

## Building Organizational Resilience: In the Role of Supply Chain Management

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### Abstract

Supply chain management plays a pivotal role in the broader landscape of organizational resilience. In an era of globalization and interconnectivity, supply chains have grown increasingly complex. They extend across borders, involve multiple suppliers, and are susceptible to various risks and disruptions. Consequently, the effectiveness of supply chain management is crucial in building and maintaining an organization's resilience (McKinsey., 2022). At the heart of this connection is the acknowledgment that a well-orchestrated supply chain can be both a source of competitive advantage and a safeguard against potential disruptions. Efficient supply chain management enables organizations to maintain uninterrupted operations, even when facing adverse conditions. This paper looks at the role of supply chain management in building supply chain resilience. The research studies previous literature, the current trends in supply chain management, and where we see the tides shifting in the future.

**Keywords:** Supply chain management, organizational resilience.

## 1. Introduction

Organizational resilience, in the context of modern business dynamics, has emerged as a pivotal concept in ensuring a company's survival and prosperity. The ability of an organization to withstand and recover from disruptions, adapt to changes, and grow stronger in the face of adversity has become synonymous with sustainability in an ever-evolving global market (Zsidisin, 2018). This paper explores the essential interplay between building organizational resilience and the role of supply chain management. It underscores the crucial relationship between supply chain management and a company's ability to respond effectively to challenges and uncertainties, be they operational, economic, or environmental (BCG., 2021).

Supply chain management is the linchpin of modern business operations. It encompasses the planning, coordination, execution, and monitoring of all activities within the supply chain, from sourcing raw materials to delivering the final product to the customer. An efficient supply chain is a cornerstone of competitiveness and profitability for any organization, but it is increasingly being recognized as a critical component in enhancing organizational resilience. To understand this connection more deeply, first, the fundamentals of organizational resilience are captured. Organizational resilience can be thought of as a company's capacity to adapt and respond to adverse situations, disruptions, and change while maintaining its core functions, strategic objectives, and overall viability. The concept is not merely about reacting to crises but proactively preparing for them. It's about identifying vulnerabilities and mitigating risks, allowing organizations to bounce back swiftly from unexpected events, whether they stem from natural disasters, economic downturns, or unforeseen market shifts (FEMA.gov., 2023).

Resilience hinges on several key elements. First, it involves a dynamic and forward-thinking mindset. Organizations need to anticipate potential disruptions, plan for them, and have the flexibility to adjust their strategies and operations as circumstances evolve. Second, resilience requires robust and adaptable systems and processes. This means that a company's structures, supply chain, and workflows must be designed to handle shocks and disturbances without compromising overall performance. Third, a resilient organization values communication and collaboration. A well-informed and interconnected workforce can better respond to crises, share insights, and collectively develop solutions.

## 2. Research Objectives

Research is a cornerstone of understanding the intricacies of building organizational resilience through supply chain management. Numerous studies and real-world examples provide valuable insights into best practices, challenges, and potential innovations in this domain. Research in supply chain management and resilience often involves analyzing case studies of organizations that have faced disruptions and examining how they navigated those challenges. These case studies offer a wealth of practical insights and lessons for building

resilience. We will be doing just that by studying the key research work from the last 5 years on how the industry has evolved (McKinsey., 2022)). Therefore, the main objective of this paper is to investigate organizational resilience in the role of supply chain management.

### 3. Research Hypotheses:

**H1:** Organizational Resilience significantly and positively affects supply chain management.

### 4. Research Significant:

Furthermore, academic research provides a theoretical foundation for understanding the relationship between supply chain management and resilience. Numerous scholars have investigated the workings of supply chain risk management, supply chain strategy, and the impact of disruptions on supply chains. This paper informs practitioners about strategies to enhance resilience, such as the adoption of advanced technology, data-driven decision-making, and supplier relationship management. This paper will research these studies and complement them with our understanding of how the supply chain works.

## 5. Literature Review

### 5.1 Organizational Resilience

The ability of an organization to anticipate, respond to, recover from, and adapt to risks and crises is the widely accepted definition of organizational resilience. It is predicated on the notion that unforeseen shocks and catastrophes could naturally accelerate organizational growth (Mithani, Gopalakrishnan, & Santoro, 2021). As a result, organizations ought to build their ability to handle risks. In addition, they must cultivate the abilities that enable them to adjust to the shifting surroundings, shocks, or dangers, resume regular operations, and leverage the acquired knowledge as a catalyst for a distinct and competitive edge. (Fasey, 2021).

