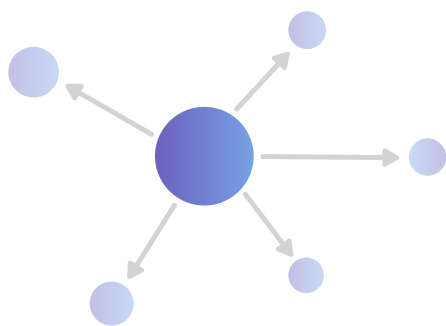


Localization is defined as **developing a supplier base locally**. Today, global trade is highly disaggregated (distributed over the globe). The current crisis has exposed its vulnerabilities. To avoid such cases, organizations can opt for localizing their supply chains to some extent. Otherwise, they must **evaluate the associated risks** to their product supply and incorporate them into their sourcing and inventory strategy.

How to Evaluate Risks?

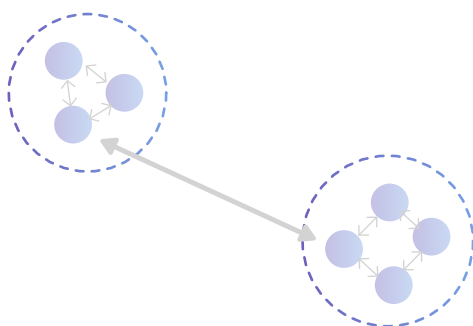
There are 3 components that define the supply risk for a product.

1. Presence of central players



The first characteristic of risky products is the presence of central players in the supply chain network. The presence of central players affects to which extent microeconomic shocks explain the fluctuations.

2. The tendency to cluster



The tendency to cluster explains the phenomenon when a group of suppliers tend to supply each other mostly. This increases potential spillover risk. Practically, it happens when groups of countries/ suppliers trade more among each other than with the rest of the world.

3. International Substitutability



The final component is the degree of international substitutability of the product. As such, when a shock hits major suppliers the extent of spillovers will depend on the availability on international markets of substitutes for the affected goods. If there are no close substitutes in the short run, every user is affected by the disturbances at the source country.

We can classify a product as risky if it scores high in each of the three components described above. To classify products in different groups, we can use clustering techniques (for example, by the K-medians method) on standardized scores to group products into categories of different risk levels.

Organizations can first quantitatively identify the products that are vulnerable, then accordingly decide their localization policy, sourcing and inventory strategy.