



## Best Practices to Mitigate The Risks In Supply Chain Management

Gaurav Kumar

rajputsgaurav94@gmail.com

### Abstract:

*The dangers of managing transnational supply chains are currently a topic of conversation among both academics and industry experts. This reality is brought into further focus by the rising commercial uncertainties in the management of supply chains, which pose a danger to the general operation of both the network and the economy. Within the context of a competitive and fast-paced business environment, the purpose of this study is to conduct an analysis of the existing research on the factors of risk that are involved in supply chain management. As a criterion for inclusion, having the term "risk" appear anywhere in the study's title, keyword list, or abstract was used to select the studies whose data were used in the theoretical analyses that were carried out. The mitigation of risks across the supply chain is an essential component of the whole system. As a consequence of national economic policies and globalization, firms that are involved in supply chain management face increased levels of uncertainty, as well as a plethora of new obstacles. These elements have a considerable impact, both individually and together, on the financial outcomes of companies and the economy as a whole. A description of the many methods that are used to mitigate the risks that are inherent in supply chains may help firms become more competitive. The impact of catastrophes, whether they are natural or caused by humans, can be lessened by the use of risk mitigation methods.*

**Keywords:** Supply chain, risk management

### Introduction:

The growth of international trade has led to the establishment of global supply networks, each of which has its own individual difficulties for supply chain management (SCM). Because of globalization and the rising openness of commerce, supply chain management (SCM) is more prone to vulnerability and faces a growing number of hazards. The entire monetary worth of costs associated with supply chains is higher for manufacturing companies. Despite this, traditional practitioners of finance and insurance view the risks associated with SCM as being unrelated to finance and view them as being associated with SCM.

In order to keep the supply chain resilient, it is necessary to conduct ongoing risk assessments and to take steps to reduce vulnerabilities. These two actions are both aspects of risk management. This procedure is referred to as risk management. Although not all supply chains are vulnerable to the same threats, a significant number of them are. And the dangers aren't uniform; different areas of research and industries in the economy each have their own unique set of obstacles to surmount. The degree to which a supply chain protects its weakest link may be indicative of the degree to which the network as a whole can be relied upon. There is a one-to-one relationship between the length of time it takes to complete a supply chain and the likelihood that something will go wrong anywhere along the way. The supply chain is a complicated network that consists of a lot of different moving pieces. When there are a lot of individuals involved, there is a far greater likelihood that something bad will happen. Nevertheless, establishing a reliable supply chain from the ground up can be a very expensive endeavor. The scale of the harmful impacts that risk may have on a system's performance has been the subject of investigation in a number of research projects, many of which have underlined the importance of supply chains like these.

The management of supply chains is becoming an increasingly essential topic, one that requires major investigation as global rivalry heats up in every region of the world. It is difficult for companies to discover solutions to satisfy the ever-growing demands of their customers without increasing their pricing or



extending their delivery timeframes. Companies will need to actively seek out and identify sections of their supply chain process that are not competitive, conduct an analysis of all customers whose expectations are not being addressed, set improvement targets, and then implement any changes that are necessary. You'll need to be able to think on your feet and swiftly adapt to the ever-changing world of technology. a commercial arena on a worldwide scale. In the past, it was the responsibility of manufacturers to keep production rates under control, coordinate with distributors and suppliers, and speedily deliver finished items to clients. Additionally, they were in charge of the entire operation of the supply chain. The tide, however, has shifted, and manufacturers are striving to fulfill the needs of customers in today's market for a bigger product variety, more advanced features, cheaper pricing, and speedier shipping times. In actual business, companies that are focused on the supply chain have implemented a diverse variety of performance management strategies in order to strengthen their supply chain-centric goals and plans. A thorough performance management system will include a number of management processes, some of the most important of which include the following: establishing measurements, establishing objectives, planning, communication, monitoring, reporting, and feedback. The following is a list of the management responsibilities that will be discussed in this lesson. A few of the various disciplines that comprise Supply Chain Management (SCM) are as follows: logistics, transportation, operations management, materials and distribution management, marketing, buying, and information technology (IT). The management of the supply chain is impacted by each of these categories. The primary objective of this article is to present a brief introduction to Supply Chain Management that can be utilized by readers in order to get a rudimentary understanding of the subject matter in question in a timely manner. In this article, supply chain management is defined, and its history as well as modern advancements such as big data, the internet of things, and blockchain technology are discussed. In addition to that, it consists of a bibliographical overview of the most significant advancements in SCM as well as a look ahead at its possible applications in the future.

