypokalemia and purifies water. The most important reason for inquiry is its relevance to agriculture because to the high danger of border prohibitions, social alienation, and undersupply, which might hurt farmers and generate global food insecurity. The study used a mixed methodology that included an intensive qualitative literature review, in-depth interviews with senior and middle managers from different Arab Potash Company departments, and company data to compare departmental performance over six years, including before and after the pandemic. The findings are meant to give managers an overview of supply chain risk reduction best practices. Instead of seeing this threat as a worldwide economic disaster, organizations may use it to reinvent themselves by becoming more robust to supply chain disruptions.

RESULTS

The study was divided into two parts: qualitative part which was based on interviews on a purposeful sample of managers and head of departments of Arab Potash Company along with the aid of documents and reports that were provided by the company. The interviews were open

ended questions that were then coded and analyzed using ATLAS.ti software resulting into four main themes that are:

- Theme One: Risk Management Planning steps at APC before and during the pandemic. The basic strategy for the company is to avoid or prevent the loss from happening by being proactive for the known and expected risks and reactive when it comes to unknown risks such as disasters and what happened during the pandemic. And based on the respondents, having the responsiveness skill and the right skilled employees with high-experienced management have managed to help the APC come out of the pandemic risk with success. Researchers categorize risk reduction strategies into proactive and reactive measures. Proactive measures include supply chain contracts, product management, and supplier development and management. Reactive techniques include disaster preparedness and demand control (Ghadge *et al*., 2012). Proactive strategies focus on the supply chain, whereas reactive solutions lessen outsourcing risks. Proactively control supply network hazards. Proactive management is "resilience-responsiveness-efficiency" in disruption management (Ivanov *et al.,* 2014; Gunasekaran, 2015). The ability of a supply chain to respond promptly to SCRM disturbances is crucial (Braunscheidel & Suresh, 2009). Responding quickly to external stimuli (particularly market and customer demand) is responsiveness (Sandberg & Jafari, 2018).

There are certain actions that have been taken by the Arab Potash company during the pandemic.

Steps

- Setting business objectives for the strategies, which included employees' safety and wellbeing, customer satisfaction, business continuity, and supporting governmental efforts,
- Identifying critical operations, assets, employees, and stakeholders is the minimum business continuity requirement.
- Implementing international health guidelines to ensure employees' safety

Strategies

- Operations strategies included run to fail and carrying out critical operations in-house, like manufacturing spare parts.
- Human resources strategies included expanding job activities and reducing the degree of specialization.

The APC business management response plan due to COVID-19 that was published by Nsour, M., & Al-rjoub, S., (2021) has concluded all the major actions and strategies that have been taken during the pandemic in Table 1.

- Theme Two: Challenges faced during the Pandemic of Covid-19 and its impact on the supply chain.

Global supply chains have been impacted by the coronavirus pandemic in a number of ways, from the demand side to the logistics side (Mishra *et al*., 2021; Sharma and Kumar, 2021). Enterprises were hit by supply disruptions; for example, exports of face masks ceased when the virus swept throughout India. Several businesses were also harmed by a drop in demand. Despite a rise in the demand for critical goods, concerns have been raised over the possibility of supplies being delayed, goods being delayed from being secured, trips being disrupted unexpectedly, and workers being short-staffed (due to the reverse migration of laborers from cities). That means that supply and demand gaps have grown. Based on the APC Business Response Management Plan during the COVID report by Al-Nsour and Al-Rjoub (2021), the management has understood the importance of keeping the APC business running due to its major impact on Jordan's economy and because of the importance of its product, which is a very important part of the global agriculture supply chain. The impact of stopping the business will be huge. The response plan started by mapping out all the challenges and listing them in Table 1, assigning each problem to a certain department concerned with it in order to identify relevant parties and resources to build communication protocols for the many levels and functionalities of APC. Each challenge has a set of responses that each responsible entity is expected to carry out.

Table 1. APC major challenges during Covid-19 and their response action plan

APC Major Challenges

Board of Directors and Executive Management	• Keep operations in the face of most economic sectors closure. • Ensure Fulfilling the company CSR and the national role. • Lack of conclusive information about coronavirus COVID-19 in the early days of the outbreak. • Ensure full compliance with governmental directions and requirements • Ensure employees and their family's safety and wellbeing
Companywide Challenges	• Companywide process re-Engineer to match available resources, comply with regulatory requirements, and external environment developments.
Health and Safety Challenges	• Ensure employees' _safety without having any COVID-19 infected cases. • Ensure company readiness to handle and contain any infection spread.
Operational Challenges	• Lack of workforce enough to operate plants and equipment. • Risk of Interrupting off-site activities such as equipment manufacturing and steel fabrication. • Risk of leaving construction sites unsecured. • Risk of delays in project engineering and construction activities. • Risk of extra costs related to contract deferrals. • Risk of losing warranties for delivered equipment. • Risk of delays in inspections, commissioning, and testing due to travel restrictions.
Financial Challenges	• Pay vendors for supplies of goods and services. • Prepare Letters of Credit (LC) hard copies. • Prepare payroll and deposits.
Human Resources Challenges	• Ensure manpower availability. • Ensure enough residence and daily needs for employees.
Logistics Challenges	• Movement restrictions in the face of employees, inbound/outbound goods, and documents.
Procurement Challenges	• Secure strategic goods/services needed to maintain operations continuity.
IT Challenges	• Expiration of Microsoft license, and ORACLE ERP support agreements. • Ensure proper remote working and communications without disruptions.

