

5. Supply chain complexity

Purpose, participants and application

- **Purpose**

- To create focus and emphasize the complexity of the company's supply chains and what drives the complexity. Supply chain complexity is a result of both external and internal factors.

- **Participants**

- All participants across functions.

- **Application**

- Should happen continuously but especially in connection with phase 1.

Procedure

- Supply chain complexity is a result of both internal and external factors. These factors can include:
 - The number of elements in the company's supply chains: Products, services, functions and areas of responsibility, production units, suppliers, components and raw materials, processes, etc.
 - The variation: Deviations from the norm in processes, products, services, structures
 - Coherence and mutual influence, the relationships between the elements of the supply chain.
 - Supply chain processes.
 - The supply chain organization.
- Additionally, factors listed in the figure on the next page can serve as inspiration for such an assessment. The factors that are assessed to influence or affect the company's supply chain complexity are listed and evaluated according to their impact.

Supply chain complexity

External factors

- Increasing number of trading partners
- Changed customer needs and expectations (e.g., demands for customization)
- National and international laws and regulations (e.g., new EU CSR-D directive)
- Industry-specific regulations and standards

Internal factors

- Lack of coordination and cross functional integration (silos mentality)
- Lack of information sharing, data synchronization, and communication (transparency)
- Lack of clear decision-making processes

Supply chain complexity

- Lower profit
- Higher cost levels
- Lower performance
- Higher risk

Complexity factor (CF)

$$\text{CF} = \begin{array}{l} \# \text{ products} \\ * \# \text{ suppliers} \\ * \# \text{ customers} \\ * \# \text{ employees} \\ * \# \text{ stock keeping units} \\ * \# \text{ markets} \\ * \# \text{ locations (incl. production sites/facilities)} \\ * \# \text{ warehouse locations} \\ * \# \text{ different modes of transportation} \\ * \# \text{ country representations} \\ * \# \text{ different IT-systems} \\ / \text{ total earnings} \end{array}$$

The more elements present at each stage mentioned above, the more complex the supply chain becomes.