RISK MANAGEMENT IN LOGISTICS AND SUPPLY CHAIN: A STUDY ON HANDLOOM INDUSTRY WITH REFERENCE TO NELLORE DISTRICT, ANDHRA PRADESH

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ABSTRACT

The purpose of this study is to examine the main issues of logistics outsourcing contract, including, performance issues, financial issues, legal issues and HR-related issues in the handloom industry. The study aims to analyse weather the outsourcing logistics is a strategic tool aid or not, and to indentify the reasons why the outsourcing fails at most. The purpose is to identify the major malfunctions of contracts to formulate a set of recommendations for companies in order to avoid the failure of such relationships between parties. The study analysed the key drivers of supply chain risks and logistics, and identified supply chain risks by analyzing their likelihood to occur and their potential impact on the supply chain and logistics. Furthermore, factors that affect the business performance due to the logistics and supply chain risks are discussed. The analyses reveal that, the companies with a high degree of logistics outsourcing implementation show a better supply chain performance. The supply chain risk management has become a key concern for organizations, which is even further emphasized by the current economic and financial crisis. Finally, the study investigates successful approaches and experiences by companies in dealing with the supply and transportation side.

Key words: Risk management, Enterprise risks, Supply chain risks, Logistical risks, Prioritization

Introduction

In ideal risk management and its prioritization process is followed by the risks with the greatest loss (or impact) and the greatest probability of occurring are handled first, and risks with lower probability of occurrence and lower loss are handled in descending order. In practice, the process of assessing overall risk can be difficult, and balancing resources used to mitigate risks. Resources spent on risk management could have been spent on more profitable activities. Ideal
Risk management minimizes spending (or manpower or other resources) and also minimizes the negative effects of risks. It is widely acknowledged that, a carefully designed contract is the best method of protection for companies that plan to engage in outsourcing arrangements. In the most commonly accepted definitions, outsourcing logistics involves the transfer of some logistics activities or processes to an external provider. For example public US companies, like the State of Connecticut that gave up all outsourcing agreements after investing large sums of money (LeSuer, S., 1999), private companies as well. Moreover, Murphy stated that 75 percent of enterprises fail to recognize and mitigate the risks associated with outsourcing (2003). Due to the unestimated disasters and sensitive supply chains, many firms have started to take supply chain disruptions more seriously and to rethink their supply chain strategy and design.

**Risk Management**

Risk management is the identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events or to maximize the realization of opportunities. Risk management’s objective is to assure the reduction of uncertainty.

Risks can occur from different sources: e.g., uncertainty in financial markets, threats from project failures, legal liabilities, credit risk, accidents, natural causes and disasters as well as deliberate attack from an adversary, or events of uncertain or unpredictable root-cause.

Risk sources are more often identified and located not only in infrastructural or technological assets and tangible variables, but also in human factor variables, mental states and decision making. The interaction between human factors and tangible aspects of risk highlights the need to focus closely on human factors as one of the main drivers for risk management, a "change driver" that comes first of all from the need to know how humans perform in challenging environments and in face of risk. The truth of a problem or risk is often obfuscated by wrong or incomplete analyses, fake targets, perceptual illusions, unclear focusing, altered mental states, and lack of good communication and confrontation of risk management solutions with reliable partners. This makes the human factor aspect of risk management sometimes heavier than its tangible and technological counterpart. Certain aspects of many of the risk management standards have come under criticism for having no measurable improvement on risk, whereas the confidence in estimates and decisions seem to increase.
Intangible risk management identifies a new type of a risk that has a 100% probability of occurring but is ignored by the organization due to a lack of identification ability. For example, when deficient knowledge is applied to a situation, a knowledge risk materializes. Relationship risk appears when ineffective collaboration occurs. Process-engagement risk may be an issue when ineffective operational procedures are applied. These risks directly reduce the productivity of knowledge workers, decrease cost-effectiveness, service, quality, reputation, brand value, etc.

**Enterprise Risk Management**

In enterprise risk management, a risk is defined as a possible event or circumstance that can have negative influences on the enterprise in question. Its impact can be on the very existence, the resources (human and capital), the products and services, or the customers of the enterprise, as well as external impacts on society and markets. In a financial institution, enterprise risk management is normally thought of as the combination of credit risk, interest rate risk or asset liability management, liquidity risk, market risk, and operational risk. The suitable strategies are required to mitigate those risks.

