Assessing Risks in the Global Supply Chain of Ericsson Mobile Platforms

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The changing supply chain environment, from single local logistical activities to expanded global chains, has lead to an increased interest of analysing potential risks in new upcoming situations for all links in the chain. Despite this, research shows that supply chain vulnerability is an area of concern that has not yet been addressed by many organisations. Equally, risk management is only to a limited extent executed on unit level within Ericsson. This article is based on a master thesis study, which was conducted at the Procurement and Supply Department of Ericsson Mobile Platforms in Lund. The aim of the article is to show how a risk assessment of a supply chain can be conducted and the main results found in the study.

Key words: Risk management, risk assessment, supply chain management, supply chain risk management, vendor managed inventory (VMI)

Introduction
In order to manage risks in a global supply chain, a company or business unit is obligated to have a general knowledge about the constructed supply chain and its ingoing parts. Moreover the company needs information about how a risk is defined and what different types of risks the supply chain may lead to or be exposed to. A risk can be defined as three dimensions which are based on an event leading to the problem, the probability for the event to occur and the consequences from it. In the purpose of handling different types of risks, the company also needs to know how to evaluate risks and rank them in order of significance. In that way the company manages to focus resources on relevant and possible situations or scenarios.

The Procurement and Supply Department at Ericsson Mobile Platforms (EMP) is familiar with the challenge previously described. As a leading platform supplier of major mobile technologies, EMP senses the lack of knowledge in the supply chain risk management area and is interested in an assessment of the challenges their future supply chain may lead to and be exposed to. The insight led to the overall purpose of the study to improve the risk assessment at EMP by applying it to an example of a supply chain and its processes.

Problem Description
The discussion above eventually led to a problem description with the following areas of investigation for the study:

- What risks will the future supply chain of EMP lead to and be exposed to?
- For each risk, what are the probability and the consequence of its occurrence?
- Which are the most significant risks that need to be focused on during the risk treatment part of the risk management process?

Methodology
The working procedure for the study was initially to create a theoretical framework based on existing research in articles and books. An empirical framework was also conducted through multiple case studies of
the risk management processes at Ericsson and IBM. The frameworks set the base for the risk assessment, which included identifying, estimating and evaluating risks not only in the supply chain processes, but also general risks in the supply chain. The assessment of general risks in the supply chain can be seen as a complement to the risks in the processes. The risk assessment was conducted with the help of EMP employees.

**Theoretical Framework**

The literature study conducted for the thesis was broad, and the theoretical framework thus covers several fields of research. For instance, the theoretical framework includes the risk management process presented by Paulsson [1] as well as risk assessment methods suggested by Waters [2] and Hamilton [3]. The theoretical framework also contains several scientific articles in the field of supply chain management and supply chain risk management. To name a few, papers written by Christopher [4] and Cavinato [5] have been studied.

**Risk Assessment**

The risk assessment is considered as a part of the risk management process, illustrated in Figure 1. The risk assessment contains both risk analysis and risk evaluation. Risk analysis consists in turn of risk identification and risk estimation. After the risk assessment follows the risk reduction/control, also called risk treatment. In this part an action plan for how the risks will be treated as well as a contingency plan for how the risks will be handled if they occur are stated [1].

![Figure 1 Risk Management Process [1]](image_url)

**Risk Analysis**

Before the risk analysis began, the supply chain aimed to be studied was defined as well as what supply chain processes to focus on. These first steps set the scope and focus for the risk assessment.

The risk analysis was conducted with several focus group interviews and brainstorming sessions. Many different types of risks were identified:

- Risks related to the EMP organisation, e.g. lack of roles, responsibility and attention from managers
- Risks in the information flow in the supply chain, e.g. problems with the IT system where all information in the supply chain is gathered
- Risks with the physical goods flow, e.g. damaged goods or theft during transportation or warehousing
- Risks in relations between parts in the supply chain, e.g. communication problems between EMP and its suppliers and customers
- Risks on operative, tactic and strategic level, can be anything from order reception to strategic management decisions
- Risks defined as external to the supply chain, e.g. terrorist activities and weather impacts
In the final step of the risk analysis, the identified risks were estimated in qualitative terms on a scale from 1-4. The estimation concerned the risks’ probability of occurrence and impact on the EMP business if they would happen.

Risk Evaluation
The study continued with a risk evaluation, which aims to prioritise the risks identified and estimated in order of significance. For the risk evaluation a risk matrix developed by Ericsson was used. The matrix defines the risks into four classes, Very High (VH), High (H), Medium (M) and Low (L), as shown in Figure 2.

![Figure 2 Matrix for Risk Evaluation](image)

Result
The result from the evaluation of the risks in the supply chain processes shows that there are both internal risks at EMP and risks connected to the supply chain. There are more supply chain risks than internal or external risks. However, the internal risks are considered more severe. The risks are in the physical, informational and organisational flow. However, there are more organisational risks than other flow risks but the most severe one is informational. The risks are classified on an operative or tactic level but the most severe one is on an operative level.

When identifying general supply chain risks all types of risks were found. There are more risks in the supply chain than internally at EMP and outside the supply chain. However, the internal risks found are considered more severe. Among the flow risks there are mostly risks in the physical, informational and organisational flows. The risks found in informational, organisational and relational flows are measured as more dangerous. The risks are commonly classified on operative or tactic level. However, the risks identified on tactic and strategic levels are the ones that need immediate attention.

Discussion
The risk estimation was conducted exclusively by EMP employees. The chosen working procedure of brainstorming sessions may have lead to a subjective judgement of some risk situations and therefore affected the result. However, since the purpose of the study was to create a discussion concerning risk management at EMP, the important issue has been to identify where excessive resources need to be focused.

Future Studies
Risk management is a continuous process that needs to be executed frequently in an organisation. The business environment changes constantly, which also affects the risk situations. During the study the supply processes have changed and improved and therefore the risk situations have changed accordingly. It is thus vital for EMP to frequently review its business and processes in order to identify new risk situations as well as to exclude the ones that have become out of date.

This study was an application of the risk management process and its assessment tools to a case. The unique contribution this study has to general research in the supply chain risk management area is the
assessment conducted for a future supply chain and its possible scenarios where no historical data was accessible.

When conducting this risk assessment the greatest challenge was to estimate the probability and consequence. This study has identified a lack of research in the area of risk estimation when exact numbers and figures are difficult to find and would like to see such a study to be performed in the near future.

References