Furthermore, (Pham, 2021) underscore the significance of dynamic resilience, which amplifies the rate of recovery following a shock, restores the organization to its pre-crisis state, and maintains the organization's expansion towards a new state of equilibrium. When the concept of organizational resilience is examined, two requirements stand out. First, well-considered caution characterizes resilient organizations; success is perceived as the outcome of meticulous preventive planning rather than a coincidence; second, resilient organizations continuously strive for improvement despite the persistence of challenging circumstances (Bartuseviciene, Butkus, & Schiuma, 2004).

#### *Getting to True Resilience*

Resilient thinking is anticipating disturbances and making plans for a quick return to acceptable operation. Resilience should be approached by entities in three stages: Enhance visibility first to reduce supply chain blind spots. Secondly, list all possible shocks and assess

those are more likely to occur and to cause the most disruption. Third, build backup plans and safeguards for the most important and susceptible links in the supply chain.

Step 1: Improve visibility to minimize surprise.

The objective must be to always optimize supply chain visibility. The Department of Defense should increase staffing levels to gain better insight into vital defense supply networks. Additionally, by spotting holes and trying to meet those gaps with atypical providers, these personnel can strengthen their resilience. When conducting supply chain assessments, organizations should prioritize building a diversified team of analysts. Reduced blind spots can result from ethnic and gender diversity, socioeconomic diversity, and geographic variety on a team.

Step 2: Identify potential shocks.

Organizations ought to pinpoint isolated sites of failure or locations where the supply chain becomes extremely thin. Scenarios analysis and crisis production plans can then be informed by thoroughly assessing each important component for hazards, such as the possibility of environmental shock or a shortage of labor. Having a varied team perform the analysis contributes to its rigor.

Step 3: Create buffers and contingencies.

A previously unknown issue may become apparent through the straightforward processes of thorough review and backup planning. An occurrence can be transformed from a catastrophic shock into a brief disruption by taking the additional step to build buffers for important nodes in a supply chain.

To comprehensively understand the nexus between supply chain management and organizational resilience, it's vital to explore the theories and models that underpin both concepts. Several theories in supply chain management and resilience serve as guiding frameworks for organizations to enhance their preparedness, adaptability, and recovery capabilities. One of the prominent theories in supply chain management is the Lean philosophy. Lean focuses on reducing waste, minimizing inventory, and optimizing production to achieve efficiency. While Lean principles are vital for cost-effectiveness, they may need to be adapted for resilience. Lean supply chains tend to be highly efficient but may lack redundancy and flexibility, which are crucial for resilience.

Therefore, organizations often integrate aspects of other supply chain theories, such as the Resilient supply chain model (Sheffi, Supply Chain Resilience: Definition, Review, and Theoretical Foundations, 2005) (Sheffi, 2005). The Resilient supply chain model places a significant emphasis on building redundancy and adaptability into the supply chain. By strategically diversifying suppliers, having backup inventory, and maintaining flexible production processes, organizations are better equipped to respond to disruptions. This theory acknowledges that not all disruptions can be prevented but aims to make the supply chain

more robust and responsive. In the realm of organizational resilience, the Dynamic Capabilities Theory plays a vital role.

This theory posits that organizations can develop dynamic capabilities, or the ability to adapt and learn over time, as a means of enhancing resilience. In the context of supply chain management, this might involve continually improving supply chain processes, investing in technology for real-time data analysis, and fostering a culture of adaptability among employees (Zobel, (2021)).

The study of (Barasa, Mbau, & Gilson, 2018) finds that the resilience of organizations was influenced by the following factors: Material resources, preparedness and planning, information management, collateral pathways and redundancy, governance processes, leadership practices, organizational culture, human capital, social networks, and collaboration.

The study of (Duchek, 2020) suggests three successive resilience stages (anticipation, coping, and adaptation). Firstly, anticipation, which is the first dimension of organizational resilience describes its preventive aspects relative to a disturbance. It refers to the ability to detect critical developments within the firm or in its environment and to adapt proactively. Secondly, coping which is the overall ability to cope with the unexpected is closely related to crisis (incident) management and can be separated into two subcategories: the ability to accept a problem and the ability to develop and implement solutions. The third stage, adaption includes the ability to adapt to critical situations and to use change for own purposes. This ability refers to adjustments following crises and is directed toward organizational advancement.

## 5.2 Discussion on Building Resilience in Supply Chain Management

Building resilience in supply chain management is not a one-size-fits-all endeavor. It involves a multifaceted approach that requires organizations to proactively identify vulnerabilities, prepare for disruptions, and create adaptable strategies to navigate challenges effectively. In this section, the key strategies that organizations can employ to enhance the resilience of their supply chains will be explored (Zsidisin, 2018).

Firstly, inventory Optimization, while maintaining the right level of inventory is crucial for resilience. Organizations must strike a balance between cost-effectiveness and having enough safety stock to mitigate disruptions. Advanced forecasting techniques and demand-planning tools can help in achieving this equilibrium.

