Supply Chain Management: Implementation and Opportunities

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ABSTRACT: In 1998, the Council of Logistics Management modified its definition of logistics to indicate that logistics is a subset of supply chain management and that the two terms are not synonymous. Now that this difference has been recognized by the premier logistics professional organization, the challenge is to determine how to successfully implement supply chain management. This paper concentrates on operationalizing the supply chain management framework suggested in a 1997 article. Case studies conducted at several companies and involving multiple members of supply chains are used to illustrate the concepts described. In today's competitive business environment, a mid-market company's supply chain is crucial for its success. Caught between small, nimble competitors and large, better-resourced competitors, mid-market companies are looking for ways to improve their supply chains, especially by upgrading their existing supply chain tools or implementing new supply chain systems to stay competitive.

I. INTRODUCTION

In our experience, companies who neglect even one of these areas will run into challenges that they could've avoided with some better pre-planning.

1. Internal Staff (Change Management)

To get key stakeholders to truly buy in to your supply chain implementation, you must make the transition from "why change?" to "Who is going to be impacted, what is going to change, and how are you going to make it happen?"

This process cannot occur in a vacuum: you need to involve a broad audience in the communication and pre-planning of the project so each individual team can examine what the change would mean for them and for their specific function, as well as which key process hand-offs (or interfaces) between functions could be impacted.

It sounds obvious, but it's critical to communicate particularly closely with teams and individuals that will be the most affected by the proposed changes – especially the front line employees who are actually executing a process and conducting the day-to-day work. Early consultation and inclusion are important for all stakeholders but especially for the front-line performers because they're the ones who can typically find holes in the proposed changes quickly, which can then be more proactively addressed. It's much better to involve the right individuals early, before you get too deep into your project planning, so you can avoid the hard resets or major scope/design changes later in the project: those are usually the most painful and expensive.

2. Schedule for Success:

One of the best ways to set your organization up for success when overseeing a supply chain implementation is creating and maintaining a realistic schedule. As you know, basic project management involves managing three things: scope, schedule and resources. Although all three are interrelated, in my experience poorly planned schedules tend to cause a good majority of implementation headaches.

If management is too short-term focused, they can push to get too much scope implemented too fast to justify a faster ROI. This creates an excessive amount of business risk for the company (risk of disrupting operations); the end results

are the project is not set up for success and ROI actually takes much longer to achieve. A rapid implementation is great, but you need to balance speed with thoughtful risk mitigation. Implementing in phases is another good way to mitigate risk. It allows the project team to focus on important tasks and quality work without feeling the time pressure to cut corners. This helps build positive momentum as the project stays on schedule, hits its milestones, and produces more stable results and ROI step by step.

3. Systems Choices – SaaS or On-Premise?

You must determine if you should implement a SaaS (i.e., Subscription as a Service, or Cloud) solution, or an on-premise solution. This decision usually depends on two factors: ROI considerations and IT resources/support. If rapid ROI is important, then SaaS is by far the preferred option. SaaS implementations typically require a much smaller up-front investment and they can typically be implemented faster (because you don't have to buy and set up your own hardware/servers on-premise).

On-premise can make sense if you have very strong IT team, or if you want to keep the skillset needed to maintain the solution inside your business as a core competency. On-premise requires your IT team to be involved for the duration of the implementation and throughout the solution's lifespan, while SaaS typically only requires your IT team's help to set up and maintain the required connectivity between your ERP and the third-party solution.

4. Supplier Participation:

Supplier participation and acceptance are absolutely critical to any collaboration project: the success of your system is directly tied to your suppliers' willingness to use it. If you're a big fish in a small pond, then your suppliers are typically more "willing" to participate and use your system. Small and mid-market companies don't have that advantage, so they need to use a bit more finesse. For them, ensuring the system is easy to use and adds value for suppliers is crucial.

Regardless of your size, for long-term supply chain success, there must be benefits for all parties. One-sided or lop-sided benefits push relationships into transaction-based vendor/customer interactions rather than partner-to-partner. The former can be fine for cost cutting, but it can cause issues with quality, support and commitment between partners in the long run, especially if there are disruptions in the chain. Both sides need to feel they can depend on each other and they are more than a means to an end.

II. DISCUSSION

The top five opportunities we recommend:

1) Conquering Supply Chain Complexity Complexity of any system refers to the number and variety of elements it consists of, connections between the elements and the dynamics between them. The elements of a company's supply chain are the products/services, suppliers, customers and the company's own network of operational nodes.