**HANDLOOM INDUSTRY IN ANDHRA PRADESH**

Andhra Pradesh handloom industry was in development stage. Within Andhra Pradesh there are approximately 1, 87,567 handloom weaving families with 2, 47,891 working handlooms. The majority of weavers in Andhra Pradesh is full time weavers and weaves for the market. It was famous even in ancient times as an exporter of textiles to most parts of the civilized world; few actual fabrics of the early dyed or printed cottons have survived. The earliest Indian fragment of cloth (before the Christian era) with a hansa (swan) design was excavated from a site near Cairo where the hot dry sand of the desert acted as a preservative. Later, fragments of finely woven and madder-dyed cotton fabrics and shuttles were found at some of the excavated. Handlooms are an important craft product and comprise the largest cottage industry of the country. Millions of looms across the country are engaged in weaving cotton, silk and other natural fibers. There is hardly a village where weavers do not exist, each weaving out the traditional beauty of India's own precious heritage.

In Andhra Pradesh the ikat technique is commonly used it is known as patola in Gujarat, bandha in Orissa, pagdu bandhu, buddavasi and chitki in Andhra Pradesh. In the ikat tie and dye process, the designs in various colours are formed on the fabric either by the warp threads or the weft threads or by both. Here, the colour is built up thread by thread. In fact,
Orissa ikat is known now as yarn tie and dye. In Andhra Pradesh, they bunch some threads together and tie and dye and they also have total freedom of design.

In Nellore district the Handloom industry plays a violent role in weaving cotton. The cotton material is transported from Nellore to various cities and states like Gujarat, Hyderabad, Vijayawada, Ongole, etc. though it is playing very important role it is facing many problems and risks due to demand crisis, less supply potential, catrasphores and natural disasters, etc.

**Need for the study**

Now days, so many small scale industries shut down and so many handy craft occupations are disappearing in the country. The reason is lack of financial cooperation and promotional encouragement from government in the country. It leads to several risks in the small scale industries like Handloom industry. The major challenge is avoiding those risks or mitigating them. There is a need to identify the strategies and ways to mitigate the risk in handloom industry to protect it so that, we can ensure the survival of the industry and the employment in the industry. In this connection, this study has been undertaken to identify risks involved in handloom industry logistics and supply chain management and suggest various strategies to mitigate them.

**Research Objective**

1. To analyse the risks involved in handloom industry logistics and supply chain management.
2. To suggest the ways to overcome the risks to assure that the organisation can function effectively and efficiently.

**Research framework**
Review of Literature

Risk management in general is described as the identification and analysis of risks as well as their control. Particularity of Supply Chain Risk Management (SCRM) contrary to traditional risk management is, it is characterized by a cross-company orientation aiming at the identification and reduction of risks not only on the company level, but rather focusing on entire supply chains.

Risk is a product of exposure and uncertainty (Holton, 2004), one can conceptualize exposure as being inherent in the firm’s nature, while the uncertainty comes from the broader environment in which the firm is operating. There is agreement among supply chain academics and practitioners that over the past few decades, vulnerability of supply chains to disturbances or disruptions has increased (Christopher, 2002; Christopher & Lee, 2004; Kotabe & Murray, 2004; Wagner & C. Bode, 2006).

The supply chains experienced longer freight routes and longer lead times, in addition to various cultural and communications snags. Global supply chains have more delay points and greater uncertainties (Manuj & Mentzer, 2008a; Vanderspek, 2012). Supply chain visibility is defined roughly as availability of and access to relevant data (Khan & Zsidisin, 2012).

Recent developments and events e.g. trend to globalization, outsourcing activities, shorter life time cycles, but also natural disasters and others –have led to the increase of risks in business. Therefore, risk management has been identified as one of the important management tasks supporting a company in reaching its objectives. Risk management can be seen as a management system that should enable a corporation to identify, assess, and prioritize risk, to develop and implement counteractions to reduce risks, and to continuously monitor risks.

In a business environment characterized by high complexity and uncertainty, manufacturing companies are forced to manage their supply chains effectively in order to increase efficiency and reactivity. Catastrophes such as 9/11, hurricane Katrina, or the Tsunami in 2004 have raised the attention on this issue. But also everyday problems such as supplier losses or quality problems make supply chain risk management important. It aims at mitigating the negative impact of external disturbances and tries to manage certain risks within supply chains.