Secondly, Supplier Diversification: Overreliance on a single supplier or region can amplify the impact of disruptions. By diversifying their supplier base, organizations reduce vulnerability to supplier-specific issues and geopolitical risks.



Third, building redundancy in supply chain components, such as alternate suppliers, backup distribution centers, or transportation options, can provide immediate relief when disruptions occur.

Fourth, data Analytics and Real-time Monitoring: Leveraging data analytics and real-time monitoring tools allows organizations to detect disruptions early and respond swiftly. Predictive analytics can help in foreseeing potential risks and making informed decisions.

Fifth, collaboration and Communication: Establishing effective communication channels with suppliers, partners, and customers is crucial for sharing information and coordinating responses during disruptions. Collaboration can lead to shared risk management and recovery strategies.

Sixth, Risk Management: A proactive approach to risk management involves identifying potential risks, assessing their impact, and developing mitigation strategies. This includes financial planning, insurance coverage, and scenario analysis to understand potential vulnerabilities.

Seventh, Technology Integration by embracing technologies like the Internet of Things (IoT), blockchain, and artificial intelligence can streamline supply chain operations and enhance visibility. These technologies enable organizations to trace products, monitor conditions, and quickly adapt to disruptions.

Eighth: flexibility and agility: Supply chains should be designed to be flexible and adaptable. The ability to quickly change production schedules, reroute shipments, and pivot to alternative suppliers or transportation modes is essential in responding to disruptions.

Then, continuous improvement, hence the Organizations should adopt a culture of continuous improvement. Regularly assessing and fine-tuning supply chain processes and resilience strategies ensures they remain effective in the face of evolving challenges.

Finally, education and training, where equipping the workforce with the knowledge and skills required to respond to disruptions is critical. Training programs on crisis management, risk assessment, and supply chain resilience can empower employees to make informed decisions during disruptions.

## 6. Empirical Study:

The Participants (managers, suppliers, and investors) of the Egyptian listed companies received the questionnaire from the researcher. The researcher made contact with the Participants and went over the purpose of the study and the contents of the questionnaire with them in an effort to boost the response rate to the questionnaire. Essentially, only 330 of the 360 Participants who were targeted by the questionnaire agreed to fill it out. Ultimately, only 300 of the 360 surveys that the researcher gathered had an 83.33% response rate and were statistically valid and free of missing data.

## 6.1. Reliability

The most often used measure of reliability is the Cronbach alpha, and a questionnaire is deemed reliable if its Cronbach's alpha score is at least 0.7 (Hair et al., 2010). All of the items in the tables below have adjusted item-total correlation values more than 0.3, which is regarded as an appropriate degree of internal consistency. Participants in the study were given a Google form to fill out online. The validity and reliability of the questionnaire were assessed using the results. An overview of the Cronbach's alpha and corrected item-total correlation results for each construct is given in the following table:

**Table (1): Corrected Item-Total Correlation and Cronbach's Alpha for all variables**

Variables	Measurement Item	corrected item-total	Cronbach's Alpha if	Reliability	
		correlation	item deleted	No. of Questions	Total Cronbach's Alpha
supply chain management	Q1	0.369	0.651	10	0.811
	Q2	0.489	0.767		
	Q3	0.328	0.787		
	Q4	0.452	0.815		
	Q5	0.347	0.769		
	Q6	0.373	0.637		
	Q7	0.477	0.669		
	Q8	0.496	0.729		
	Q9	0.489	0.889		
	Q10	0.398	0.687		

## 6.2 Sample Description:

This section outlines the characteristics of the sample concerning the experience and job titles. These characteristics are presented in table (2):

**Table (2): Description of the sample (N=300)**

	Demographic Characteristics	Frequency	Percentage
Experience	Less than 5 years	70	23,33%
	Greater than 5 and less than 10 years	80	26.66%
	Greater than 10 and less than 15 years	100	33.33%
	Greater than 15 years	50	16.66%
Position	Investor	90	30%
	suppliers	130	43.33%
	managers	80	26.66%

### 6.3 Descriptive analysis:

The descriptive statistics for the study variables are displayed in Table (3). The following table lists the items used to measure each variable along with their respective means, standard deviations, skewnesses, and kurtosis:

