Abstract

When evaluating your supply chain, no gap should exist between where your suppliers’ capabilities end and your capabilities begin. Gaps in these capabilities not only impact your company’s profitability, but also drive inefficiencies through all of the participants in the value chain. For this reason, your company’s critical suppliers should be evaluated across all the dimensions of supply chain maturity; and an assessment should be made of how each of these dimensions impacts business performance. This paper provides an overview of the fundamental dimensions of Supply Chain Maturity and outlines a methodology for evaluating and analyzing capability gaps between customers and suppliers. Business strategies to improve overall value chain performance and increase return-on-investment are discussed.

The increased capabilities offered by emerging markets, the introduction of more products in less time, and the shifting of responsibilities down the supply chain is shifting the behavior and customer expectations. Customers require the delivery of low cost, high quality products in an increasingly competitive market, but have outsourced previously internal competencies to suppliers. With OEM products represented by an ever increasing percentage of purchased parts, supply chain management has become the basis for competitive advantage in the manufacturing industry.

An effectively managed supply chain improves overall decision making capabilities and business performance; and in today’s global market, companies are striving to implement creative supply chain management practices to realize these efficiencies throughout their value chain.

The first step in developing an effective supply chain is to assess the level of expertise and integration of key supply chain activities. CGN has created a Supply Chain Maturity Matrix that accomplishes this objective.

MATURITY MODEL

The Maturity Model is an outline of important factors that form the basic structure for evaluating and improving supply chain performance. Figure 1 shows the seven dimensions of the maturity model.
Management Talent & Stability: The primary goal of any supplier should be to satisfy their customers. Achieving this goal requires a talented management team that understands customer requirements and the implications of meeting these requirements in a globally competitive business environment. The management team should be flexible enough to adapt to changing business requirements and skilled enough to direct the changes necessary to ensure optimal performance. Company stability is a key measure of the management team. It indicates that a company has been able to adapt to a changing business environment and still deliver on customer expectations. Without this key element, the company simply has no operating viability.

Customer Relationship Management: Customer relationship management generally refers to those aspects of a business strategy which relate to the techniques and methods for attracting and retaining customers. Today’s global business environment creates a terrific challenge for managing customers – the cultural differences, large distances, and product/process complexities demand a level of customer understanding and collaboration that has never before existed. Breaking these barriers and becoming a true partner with your customer requires you to create processes and toolkits to ensure that lines of communication are open and uninhibited – a necessary step to optimizing supply chain efficiency. Companies that have accomplished this goal typically experience:

- Increased customer satisfaction
- Increased top-line growth
- Higher quality (reduced ppm defects)

Basic Manufacturing Capability: Cost, quality, and timing are “givens” in today’s manufacturing environment. In addition to these requirements, customers now demand agility, leaness, and responsiveness. Companies today must be able to ramp-up quickly to new product and/or process requirements. Their operating processes must include lean principles to efficiently meet customer JIT, VMI, and defect ratio requirements; and the supplier must be responsive enough to provide local project management support and manage flex capacity requirements dictated by customer volume fluctuation. These, and other key capabilities, will provide a framework for companies to evaluate their manufacturing aptitude against competitors. Key benefits that we have observed in companies include:

- Clear visibility to non-value added activities
- Conformity of products and services to high quality and reliability

Advanced Product Quality Planning: Developed by the automotive industry in 1994, Advanced Product Quality Planning (APQP) has been adopted as an industry standard for managing product and process requirements and changes throughout the value chain. The focus of APQP is planning (up-front quality planning through product/process validation) and evaluation (determining if customers are satisfied and incorporating identified improvements). A well managed APQP Process ensures that:

- Changes are identified early in the product development process
- Quality product is launched on-time and on-budget
- Design and manufacturing problems and special characteristics are identified and addressed in a timely manner. (See Figure 2)

Supply Chain Delivery: Supply chain delivery no longer means hiring a logistics provider and leaving it at that. In the global business environment, supply chain delivery has taken on a new structure that is based on customer requirements and capabilities. As responsibilities shifted down the value chain, program management and supply chain management have become the key drivers of competitive advantage. Meeting this need, suppliers have boosted their support to provide global “end-to-end” logistics support, local warehousing and expediting capabilities, and on-site project management support. With the need to reduce costs through TPS (Toyota Production System) methodologies like JIT, the reliability of the supply chain has become a necessity for companies to profitably deliver on customer requirements. Having
these capabilities is a necessary step to compete in the global market.

