

# Leagility in supply chain

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What is "leagility" in supply chain design?

In a supply chain analysis of an appliance manufacturer, application of leagility concept led to significant benefits of the company's performance. The company is based in Thailand whose factory is located in capital Bangkok (Banomyong & Supatn). The current problem of the firm is accumulated in its reverse logistics (e. g. managing returned products) being threefold; namely, excessive transportation costs, damaged products and slow customer response. The current system requires customers to travel from their homes to the retailer stores where they bought the firm's products. Retailers will then transport the returned products to the Bangkok factory or in some cases even have to forward first to distribution/ service center before actual repair in Bangkok factory. When repaired, the products are sent to customers, however, in retail stores only so they have to travel to claim.

With the application of leagility, creating service shops in retail stores serve as decoupling points to manage customer demand volatility efficiently. These services shops will be supplied by Bangkok factory with sufficient parts for the former to address simple defects and needed repairs. Bangkok factory will only accept complex problems that do not require immediate action. With the presence of leagility, the reverse logistics of the firm eliminate the three problems cited above. It is able to prevent excessive transportation because service shops can serve as direct access of customers to Bangkok factory capabilities. Less travel is required that can prevent damaging the products. Lastly, customer satisfaction is increased

because the response is faster while their need to " come-back" is minimized due to ready service.

Leagility is derived from the word leagile. The term is first defined by Naylor et al (1999) which means the mixture of lean and agile capabilities in the supply chain design. Managing the decoupling point is the crucial aspect of leagile with the objective of responding to a fluctuating demand at one end and its scheduling on the other. When strategic decoupling plan is implemented, it is possible to respond to abrupt market needs in an agile way while also carrying an ability to postpone or being lean to achieve efficiency. De-coupling manages the difference between orders and forecasts. Leagility is a combination of leanness and agility.

The former emphasized on reduction of cost and waste and profit maximization through a level schedule. The latter is inclined with flexible service and profit maximization through understanding customer requirements efficiently. Leagility is achieved when these value-creating activities are present; namely, just-in-time (JIT), quality improvement, IT upgrades, lot-size minimization (i. e. less scrap and faster response time), system integration and global optimization.

Other authors defined leagility as a hybrid strategy between lean and agile supply chain. Being agile is the use of market knowledge and virtual business to manage fluctuations in demand while leanness is the use of value stream where waste and time are reduced and level schedule is obtained. In their definition, decoupling point is clearer. Decoupling point is the part of the supply chain in which customers can interfere and take part through the chain design.

The point serves as signal to the firm about demand that can guide the forecasts/ Kanban system. With the use of decoupling, inventories are managed on a stable level that has cost efficiency implications. The combined features of agile and lean supply chains led to inherent characteristics of leagile supply chain. These include volatile and unpredictable market demand, medium productivity variety, short product life cycle, service level customer performance, moderate profit margins, dominant physical and marketability costs, vendor-managed inventory, essentiality of information and other desirable effects to quality, forecasts, lead time and other costs (O'Brien 2005).

#### Leagility application to USMC

IN USMC, information technology is used to improve the supply chain management. IT is deemed essential in leagile design and USMC has addressed this issue. Assuming that SAP NetWeave enables information sharing across different functions in the supply chain, the organization can stabilize leagile framework through its IT. However, the investment in IT must not be too high because funds are required in creating decoupling points systems and resources. It should be noted that agile supply chain will not be acquired by USMC rather leagile and this makes IT non-obligatory.

Further, IT may have intensified the ability of USMC in integrating information and resources to armed forces and suppliers of other countries. Adoption of leagility can provide relaxation on the demand in reducing lead time for USMC services as this is not essential to being leagile. USMC can continue sharing resources with other countries that can result to acquiring

the latest technology without the problem against time constraints (e. g. on approval of the cooperating country about the local information).

The use of GPS and RFID device in tracking supplies should be minimized since leagility does not confront stock-out penalties especially there are no place for stock-out (RFID Journal). This means that the advantage of GPS and RFID to provide real-time information about the location of the inventories in the stock room or warehouses are seen less useful. Further, the cost of such technologies is higher than the common barcode that their use in leagility is sub-optimal.

Therefore, barcodes should be revisited. The use of satellite communications in relation to service provision in a timely manner and also quick response must be maintained. Leagility does not offer robustness while its forecast mechanism requires algorithmic and consultative areas inherent to lean and agile supply chains respectively. As a result, service provision can be adversely affected when satellites will not feedback real-time events in the area of jurisdiction.

The use of rapid logistics is required in leagility. However, this can be adversely affected as purchasing policy is managed by vendor inventory. Even with an efficient logistics, a non-cooperative vendor can cause delays of resources delivery and transfer. In contrast, the rapid logistics can aid in providing products within the concept of leagility. Leagile products are provided as per customer demand which can increase customer satisfaction by rapid delivery. In effect, service level is achieved with low cost from USMC due to absence of excessive stocks and inventory spaces.

Smart packing is required to be an efficient process because the products carried through a leagile supply chain have short life cycles. Further, it is also a difficulty that USMC is obliged to produce different packing designs to a medium-scale product differentiation (Smart Packing). Perhaps, a lean supply chain can better fit smart packing due to long life cycle. If USMC requires cost efficiency, smart packing should be minimized and funds should be diverted to dominant costs in physical and marketability expenditures.

## References

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