**Table (3): Descriptive statistics (N=300)**

Variables	Measurement Item	Mean	Std.	Skewness	Kurtosis
			deviation		
supply chain management	Inventory Optimization, while maintaining the right level of inventory is crucial for resilience.	3.561	1.360	-1.029	1.591
	Supplier Diversification can amplify the impact of disruptions.	3.169	1.599	-1.131	1.341
	Building redundancy can provide immediate relief when disruptions occur.	4.698	1.110	-1.213	0.436
	Predictive analytics can help in foreseeing potential risks and making informed decisions.	3.690	1.098	-1.443	1.598
	Collaboration can lead to shared risk management and recovery strategies.	4.897	1.402	-0.339	0.444
	Risk Management: A proactive approach to risk management	4.125	1.162	-1.260	0.790
	Technology Integration enable organizations to trace products, monitor conditions, and quickly adapt to disruptions.	3.698	1.069	-1.269	0.222
	Supply chains should be designed to be flexible and adaptable	4.106	1.498	-1.139	0.698
	Regularly assessing and fine-tuning supply chain processes and resilience strategies ensures they remain effective in the face of evolving challenges	4.189	1.098	-1.569	1.490
	Training programs on crisis management, risk assessment, and supply chain resilience can empower employees to make informed decisions during disruption	3.136	1.063	-1.190	1.693

### 7. Future Research

As this paper investigates the ever-evolving landscape of business and technology, the future of organizational resilience through supply chain management is poised to take new



directions. Several trends and considerations are likely to shape this critical aspect of modern business:

1. **Technology Integration:** The rapid evolution of technology, including the Internet of Things (IoT), artificial intelligence, and blockchain, will continue to revolutionize supply chain management. Real-time data analytics, predictive maintenance, and smart logistics will enhance organizations' ability to monitor and adapt their supply chains with unmatched precision (Zobel, Supply chain resilience in a COVID-19 scenario: Mapping capabilities in a systemic framework., (2021)).
2. **Sustainability and Ethical Supply Chains:** Future supply chains will prioritize sustainability and ethical practices. Green supply chains will reduce environmental impacts, while organizations will demand transparency and ethical sourcing throughout the supply chain to meet evolving consumer expectations.
3. **Resilience as a Competitive Advantage:** Organizations will increasingly recognize resilience as a source of competitive advantage. Building resilient supply chains will be integral to maintaining market leadership, especially in industries susceptible to disruptions.
4. **Regulatory and Compliance Challenges:** As governments implement new regulations and compliance requirements related to environmental standards, data security, and ethical practices, organizations will need to integrate these considerations into their supply chain resilience strategies (Zsidisin, 2018).
5. **Globalization and Geo-Political Shifts:** Ongoing globalization, coupled with geo-political shifts, will introduce both opportunities and challenges. Supply chains may need to be reconfigured to adapt to changing trade dynamics, tariffs, and geopolitical tensions.
6. **Robotic Process Automation and Autonomous Systems:** Robotics and automation will play a significant role in enhancing supply chain efficiency and resilience. Autonomous vehicles, drones, and robotics will reduce human intervention, thus minimizing risks during disruptions.

## 8. Conclusion

This paper explored the fundamental principles of organizational resilience and its critical connection to supply chain management. The discussion highlighted how key theories and models inform resilience strategies, while research findings and real-world examples shed light on practical applications. Strategies such as inventory optimization, supplier diversification, data analytics, and collaboration have been presented as vital components for building resilience in supply chain management.

Looking into the future, it's evident that the dynamic and complex nature of the business environment will continue to evolve. Organizations that invest in technology, sustainability, ethics, and agile supply chain strategies will not only withstand disruptions but also thrive in a competitive marketplace. Resilience, once a reactive concept, is now a

proactive strategy that enables organizations to not only endure adversity but emerge stronger. In doing so, they secure their place in a world where the only constant is change.

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## Questionnaire

Dear participants:

This questionnaire is designed to obtain information about the role of organizational resilience in supply chain management. This information will help in a better understanding of Organizational Resilience and its effect on supply chain management.

Your response is vital to the success of my research. Your participation is greatly appreciated. Your response will remain anonymous and confidential.

Thanks for your valuable time and cooperation.....

## Questionnaire

Please indicate, in your personal view, the extent to which each of these issues indicates the role of organizational resilience in supply chain management by marking the appropriate response using the following scale.

Scale ranged from, 1= strongly disagree, 2= disagree, 3= neutral, 4= agree to 5= strongly agree.

	1	2	3	4	5
1. Inventory Optimization, while maintaining the right level of inventory is crucial for resilience.					
2. Supplier Diversification can amplify the impact of disruptions.					
3. Building redundancy can provide immediate relief when disruptions occur.					
4. Predictive analytics can help in foreseeing potential risks and making informed decisions.					
5. Collaboration can lead to shared risk management and recovery strategies.					
6. Risk Management: A proactive approach to risk management					
7. Technology Integration enable organizations to trace products, monitor conditions, and quickly adapt to disruptions.					
8. Supply chains should be designed to be flexible and adaptable					
9. Regularly assessing and fine-tuning supply chain processes and resilience strategies ensures they remain effective in the face of evolving challenges					
10. Training programs on crisis management, risk assessment, and supply chain resilience can empower employees to make informed decisions during disruption					