**Concurrent Engineering:** Traditional product development does not take manufacturability into consideration. Collaborative design and systems engineering reduces the time to market by minimizing re-work. Collaborative product development demands a multi-disciplinary approach that includes internal stakeholders, suppliers, and customers from a variety of functional areas. This team should be formed early in the design phase of product development so that customer requirements and supplier expertise can be integrated into the product from the beginning. Customers implementing concurrent engineering practices typically experience:

- Increased interaction between suppliers and customers
- Reduced re-work and fewer engineering changes
- Reduced time to market

**Collaborative Supply Chain Management:** Supply chain collaboration begins with setting individual objectives and using these to develop value chain policies that provide the opportunity to achieve a mutual competitive advantage. As this is the case, the benefits of a supply chain partnership can only truly be realized when all the associated entities collaboratively work toward supply chain profitability. It means not only implementing the above mentioned seven dimensions, but also incorporating them upstream and downstream in their respective supply chain. This is what drives mutual benefits to all the entities in the value chain.

**EVALUATION**

Understanding the impact of supply chain activities on business objectives requires identifying a company’s key business drivers. While all companies have their own business drivers, we know that the global market also drives business behavior. CGN has identified six key business drivers that every company must address to achieve success in the global market.

Once a company’s business drivers have been identified, the next step is to evaluate the supply chain maturity level of critical suppliers against each of the Seven Dimensions of Supply Chain Maturity. CGN utilizes qualitative and quantitative survey techniques to collect information and evaluates suppliers according to a five level model that ranks supply chain capabilities and practices from Ad Hoc to Optimized. Figure 4 provides a brief description of the different levels.

The individual suppliers’ maturity levels (see Figure 4) should be mapped to each of the Seven Dimensions of Supply Chain Maturity (see Figure 1). This will provide an individual supply chain maturity evaluation that suppliers can use to leverage strengths and identify improvement opportunities.
The next step is to utilize these evaluation results to generate a Supplier Portfolio Maturity Level for each component. This can be generated by using simple mean averages and standard deviations. An example of the Supplier Portfolio Maturity Level Evaluation is shown in Figure 6 below.

**Figure 6: Supplier Portfolio Maturity Level Evaluation**

**ANALYSIS**

Having gone through the evaluation activities, the company has established the two key inputs for supply chain maturity analysis (Business Drivers and Supplier Portfolio Maturity Level). It is now time to develop supply chain maturity targets for each of the identified maturity dimensions. We have found that the best outcomes are realized by developing these dimensional targets against the company’s business drivers (see Figure 3).

The target level is set by calculating the weighted averages for each dimension and selecting the appropriate maturity level. As shown in Figure 6, the difference between the current state and the supplier portfolio maturity level target represents a capability gap in the value chain. When measured against competitor performance or benchmarked against market-based standards, the gap analysis will identify the supply chain risk to which your company is exposed. A pareto analysis of all the dimensions based on the identified gap will allow your company to prioritize which dimension should be addressed first.

It is important to note, however, that if you set your targets too high your improvement initiatives will lose momentum – the gap may be too large to show any meaningful progress and may frustrate your change agents. The key here is to understand the level of change your extended enterprise can manage and develop a plan to migrate up the maturity model.
STRATEGIES

CGN has identified three key methods of minimizing the existing gap in the supply chain maturity level:

1. **Bring the supplier(s) up to the required maturity level:** Increasing the level of collaboration with struggling suppliers is the first way to minimize the gap. This activity should be focused on strategic suppliers with which you have, or plan to develop, strategic relationships. This is not an easy task; but to achieve the efficiencies available in the value chain, this is something that will need to take place with all of your key suppliers to some degree. A supplier management and development organization that is focused on improving **value chain performance** rather than unilateral cost reductions is the key to success here. Without the right people focusing on the collective efficiencies, the gap will never be closed.