The number and interaction between these elements determines the complexity of the supply chain. Demanding customers, competitive markets, governmental policies and regulations drive companies to adjust the number of products and channels to market which in turn complicates the interactions between the elements of the company's supply chain. The resulting increase in complexity creates a more costly supply chain that is often not quantified accurately when making these decisions. We can approach the issue of reducing this complexity in several ways.

One such approach is the Long tail analysis of product families. It helps in identifying numerous low-volume, high-variability, low margin products and subsequent pricing changes and pruning of cost absorbing products of the supply chain.

Another approach is network optimization which involves modeling the entire supply chain in order to analyze the network and total costs. The measurement of total landed costs and the ability to optimize inventory across the entire supply chain can lead to significant efficiencies and improved customer service.

Opportunities to reduce complexity may also be found through product design, delivery methods and supply chain segmentation. But the most important part in the reduction of complexity is to understand your customer's value proposition and your ability to satisfy that. This requires frequent adjustments of your arrangements with your suppliers as well as aligning your network with your customer network.

2) Wrangling Data The recent developments in information technology have placed a great deal of data at the hands of companies. Each and every interaction, transaction and update that takes place in any part of the supply chain generates data. It is a difficult task to consolidate, manage and generate insights from it, particularly when the supply chain is producing the information on a regular basis, across the entire system.

Effective management of data and external information helps in reducing inefficiencies and increasing productivity in the supply chain. It is often a challenging task to access the right data when you need it the most.

Many companies don't have the same data collection methodology and naming conventions for the data across all their operational nodes. It leads to the same data being collected more than once thus creating confusion when doing analysis. There is also a mismatch between the data you want to collect and what you actually do have. The abundance of data makes rationalizing the supply chain more and more difficult, without joint effort from all nodes.

Organizations that are good at using their data will win in driving big data opportunities and will have the edge over their competitors in managing their supply chain. For that to happen, they should have discipline in collecting and using data for making decisions.

3) Deploying Supply Chain Analytics One of the most popular topics in recent years is "Big Data". Data analytics is the essential to translate Big Data into value. Data analytics is the science of examining raw data to help draw conclusions from this information. It is widely used in many industries, in particular in the financial industry, where it is often considered a competitive advantage that differentiates one firm from the other.

This capability can also be applied to supply chain management, but it is still very much at the infant stage for many companies and will take years to mature. Companies can use advanced analytical and mathematical techniques, such as data visualization, simulation, optimization and statistical analysis, to improve the company's performance and profitability.

If we look at inventory management, an important supply chain discipline, most companies use simple equations to set their inventory targets. Using advanced analytics, such as multi-echelon inventory optimization, companies can reduce their inventory by 20-30%. In United States, only dozens of companies are currently enjoying this competitive advantage.

This is not a capability gap that can be solved through an analytic software purchase. To build this capability, companies will need to invest considerable amount of resources, money, and commitment. Maybe I'm taking a leap here, but I believe supply chain analytics will become a necessity in the next five years and first movers will enjoy significant competitive advantage for the years to come. With that in mind, the question, then, is are you a first mover?

Another opportunity is supply chain risk, what if you can find out and plan for what happens if a facility or supplier fails even if you don't know when or where it will happen? This is the process behind David Simchi-Levi's Risk Exposure Index method . By estimating how long it will take to recover from a site failure and estimating its financial impact, you can find out where the vulnerable spots are and mitigate. This process requires a considerable amount of

data about the company's suppliers, components and facilities that can be analyzed for insight into the most critical risks.

4) Improving Supply Chain Measurements One of the most common challenges supply chain professionals face today is to identify the right Key Performance Indicators (KPIs) and more importantly Key Performance Predictors (KPPs) to monitor supply chain performance, identify risk and minimize cost. It is difficult to find the right mix of KPIs and KPPs between product lines and between functions within the company. It is even more difficult to have all the stakeholders agree on the definitions and calculation of KPIs and KPPs. However, the most difficult task is to identify the right set of KPIs and KPPs which actually impact your business.

In my past engagements, I was able to build a model which emulates the client's supply chain characteristics using advance mathematical programing and identify which KPIs their business profitability is most effected by through the use of sensitivity analysis. Once the correct set of KPIs was identified, KPPs can be developed using statistical analysis. In many cases, my clients were surprised that some KPIs and KPPs they thought were important to their business were actually not and vice versa. Companies that can identify the right KPIs and KPPs enjoy high transparency of their supply chain, ability to prevent failures in the supply chain, and lower total landed cost.

