Designing Your Global Supply Chain

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15 Strategic Choices for Designing your Global Supply Chain

In the 1990's, and with the rise of the concept of Supply Chain Management, supply chains have gone global. This has largely been enabled through information technology (the subject of a separate article). Globalization has included suppliers in many different countries, setting up warehouses to serve global customers, creating transportation systems to move goods around the world and moving production facilities to best-cost countries. Examples of best cost countries are Germany and Japan for machinery, the USA for sophisticated hardware and software design, China for high labor content products and large heavy industry, Korea for ship building and large heavy industry, India for lower-value software design, France and Italy for fashion luxury goods, and others.

Supply Chain researchers have documented 15 choices you make when designing a global supply chain; whether you do it explicitly or by default. I will briefly explain these 15 choices to help you optimize your global supply chain (minimize cost and maximize customer service). The 15 choices are:

1. Consolidation
2. Postponement
3. Responsiveness
4. Lean-ness
5. Agility
6. Adaptability
7. Flexibility
8. Speed
9. Value Contribution
10. Core Competency
11. Differentiation
12. Collaboration
13. Hedging
14. Redundancy
15. Diversification

Consolidation is the combining of assets to take advantage of economies of scale. You can consolidate production facilities into larger facilities, warehouses into larger warehouses, shipments by using larger vehicles or ships, suppliers and even software systems by replacing multiple systems with one ERP package. Consolidation has negative aspects as well. Typically consolidation creates greater inventory, increases distance to customers and can reduce the ability to be responsive to customers' needs.

Postponement is a form of consolidation. HP made postponement famous by producing printers in a single facility worldwide, shipping to regional distribution centers and letting the DCs customize each printer by putting in the appropriate power supply and packaging. By postponing the final form of the product, a company can produce fewer stock keeping units (SKUs), and therefore take advantage of economies of scale in production. Shipping costs can be lower because products can be bulk packaged, getting more in a container. Postponement also reduces SKUs, reducing inventory investment. The reduction in inventory investment occurs, not because there are fewer SKUs to stock, because demand is still the final demand, but because the postponed SKU is essentially aggregating variation of the final customized product, which reduces the safety stock built into most inventory reorder point systems. Postponement is a great strategy if your product can be designed for this type of modular production. In other words, there is no downside to using the postponement strategy in your product development planning.

Responsiveness, Lean-ness, Agility, Adaptability, Flexibility and Speed are all related, with subtle differences.

Responsiveness is the ability to react to customer demands. This can be reacting to customer orders, changes in customer taste, or customizing products and services to meet specific customers' needs. A responsive organization places a great value on customer service.

Lean-ness is the strategy of reducing waste in all processes. Developed by Toyota, a Lean system designs processes that minimize inventory, wasted movement and waiting by customers.

Agility is the ability to reconfigure your supply chain, changing suppliers, designs and production facilities as needed to meet customers changing requirements and demands.

Adaptability is a cultural aspect of an organization and supply chain. Adaption allows a company to overcome challenges, such as disruption in the supply chain. A great example is the technology industry. Because of margin pressure, many basic components have consolidated down to one or two suppliers in the world; and these companies have consolidated production into one facility world-wide. Certain chipsets, hard drives, screens, capacitors, etcetera, have been consolidated to single facilities. When a cell phone chip fab in Mexico caught fire, some companies built in redundant back-up systems and were able to adapt. When there was flooding in Thailand and multiple hard drive plants were under water, some companies adapted by using different technologies (solid-state hard drives) in their products.

Flexibility is closely related to Agility, but is often associated with volume changes. A flexible supply chain can increase or decrease output as needed because flexibility is designed into the process.

Speed is self-explanatory. However, in global supply chain management it has overtaken economies of scale as a key differentiator. Michael Porter, in his seminal book, Competitive Strategy, considered economies of scale as a barrier that is hard for new entrants to overcome. But in today's technology driven economy, fast companies can overcome economies of scale. As an example, Facebook changes its product (code) every day. New features are added, and those that are not working removed every day of the year (including weekends). Speed in supply chains values the ability to react fast and serve customers quickly over cost minimization.

Value Contribution, Core Competency, Differentiation and Collaboration are related strategies.

Value Contribution is the unique value that a firm adds to the supply chain. It is the reason that the firm is part of its supply chain. Value contribution often comes from the other strategic decisions. "Value" can be low cost production, flexible service or a core competency in design and engineering. As mentioned above, in a global supply chain there are many more choices of supply chain partners. These choices allow a firm to choose suppliers that add the most value.

However, it also allows them to choose customers where the firm can add the greatest value. This may seem absurd… that a company can choose customers, but how many companies made a big bet on being part of Dell's supply chain, not Apple's? How many companies gave up on U.S. based car manufacturers in favor of Toyota/Honda/Nissan, only to see Ford and GM increase market share after the 2009 recession?

Core competency is often considered the trade secrets of a company. This is what a company would not share with supply chain partners. From a global perspective, core competencies are often kept in the home country to prevent intellectual property theft.

Differentiation is how you "differ" your firm from competitors and secure your place in the supply chain. Price, quality, service, design and technology are all potential differentiators.

Collaboration is the degree to which you work with supply chain partners. Companies can collaborate by sharing production capacity to eliminate the need to build additional facilities. Supply chain partners often collaborate on new product development. Third party logistics providers (3PLs) use economies of scale in purchasing and handling

logistics to reduce costs for their customers, who collaborate on logistical requirements and capabilities. Collaborative planning and forecasting is a process of different echelons of a supply chain setting a single forecast and all producing or purchasing to this forecast. Collaboration also requires trust. Companies that collaborate turn over sensitive data, such as demand forecasts, new product plans and internal process details.

Hedging, Redundancy and Diversification are all ways to manage risk. Risk is the probability that an action will have a negative outcome.

Hedging is often done with insurance and financial products. Companies can purchase insurance to hedge against a disaster or work-stoppage. They can also purchase financial products to offset a movement in commodity prices or currency values. By definition a hedge will always have a minimal cost, as most companies are offsetting the higher cost of the risk, with the price of the hedging instrument.

Redundancy is building back-up capability in the supply chain. Redundancy can be in back-up power generation, which is necessary in many developing nations due to unreliable supply. A firm can have two suppliers, a primary and secondary, with the secondary being a back-up in case of a supply disruption with the primary supplier. Redundancy can be thought of as the opposite of consolidation.

Diversification is a form of redundancy. However, it goes beyond redundant supply. Companies can diversify product offerings, to make sure that if a technology kills off one business, it supports another. A company can diversify the supply chains it belongs to, in case one focal-firm competitor becomes dominant. For many years suppliers to Toyota and Honda benefited versus suppliers to Ford and GM. However, now, suppliers to Hyundai are benefiting at the expense of Toyota and Honda. Companies that diversified customers and supply chains hedged against their focal firm losing business.