#### **CONCEPT OF SUPPLY CHAIN MANAGEMENT**

A network of individuals, companies, and institutions that are engaged in the production, distribution, and consumption of goods and services is referred to as a supply chain. This involves each and every stage, beginning with the collection of the essential components and continuing through the finished product's packing and delivery. It involves a diverse array of characters who, taken together, exercise a significant amount of influence over the product over the course of its existence. This group includes everyone from those who source the raw materials to those who purchase the completed products. The management of the supply chain, often known as SCM, encompasses all of the activities that take place before, during, and after the production, procurement, and delivery of a good or service to the customer. There is a great deal of variation possible with regard to the length, size, and complexity of supply networks. Some companies and organizations are more likely to have a brief supply chain that involves only a single supplier, whereas others may have a lengthy supply chain that involves a number of different suppliers. It is not at all unusual for a single supply chain to involve many levels of different suppliers in its production process. The notions of supply chain management and the administration of such channels are intricately tied to one another. The term "supply chain management," or SCM, refers to the process of managing several supplier networks.

The management of supply chains strives to improve three aspects of a company's operations: quality, efficiency, and customer satisfaction with the products and services they purchase. Since the 1980s, when businesses first became aware of the need to reduce costs and time while also being able to promptly respond to changing requirements from customers, there has been a gradual increase in the level of concern that organizations have about the management of their supply chains. This concern has gradually developed over the course of the past three decades. As a result of this, businesses have integrated their procedures and have become more in tune with the needs of their distributors and suppliers. According to the article *Rising in Globalisation*, information technology has been a significant driving force behind the evolution of supply chain management. The initial efforts concentrated on bolstering a company's central core by first

improving the company's foundation. However, as technological advancements were made, the focus shifted to improving the efficiency of the supply chain as a whole. This included the efficiency of suppliers, manufacturers, and distributors.

**Objective of the study:**

1. The examination of the idea of supply chain management is difficult due to its complicated character.
2. To do research on how to reduce the dangers posed by supply chain management

An illustration of several aspects of risk, including exposure to risk, repercussions, non-compliance, business impacts, and the size of losses, is provided in the form of an example (Table 1) of a taxi company and the dangers it encounters in the larger environment it works in, in comparison to the risks that the client of the taxi company experiences..

**Table1. Illustrative example of different aspects of risk**

Benefit	Exposure	Event	Consequence	Business Impairment	Magnitude of loss
Example1. driver Income for taxi	Parking illegally	Parking ticket Vehicle towed	Fine Fine and time to collect vehicle	Increase Cost Increase Cost & Time	Can range from minor to major
firm and driver	Speeding	Caught by police or	Fine Points (possible loss of licence)	Increase costs Possibly cease trading	
	Running a red light	Caught by camera	Fine	Increase costs	
	Drink driving	Caught by police			
	Faulty products	Fails MOT	Vehicle off road while remedial action	Temporarily cease trading	
	fitted to vehicle				
Example 2- customer CEO can work in transit and low stress	Company uses taxi to get CEO to important meeting	Taxi involved in Crash	CEO misses meeting	Business lost	Can range from minor to major

**RISK MANAGEMENT**

One definition of risk management describes it as "the process whereby decisions are made to accept a known or assessed risk and/or the implementation of actions to reduce the consequences or probability of occurrence."