5) Developing Supply Chain Talent It is no secret that companies with exceptional supply chain performance also achieve superior financial performance. For example, companies on the Gartner Supply Chain Top 25 list consistently outperform their competitors, financially, often by significant margin. Most manufacturing companies have recognized that supply chain can create tremendous value and competitive advantage and to do so will require capable supply chain talents.

Although supply chain management is no longer a new field of study, it is difficult to find expertise. While it is easy to fill a role in supply chain, such as a Buyer, it is very difficult to find a professional who understands the supply chain, which touches across almost every aspect of the business. Supply chain talent takes years to develop because of the broad knowledge required. Companies need to find the right people, provide continuous training and allow them to learn and develop by rotating their roles in the supply chain. This requires that companies invest a significant amount of money, time and patience to develop their own supply chain talent.

Supply chain management is no longer a cost center for business. To many manufacturing companies, it is now considered the most important part of the business. In order to stay competitive, it is critical for a company to be proactive about these five opportunities that underlie their supply chain management efforts in the next few years.

III. CONCLUSION

supply chain management (SCM) represents nothing less than a radically new strategic management philosophy enabling today's enterprise to realize the significant opportunities for competitive advantage to be found in the global marketplace of the late 1990s Similar to other management concepts such as Just-In-Time (JIT) and Quality Management (QM), SCM can be described from several perspectives as an implementable technique, a management process, and a business philosophy. Beginning as an aspect of integrated logistics management centered around linking the common logistics functions to be found among supply and customer channel partners in search of throughput and cost advantages, SCM has evolved from a purely operational tactic to a universal strategic philosophy that seeks to converge the productive and innovative capabilities of enterprises linked together in a supply chain into a single, unified competitive force. The fundamental value of SCM is *cooperation*, and it is manifested in the willingness of allied chains of companies to link their strategic objectives and fundamental operational processes to create unique, borderless, market-satisfying resources that are invisible to the customer yet capable of quickly massing critical competencies and physical processes to form uncopyable sources of competitive advantage. In the past, companies relied on the development of fixed channels of supply where standardized mass-produced products would be distributed based on the least-cost principle. Today, market leadership belongs to those supply channels that can activate concurrent business processes and core competencies among their members, merge infrastructure, share risk and costs, jointly leverage design and productive processes, and anticipate tomorrow's opportunities for radically new products and competitive space.

The development and evolution of the Internet and information technology have transformed the traditional way of working into electronic management and operation, opening new opportunities and strategic possibilities. This paper offers deep understanding of the electronic supply chain management concept, by giving insight into the nature of e-SCM and the opportunities that the information technologies are providing. Also, through analysis of real world examples of organizations that have implemented e-SCM, this paper exploits and examines the benefits and advantages to these organizations in building a sustainable competitive advantage

IV. FUTURE SCOPE

Given the importance of e-SCM and the impact it has for enhanced competiveness from the ceaseless integration within a network of organizations has intrigued numerous researchers to examine this topic as well as many businesses to undertake this execution and prove the benefits of the merge on the Internet with SCM to their everyday business. The main subject of this paper was the benefits of adopting e-SCM practices in terms that it contributes to creating a competitive advantage. After defining and giving insight into the e-SCM we have discussed the status of the organizations that have implemented e-SCM and are working by this concept. Improved. communication among partners, information sharing and synchronization, cost reduction, smooth production flows, shorter cycle times, reduced resources, over passing barriers of time and space leading to an improved customer satisfaction are all among the benefits of adopting e-SCM. Both real world's examples as well as second hand research data were used to prove the paper's goal that the adoption of e-SCM practices provides numerous benefits enabling organizations to work effectively and efficiently and thus build competitive advantage. The positive benefits of integrating the Internet into supply chain management outweighs the risks and associated costs as innovation and technology incorporation into how business is conducted has become essential and indispensable nowadays. Supporting the paper's goal is the analysis from the organizations that have adopted e-SCM and the benefits they have enjoyed. Enjoying the benefits of the integration with their partners brings advantage to these organizations over the organizations that have not yet completed such integration. In these regards, demonstrating the benefits of eSCM and the demands of working in this day and age, organizations will need to rapidly evolve to the e-SCM in the near future or be left behinds because the old ways of communicating and transmitting information are no longer fast or cost effective. The future research related to this topic might include the future improvements as the technology advances, the opportunities of intelligent agents and systems, the advancements in mobile technology. Having this in mind this paper hopes to unlock frontiers for additional researchers in e-SCM areas in order further development and utilization of this concept.

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