However, in many industries risk management is still understood primarily as a company-specific task as it is pointed out by juttner (2005): “Companies implement organization-specific risk management, but there is little evidence of risk management at the supply chain
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level”. Hence, companies seem to have a huge catch up to do in terms of implementing instruments for risk identification, analysis, and control in order to establish an effective supply chain risk management for creating secure and resilient supply chains. Christopher and Peck (2004) said that, vulnerability as “an exposure to serious disturbance, arising from risks within the supply chain as well as risks external to the supply chain”. The mitigation and control of vulnerability is the aim of supply chain risk management which is defined as identification and management of risks for the supply chain, through a co-ordinated approach amongst supply chain members, to reduce supply chain vulnerability as a whole” (Juttner et al., 2003).

A good transport system can provide increased logistics efficiency, it can reduce operational cost, and it can promote service quality. Globalization, demographic developments, external crises, catastrophic events (both man made, as terrorism, and natural disasters), increasing complexity of logistics processes, and other factors such as higher requirements by customers already lead to a rising number of risks. At the same time, companies with a risk management in place show a relatively low degree of maturity of their risk management.

Even the link between instruments of supply chain risk management and logistics and performance should be investigated empirically in order to give evidence on the question of which instruments are regarded as being effective. Several authors have carried out extensive and useful literature reviews on supply chain risk management (SCRM), and it is evident that this is an area of research and practice that is still in a relatively early stage (Ghadge, Dani, & Kalawsky, 2011; Jüttner et al., 2003; Rao & Goldsby, 2009; Vanany et al., 2009).

DISCUSSION

The Andhra Pradesh state Handloom Weavers co operative Society, Hyderabad, popularly known as APCO was formed in 1975-76 by amalgamation of the three apex institutions in the state. It made significant progress especially in rooting the major problem of marketing of handloom cloth.

To achieve the main objective of marketing, the cloth procured from the affiliated primaries, the Andhra Pradesh State handloom Weavers Co- operative Society (APCO) runs as many as 431 sales depots both in and outside the state. It also helps the primary weavers co-operative societies by supplying raw materials like yarn dyes and chemicals etc.
The textile market is a highly competitive one and unless the products are given publicity, the decentralized sector is not likely to make any significant impact in the market. The Government of India has been organizing handloom exports with the expenditure being shared by the State and central Governments.

Supply chain risk management is a growing and increasingly formalized practice for treating the various supply chain risks. Its focus is on preventing costly disturbances from happening or minimizing the impact of the disturbances that inevitably happen in global supply chains.

Supply chain risk management has become a high priority issues for companies operating in handloom industry. India is still inexpensive, with an abundance of labor and a very promising demographic profile. However, the country represents a cocktail of serious supply chain risks for firms in handloom sector. Supply chains risk sources in handloom industry describe poor infrastructure, bureaucratic delays, red tape and the prevalence of corruption.

Rao and Goldsby developed a detailed typology of supply chain risk (Rao & Goldsby, 2009). They broke supply chain risk into five main factors.

1. Environmental risk (Political, Policy, Macroeconomic and Social)
2. Industry risk (Input market, Product market and Competitive)
3. Organizational risk (Agency, Credit, Liability and Operating)
4. Problem specific risk (Risk interrelationship, Objectives and constraints, Task complexity)
5. Decision maker risk (Knowledge/Skill/Biases, Information seeking, Rules and procedures, Bounded rationality)

The other risks are: Transportation accidents, industrial accidents, transportation delays, transport damage, storage problem and human misdeeds.

In a business environment characterized by high complexity and uncertainty, manufacturing companies are forced to manage their supply chains and logistics effectively in order to increase efficiency and reactivity.

So many risks occur in supply chain especially, the handloom industry is well known for their efforts to improve its supply chains and logistics according to their demanding business environment. Identification of those risks is required.

In the past years, a fairly new research area has emerged on the supply chain management scene and has gained considerable attention from both academics and practitioners: Supply chain risk management. Few changes have compelled firms to make their intra-firm business
processes and inter-firm supply chains either more efficient or more responsive, by collaborating more intensively with other supply chain actors.