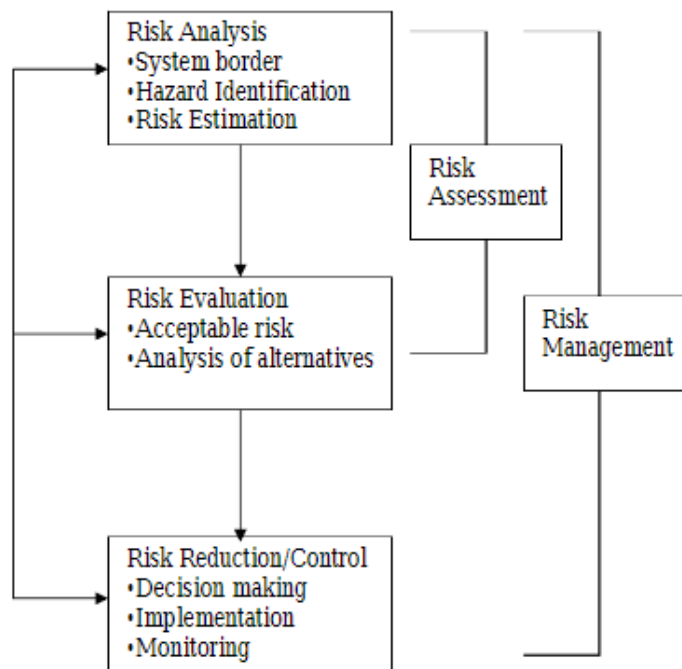
There is no activity that involves humans that does not include some degree of risk. As a result, it is essential that each and every one of us pay attention to and be concerned with risk management. In today's society, many dangers that formerly existed have been completely removed or significantly mitigated. Concurrently, new dangers have surfaced, some of which are challenging to investigate and decipher and which frequently have extremely severe repercussions. These new dangers have also emerged.

Borge provided the following definition of risk management in the year 2001: "Risk management means taking deliberate action to shift the odds in your favor," which he described as "increasing the likelihood of good outcomes and decreasing the likelihood of bad outcomes."

As a consequence of this, we ought to all be concerned about risk management. It is generally not in anyone's best interest to try to cover all potential risks. This is due to the fact that there is often a cost associated with a risk management strategy, as well as the possibility that other dangers may be created as a result of that action. It is essential to strike a balance between the expenses involved in risk management and the potential repercussions of the results. Where can I get a step-by-step guide that breaks down each stage of the risk management process in further detail? The particular subfield of academic study that is the topic of this conversation may have a substantial bearing on the range of possible interpretations. After all, each and every risk management strategy has the same overarching objective: to prevent unfavorable and harmful events from occurring, and if they do occur, to mitigate their effects as much as possible in order to preserve life, property, the environment, financial resources, or anything else that is deemed to be of "valuable" importance. Included in this assessment is anything from the possibility that manufacturing facilities or processes could result in the discharge of dangerous pollutants into the atmosphere to the possibility that important individuals will quit the organization, resulting in a loss of knowledge.

A comprehensive explanation of the procedure may be found in Figure2. This strategy is preventative and proactive, as opposed to reactive, which is how traditional crisis management is often carried out. Despite the establishment of a crisis group as well as methods and resources, crisis management is frequently a reactionary activity. This is the case even when the situation has been planned for. On a "ad hoc" basis, often known as "as they arise," the corporation deals with occurrences or crises that become strategically relevant to the organization.

The practice of identifying potential hazards and devising appropriate countermeasures is known as risk management. You may offer yourself a potent instrument for talking with senior management by putting your issues into monetary terms and using economic terminology. The International Electrotechnical Commission (IEC) produced a model of the risk management process and its multiple components, which may be seen below. This model can help you better understand how the process works.



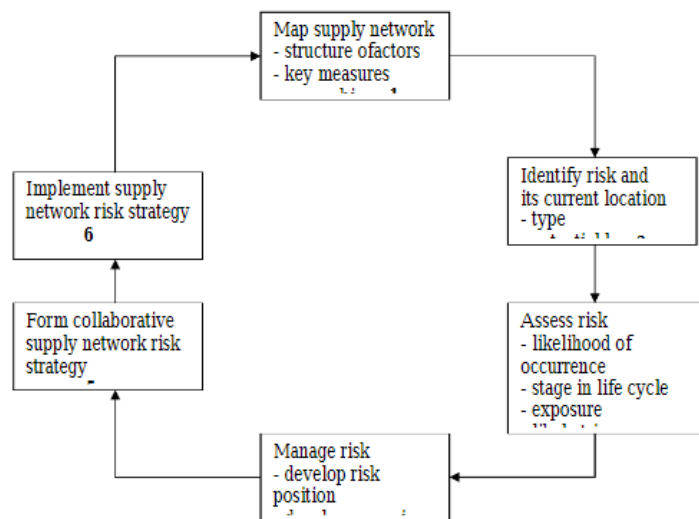
**Figure 1. A risk Management Model by IEC**