2. **Provide third party capabilities to buffer the gap:** This technique is generally employed when the identified capability gaps fall outside the core competencies of the supplier. The gaps are typically buffered by providing the following key capabilities:
   - Internal capabilities: Internal capability deficiencies are generally utilized to bridge a communication gap of some kind. An example would be the use of advanced technology solutions for centralized project planning and scheduling functions.
   - External capabilities: External capabilities are quite prevalent and much more visible. These capability deficiencies are generally utilized to provide specific functional support to enable the value chain. Examples of these include logistics / transportation, warehousing / expediting, local project management, and engineering support. Using third party providers to supplement value chain gaps has allowed many companies to compete in otherwise unapproachable markets. This practice has actually increased global competition through more readily available access to information and customers.

3. **Develop new suppliers:** Developing new suppliers should not be seen as a strategic last resort – this is something that should always be occurring. The fact is that there are many reasons to switch to a new supplier. Without a doubt, there are certainly the poor performing suppliers that must be discarded; but it is more often the case that additional supply market capacity is required, or that industry specialization is forcing companies to divest non-core (but related) business. In any case, there will always be a need to identify, qualify, and certify new suppliers. In today’s environment of shifting responsibilities and core competencies, leveraging supplier knowledge has become a key driver for product/process innovation.

The “best practice” value chain managers typically employ all three of these strategies (to differing degrees) to leverage their exposure and maximize supply chain efficiencies. But regardless of the method(s) that are employed, the benefits are clear. The supply chain affects every corporate Return On Investment lever. It is not only beneficial for a company to optimize these levers – it has become the competitive imperative for achieving success in the global market:

1. A win/win situation can be created that would lead to long term alliances. Realized cost benefits from the improvement activities could be distributed between the two engaging entities to keep reinforcing the culture of continuous improvement and market competitiveness.

2. Provide capabilities to buffer the gap. This is generally the case when the identified lack of capabilities falls outside a supplier’s core competencies. The gaps can be buffered by providing:
   - External Capabilities: Generally, logistics capabilities fall outside of supplier’s core competencies. Third party vendors could be utilized to provide logistics and inventory management capabilities. Vendor-managed inventory is a good example for this case.
   - Internal Capabilities: Internal capabilities could be extended to suppliers to bridge the communication gap. An example would be use of advanced technology for centralized planning and scheduling functions.

In most cases, the above two strategies can be effectively used to help advance maturity of the supply chain. Of course in the worst case scenario, the company can opt for developing new suppliers.

RISK FACTORS

There are many obstacles to successfully achieving supply chain maturity. It is important to understand
these risks as you develop your supply chain strategy:

- Industry Market Cycles: Cyclical industry demand requires a great deal of flexibility. Managing within a continuously changing business environment can subject the value chain to the highs and lows of their customers’ business model. Although mature supply chains are likely to be agile even in cyclical markets, the path to maturity is much more challenging if fluctuating demand is not met with the appropriate contingencies.
- Intellectual Property: The level of collaboration needed for supply chains to mature may pose a threat to intellectual property; thereby compromising a company’s competitive advantage in the marketplace. While global standards have been established, they are not uniformly interpreted or enforced. Given the forces of differentiation that proprietary processes, technologies, and designs represent, it is crucial for this risk to be recognized and addressed before implementing a supply chain strategy.
- Technology Integration: Generally speaking, technology is what makes global supply chain collaboration an option; however, the integration of various technology enablers across the supply chain can hinder the growth of supply chain maturity. Technology integration is already costly and challenging, but the inefficiencies created can compound these costs many times if the proper approach is not used to manage supply chain requirements.
- Relationship Management: The length of ongoing relationships with suppliers is also a key element to the maturity of a supply chain. Short-term relationships are generally plagued with a lack of trust and respect throughout the supply chain. This can pose a barrier to good faith communication and problem-solving among partners.

SUMMARY

The supply chain maturity model provides a framework for evaluating and improving supply chain performance. Achieving a sustainable model that provides long-term success is the basis for competitive advantage in the global market; and the first step to realizing the benefits of a mature supply chain is understanding your current situation. You are then able to make an informed decision on where you need to focus to realize the largest return on investment from your value chain. CGN’s Supply Chain Maturity Model is a proven tool that provides the rigor necessary to accomplish the objectives necessary to increase competitive advantage in the global marketplace.

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