According to the crisis since the 1990s, a focus of managing supply chains lies in the improvement of cost-efficiency (Lee, 2004). Companies further- more try to meet the requirements of competition through the intensive implementation of concepts streamlining supply chain and logistics processes (Childerhouse et al., 2003). This, for example, is incorporated in the handloom industry through widely used concepts such as just-in-time and just-in-sequence in order to create lean supply chains. The trend towards lean supply chains results in low inventories achieved by close collaboration with customers and suppliers on the one hand, but leads to high vulnerability on the other hand since turbulences in the supply chain can barely be compensated without safety stocks.

One reason for increasing supply chain risks is the trend towards outsourcing due to the fact that additional dependencies are created and the complexity in the network rises. The more complex a network is, the more interfaces do exist and the higher the vulnerability will be. In a similar way, globalization increases supply chain risks and logistics because aspects such as transportation risks, cultural risks or exchange rate risks gain importance.

The failure of the outsourcing agreement may have a lasting negative impact on the relationship with the providers of outsourced services. Most cases the failure of an outsourcing logistics contract generates great losses in terms of financial and other type of resources as well.

A prioritization of risks is the major process to mitigate them. It followed whereby the risks with the greatest loss (or impact) and the greatest probability of occurring are handled first, and risks with lower probability of occurrence and lower loss are handled in descending order. In the handloom industry with reference to Nellore district, risk prioritization if followed in order to mitigate the risk rate. Initially the demand side risks are mitigated because the demand for the product itself initiates affecting the business performance.

Supply chain risk prioritization:

i. Demand risks
ii. Supply risks
iii. Infrastructure risks
iv. Environmental risks
v. Legal and Regulatory risks
While the first two risk source categories deal with supply-demand coordination risks that are internal to the supply chain, the latter three focus on risk sources that are not necessarily internal to the chain.

**Logistics risk prioritization:**

a) Strategic risks;
b) Operational risks;
c) Tactical risks.
   i. High lead time
   ii. High operation costs
   iii. Poor service quality
   iv. Increased defective rate
   v. Increased response time
   vi. Adds extra investment

The risk prioritization results in the performance improvement of the business activities. Productivity of knowledge workers, cost effectiveness, service and quality reputation of the organisation, brand value diminishes sales decreases, all these attributes are affected due to the supply chain risks. This is related to long term risks as the loss of proficiency in the performance of the outsourced processes in the future due to the lack of knowledge. We can find a large number of risks, but in the literature the supplier dependence risk is the one considered worst. Besides these risks there is also the loss of knowhow risk which can drastically affect companies that outsource logistics activities.

**The Risk Management Process**

In order to cope with risks and to achieve corporate goals, it is necessary to implement risk management. Due to several corporate crises and insolvencies, specific pronouncements as well as regulatory requirements exist in numerous countries relating to the analysis, communication and monitoring of risks. The typical risk management process is based on the generic management process and encompasses the following steps: risk identification, assessment, mitigation and control.

i. Risk identification
ii. Risk assessment(quantitatively or qualitatively)
iii. Risk mitigation
iv. Risk control
Therefore, higher the prioritization of the risks results in the effective business performance.

Strategies to manage threats (uncertainties with negative consequences) typically include transferring the threat to another party, avoiding the threat, reducing the negative effect or probability of the threat, or even accepting some or all of the potential or actual consequences of a particular threat, and the opposites for opportunities (uncertain future states with benefits).

Risk management also faces difficulties in allocating resources. This is the idea of opportunity cost. Resources spent on risk management could have been spent on more profitable activities. Again, ideal risk management minimizes spending (or manpower or other resources) and also minimizes the negative effects of risks.

To mitigate the supply chain risks, all the activities of mapping our supply chain, identifying relevant risks, and assessing the likelihood and impact of these risks give managers suitable information to help them figure out what to do about disruptions before and after they happen.

The handloom industry in Nellore district facing all the risks mentioned above. Apart from that lack of proper support from the government, infrastructure, financial resources, etc. There is a need to follow the proper risk management mechanism to mitigate the risk and to improve the effectiveness of supply chain.

Conclusion

Finally, the study identified various risks involved in handloom industry. The study made the suggestions required to overcome those risks. The industry performance is impacted by the risks involved in it. The risk prioritisation is the way to identify the most dominating risks, to attend that risk to reduce first. Risk management strategies the companies should make for strengthening the supply chain. Delay in resources availability should be avoided to reduce supply chain risk.
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