	• Ensure the effectiveness of IT business continuity and disaster recovery plans. • Provide continuous IT support. • Ensure taking backup tapes and adequate data center conditions.
Medical Challenges	• Ensure sufficiency of the medical services capabilities and procedures.

- Theme Three: Technology and digital Transformation after the pandemic

Automated systems and data analytics can help companies improve supply chain resilience, compliance, risk management, and recycling management. Companies will be able to identify supply chain issues such as delays, violations, and a lack of information with the use of AI and intelligent systems. Thomson Reuters says data analytics boost supply chain efficiency by validating data, discovering anomalies, benchmarking processes, allowing mobile reporting, and offering real-time route optimization, improved demand forecasts, and inventory management. As a result of the implementation of blockchain, there will be greater openness and accountability in the supply chain. Blockchain technology has the potential to enhance data management in the supply chain and streamline interactions between suppliers, buyers, exchanges, and transporters. These technologies are essential for improving supply chain visibility.

- Theme Four: Organizational Learning and Lessons Learned

The business continuity report of APC that has been prepared by Al-Nsour, M., and Al-Rajoub, S. (2021) has summed up the lessons learned during the pandemic as the following:

- Develop a comprehensive BCP or RMP.
- Properly set and distribute workforce numbers to meet business processes and needs.
- Develop policies, procedures, and infrastructure for a remote working environment.
- Develop policies, procedures, and infrastructure for a paperless management system.
- deploy a face recognition attendance system.
- Encourage and promote job rotation practices.
- Secure enough contingency cash amounts on all company premises at all times.
- Consider more robust modes of transportation for the product by adopting a more feasible trucking outsourcing model to improve availability.

- Consider more efficient remote FAT in collaboration with major equipment suppliers for APC.
- institutionalize risk management practices at APC.
- Document and disseminate the whole set of risk management actions and RMP in APC during COVID-19.

Variables including "Demand Risk," "Manufacturing Risk," "Supply Risk," "Operational Performance," "Operational Responsiveness," "Technology," and "Integration" were quantified with the use of SPSS software. Different forms of risks and the performance and responsiveness of organizations were assessed by statistical tests of reliability and correlation. The most important details in this text are the positive relationships between demand risk, manufacturing strategy risk, manufacturing inventory risk, supplier relationship risk, supplier delivery risk, and operational performance. The findings show that when there is an increase in demand risk, manufacturing strategy risk, manufacturing inventory risk, supplier relationship risk, supplier delivery risk perception levels, an increase in operational performance perception levels is also observed. Additionally, there are positive and significant relationships between demand risk, manufacturing strategy risk, manufacturing inventory risk, supplier relationship risk, supplier delivery risk, and operational responsiveness. These findings suggest that the perception level of any of these risk types is seen as an increase in the perception level of the others.

DISCUSSION

This research examined the risk mitigation tactics and procedures utilized by APC to manage or overcome high-impact risks like the COVID-19 pandemic. Risks were classified differently based on their source, such as external or internal, financial, technological, reputational, compliance, operational, or fraud risks. APC was able to complete all of its goals throughout the pandemic due to its comprehensive cooperation procedures and proactive tactics, which allowed the firm to identify all of the risks it faces, categorize their impact, develop response measures, and implement them effectively. The exploratory research found that APC is an ambidextrous organization that simultaneously employs proactive and reactive techniques. The strategic management of APC has established proactive strategies to deal with any type of known risk, as well as procedures to deal with each risk.

Additionally, they have qualified personnel who are well-trained and experienced to respond to any new, unknown threat, as well as a backup plan for the situation. During the pandemic, APC was able to convert the majority of the dangers into opportunities to boost productivity, improve technology, increase sales, profitability, and market share. Strategic managers need to think about the many risks their industry faces during a project, the potential consequences of each risk, and the means by which these risks might be mitigated or avoided. Additionally, it is the responsibility of every business to maintain a competent and well-trained workforce that can perform well under stress and uncertainty.

CONCLUSION

The study was able to offer broad rules that can assist businesses in overcoming threats in any situation. The main guidelines are as follows:

- First, every organization must design a strategic business theme that encompasses short-, medium-, and long-term goals and then convey these themes to all divisions with clear actions and a vision.
- Second, the talent-strategic HR department must ensure that the organization has the appropriate skills and workforce in order to develop and preserve its sustainability. In addition, ensuring that employees have the latest technology and training required for their employment And as a result, the company will be continuously prepared to invent new ways to drive the business to greater success and greater accomplishments. Training and directing all upper and intermediate management personnel so that they are prepared to respond to any unexpected incident with expertise and a high degree of responsibility
- Third, having a department of strategic risk management that is responsible for creating scenarios for all potential and uncommon dangers and developing a plan to overcome or minimize them Additionally, having frequent risk assessments and control actions to ensure that all operations are running smoothly and that nothing will negatively impact the firm
- Fourth, technology and digitization: today, any firm must be fully digitized and employ cutting-edge technological advancements that make it ready to perform under all conditions.

- Fifth, create highly integrated systems that may consistently contribute to the organization's success in order to improve communication across all levels of management and between departments.
- Sixth, have a sustainable management planning to ensure resilience, stability and robustness in the business as it is considered very important in supply chain risk management
- Lastly, have a diversified business model portfolio in order to minimize and mitigate risks in supply chains.

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