The process of risk management starts out with a risk analysis from the very beginning. In the beginning of

any project or piece of research, the first step is to define the scope of the system that is going to be researched. Conducting a risk assessment is the next step that needs to be taken. The following step in the process is known as risk evaluation, and its purpose is to assign a relative level of severity to each of the potential dangers. All risks that are lower than this threshold are immediately disregarded and not taken into further consideration. The third and final step of the risk management process is known as the risk reduction and risk control stage. This encompasses everything from settling on a course of action to actually carrying out that course of action and checking in on how things are progressing throughout the process. When we talk about this, we're talking about some extremely massive undertakings. The time and money invested on risk analysis and risk appraisal run the danger of being lost in the event that an effective change management effort is not undertaken with constant feedback.

### SUPPLY NETWORK RISK TOOL

A prospective resource for risk assessment, evaluation, and management is depicted as a diagram in Figure 3, which may be found here. The first of the several compartments that this tool possesses is dedicated to the mapping of the supply network. In this scenario, the supply network that has to be mapped would be defined in terms of the difficulty or worry that it presents. As an illustration, the network may stand in for the distribution chain of a certain commodity that is believed to pose a specific level of risk. A graphical depiction of the supply chain that incorporates all of the pertinent data is now in the process of being developed. It will be important to identify key stakeholders and priority indicators in order to correctly map this supply chain. This will be necessary in order to do so.



**Figure 2. Supply Network Risk Tool**

The second box offers further context for the map by elaborating on the nature of the danger and pinpointing its precise position. The results from the literature review might be collected into a bulleted list that could then be used as a discussion starter. Just a few examples of what might be included are the following: strategic risk, operational risk, supply risk, customer risk, asset impairment risk, competitive risk, reputation risk, financial risk, fiscal risk, regulatory risk, and legal risk. It is recommended that via collaborative concept creation with the many players involved in the supply network, the unique risks that will be taken into consideration for the specific problem or product may be found. At this point, it is only necessary to take into consideration those individuals who pose a major danger to any of the participants in the network. The selected categories of risk are evaluated in the third part with regard to their levels of probability, network exposure, potential risk triggers, the point in the life cycle at which the risk is most likely to be



realized, and the potential losses that may be incurred by anybody.

Risk management happens in Box 4. The findings of the examination are reviewed, and various different approaches to treatment are considered for this patient. The nature of the problem or product at hand as well as the particular actors that are engaged are taken into consideration when making decisions on the risk posture. These considerations determine whether the approach will be reactive, defensive, prospective, or analytical. When characterizing their attitude toward taking risks, certain companies may find the labels "risk averse" or "cautious" to be more comfortable to use. In order to rebalance risk, exposure, predicted losses, and the location of those losses, one might design a great number of different hypothetical scenarios using alternate network topologies and interaction tactics. The process of developing the scenario is influenced by the risk profile.

To achieve the intended network and link reconfiguration, the boxes 5 and 6 contain the implementation of a new collaborative supply network risk approach. When we adopt this strategy, we are forced to draw a new diagram of the network, which brings us right back to the very first box. This resource, along with a handful of the network's other key nodes, will be put to use in the process. There is no restriction on the type of person concentration company that may employ this instrument. Nevertheless, it is possible that their individual perspectives on how to deal with risks in the network will not coincide with the perspectives of other actors, which will increase the possibility that the network will be unstable.

