Understanding the parameters driving the complex decisions of supply chain management

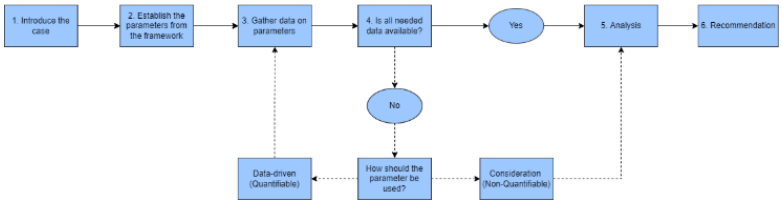
By Michelle Jasinski and Louise Skaarup Johansen (May 2022)

Making decisions in supply chain management is a complex process with a ton of different inputs to consider and involve. However, with today's digital and data driven reality, supply chain managers are offered a variety of digital solutions to support and guide the decision-making. But how does an organization navigate in this digital world and which parameters generates the optimal solutions, when one organization's supply chain network is as unique as the people driving it.

It is well-known that a supply chain network is aimed to be in use for a significant time during which many parameters could change. Today, companies face many challenges that require quick, decisive, and accurate decision making, due to networks ever-changing requirements. This issue calls for new technology and decision-making tools in order to stay competitive on the market. For many companies, digitalization and transformation of the company have been an ongoing process for many years. They simply need to do more to survive and ensure their competitiveness. Especially when the unexpected seems to be waiting "around the corner" more than ever.

A significant part of this is the modern supply chain's ability to generate large amounts of data. The enormous amounts of data open up great possibilities for optimizing the supply chain and thereby reducing or completely avoiding waste, delays, unnecessary stockpiling and environmental impacts. The modern development is increasing the need for competitiveness on supply chain network in order to meet continuously different demands. If one has not already done so, now is the time to rethink the way one does supply chain business.

Many companies today strive to meet the digital future with the use of all the possible data to generate a digital twin of the real world. Such a twin can accommodate, smoothen and test the decisions or projects of which are considered in a supply chain network. As Rome was not build in a day, neither is a digital twin representing an entire organization, or even just a part of it. Integration of a digital twin requires understanding of the parameters driving the supply chain. The purpose of this thesis was to build a framework, which contributes as a decision-making tool for evaluating different parameters of flow within a supply chain network. Essentially, to kick-start the digital twin journey by firstly understanding the parameters of which represent the data. The framework resulted in a three-phase logic distinguishing between quantifiable and non-quantifiable parameters, to cover the nature of all the considerations essential for supply chain management. Along with the framework, the thesis work delivers the process behind using it as visualized in the figure below.
With the concluded framework and the corresponding process procedure, the thesis delivers the pursued kick-start for a company striving to build a digital-twin, and to keep up in an inevitable digital future.



This popularized summary is derived from the master thesis: *Developing a Decision-making Framework for Supply Chain Network Reconfiguration – A case study at Lindab* written by Michelle Jasinski and Louise Skaarup Johansen