# Use Case Template

Name: *Supply Chain Mapping*

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## Short Description:

*The production of complex consumer or industrial goods (e.g. machine tools, cars, trucks, high rack warehouses with their handling equipment, computer, TVs, household devices, …) relies today on shared value creation between many companies, which are organized in supply networks.*

*In most cases, companies which are involved in a supply network, know only their direct suppliers and direct customers, but have very limited knowledge on the supply network as a whole. This limits all companies in the supply network, especially the OEM, in their actions like supply chain risk management, ensuring flexibility and adaptability, computing carbon footprints and other greenhouse gas emissions for products and other supply chain management activities.*

*Supply Chain Mapping means to answer the question, which companies in which locations and in which sequence are involved in the creation of a certain product family of an OEM with which production (or other value creation) steps based on which production technologies.*

## Preconditions:

*The companies in the supply networks must be willing to share information on locations, bills of material and production technologies with the other companies of their supply network and with the final customers.*

## Assumed Steps:

1. *Company-internal data sources on products (grouping, classification, …), bills of material, suppliers (contracts, locations, …) and customers (contracts, locations) must be linked and mapped into a partial semantic web.   
   For this, the right level of abstraction of the descriptions has to be defined.*
2. *Partial semantic webs must be linked between companies in supply networks. Therefore, part / product nomenclatures must be mapped if needed, and useful system borders has to be defined (often used example: the wire in the bulb should not be treated as separate supply part … (but what does this mean for LED lights?))*
3. *Access rights must be defined*
4. *Entry points must be defined*
5. *? (further steps possible)*

## Expected Outcome:

* *Customers can ask the semantic web for all (relevant) companies which were involved in the production of their product.*
* *Experts at the OEM can get a complete overview on the supply network of a product family or product group (even if there are variant-specific subnetworks exist), and can use this as basis for their supply chain management activity (e.g. risk management, carbon footprint computation, flexibility / adaptability management etc.)*
* *Experts at N-tier suppliers (especially with N >= 2) can ask for which final products their products (which are supply parts for their direct customers) will be used by the customers customer. They can use this knowledge e.g. for advanced demand forecasts etc.*

## Risks:

* *Companies are not willing to share the necessary information*
* *No fitting level of abstraction can be found*
* *No useful concepts for modelling and visualization of variant-specific supply (sub) networks can be found*
* *No concepts for automated update of data in case of changes (change of supplier, change of location, change of production technology, …) can be found or implemented*
* *No industry or supply network can be found as pilot “user”*

## General notes:

*This use case is not based on a specific company, supply network or industry. It is based on more general anticipation of problems in different companies and supply networks, collected from various channels (e.g. former profession as researcher for SCM at an automotive OEM, supervision of bachelor and master thesis at the university, publications, press articles etc.pp.). But is is not approved so far. This document should serve as a basis for discussions on the use case proposal …*