#### **Conclusion:**

The notion of supply chain management is complicated since it incorporates a wide variety of pieces, activities, and responsibilities, in addition to academic fields of study. It may be challenging to make sense of the different interrelated elements of SCM due to the abundance of relevant literature and terminologies. SCM stands for supply chain management. Over the course of time, numerous researchers and businesspeople have offered a variety of definitions for SCM in an effort to make the concept more understandable for a wider audience. The purpose of this study was to conduct an analysis of a few of these descriptions. There have been a lot of different frameworks produced, and each one of them takes into account the many conceptualizations, SCM frameworks, and taxonomies that are used by associated fields. The incorporation of an SCM framework's most fundamental principles and concepts is intended to be the framework's primary function. Because of all of its one-of-a-kind benefits, it has the potential to be a useful instrument in both medical treatment and scientific research. In recent years, the demands of consumers have emerged as the primary concern of the global market, and in response, businesses have increased the amount of effort they put into meeting those requirements. The shift in attention to the demands of the customer has led in a number of innovations in supply chain management, sometimes known as SCM. The proliferation of cutting-edge information technologies such as blockchain, the Internet of Things, and big data is transforming supply chain management (SCM). This is happening because these technologies make it possible to accomplish goals such as flexibility, cost-effectiveness, traceability, consumer trust, and diversity. This article presents a bibliographic overview with a major emphasis on Blockchain and IoT in supply chain management. It does so by assessing these recent advancements and analyzing the contributions that are most relevant to the discussion of this issue. The purpose of this paper is to compile and summarize the research that has been done in the field of Supply Chain Management in an effort to provide a comprehensive review of the concept of Supply Chain Management (SCM), including its definitions, framework, challenges that are currently prevalent in the field, and the various advancements that are effectively revolutionizing the field of Supply Chain Management. In order to accomplish this objective, the findings from the previously conducted studies will be compiled and examined together.

#### **References:**

1. Agrell, P. J., Lindroth, R., & Norrman, A. (2004). Risk, information and incentives in telecom supply chains. *International Journal of Production Economics*, 90(1), 1-16.



2. Allen, S. J., & Schuster, E. W. (2004). Controlling the risk for an agricultural harvest. *Manufacturing & Service Operations Management*, 6(3), 225-236.
3. Appelqvist, P., & Gubi, E. (2005). Postponed variety creation: case study in consumer electronics retail. *International Journal of Retail & Distribution Management*, 33(10), 734-748.
4. Atkinson, W. (2004). Tagged: the risks and rewards of RFID technology. *Risk Management*, 51(7), 12-19.
5. Atkinson, W. (2006). Supply chain management: new opportunities for risk managers. *Risk Management*, 53(6), 10-15.
6. Barry, J. (2004). Supply chain risk in an uncertain global supply chain environment. *International Journal of Physical Distribution & Logistics Management*, 34(9), 695 - 697.
7. Beasley, M., Chen, A., Nunez, K., & Wright, L. (2006). Working hand in hand: balanced scorecards and enterprise risk management. *Strategic Finance*, 87(9), 49-57.
8. Berry, A. J., & Collier, P. M. (2007). Risk in supply chains: exploratory case studies in the automotive industry. *Int. J. of Risk Assessment and Management*, 7(8), 1005-1026.
9. Blackhurst, J., Craighead, C. W., Elkins, D., & Handfield, R. B. (2005). An empirically derived agenda of critical research issues for managing supply-chain disruptions. *International Journal of Production Research*, 43(19), 4067-4081.
10. Bogataj, D., & Bogataj, M. (2007). Measuring the supply chain risk and vulnerability in frequency space. *International Journal of Production Economics*, 108(1-2), 291-301.
11. Brun, A., Caridi, M., Fahmy, S. K., & Ravelli, I. (2006). Value and risk assessment of supply chain management improvement projects. *International Journal of Production Economics*, 99(1-2), 186-201.
12. Cavinato, J. L. (2004). Supply chain logistics risks: from the back room to the board room. *International Journal of Physical Distribution & Logistics Management*, 34(5), 383-389.
13. Chen, H., Chen, J., & Chen, Y. (2006). A coordination mechanism for a supply chain with demand information updating. *International Journal of Production Economics*, 103(1), 347-361.