WHO MANAGES YOUR SUPPLY CHAINS?

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ABSTRACT

Whether they realize it or not, managers of ALL businesses have supply chains to some degree. But how should they manage them? In this paper, we look at the stakeholders that are involved in supply chain management and how their roles may be changing. We begin by reviewing the past, future, and present state of supply chains. Next, we look at ways supply chains are managed. We then review the various roles of third-parties in managing parts of the supply chain. Finally, we propose some future research questions that need to be examined in relation to supply chain management.

INTRODUCTION

Whether they realize it or not, managers of ALL businesses have supply chains to some degree. But how should they manage them? Put another way, when we speak of supply chain management (SCM), are we really talking about the management of the supply chains, or are we describing the concepts and techniques of how supply chains operate?

To give the reader an understanding of the magnitude of this question, Giannakis and Croom categorized the supply chain as having three strategic dimensions: **Synthesis**, with insights from the industrial organization, institutional economics and network theory literature; **Synergy**, drawing primarily from the inter-organizational relationships and strategic management literature; and **Synchronization**, founded on research in operations management, logistics, operational research and systems engineering. While sounding entirely academic, these three dimensions actually offer an easy to understand starting point in understanding supply chains (Giannakis & Croom, 2004).

A more recent study looked at theoretical explanations of how to structure and manage supply chains from three different perspectives – an economic perspective, a socio-economic perspective, and a strategic perspective. They concluded there is no such thing as "a unified theory of SCM" at the present time. (Halldorsson, Kotzab & Mikkola, 2007).

In this paper, we look at the stakeholders that are involved in supply chain management and how their roles are changing. We begin by reviewing the past, future, and present state of supply chains. Next, we look at ways supply chains are managed. We then review the various roles of third-parties in managing parts of the supply chain. Finally, we propose relevant future research questions that need to be examined in relation to supply chain management.

THE PAST AND FUTURE OF SUPPLY CHAIN MANAGEMENT

As a starting point, we will consider the extremes of supply chain management (the past versus the future) and then see if we can find some places in between that fairly represent the present. First, let's look at the past. We do not have time to go back centuries when supply chains were first formed; so let's go back just a century or so to Ford's River Rouge plant. This highly integrated factory brought iron ore off the Great Lakes and processed it into steel for use in assembling the Model T automobile (Ford 1988).

This manufacturing arrangement was about as tightly controlled as companies got – a period when vertical integration was a commonly accepted way to manage supply chains. Granted, their supply chain went back to the ore mines and forward to their sale of cars but it was largely under the control of one organization. (Some might even say under the control of one person, Henry Ford himself). If problems arose, they were resolved on site. Figure 1 shows an example of a tightly integrated supply chain under the control of the owning, or focal, company.

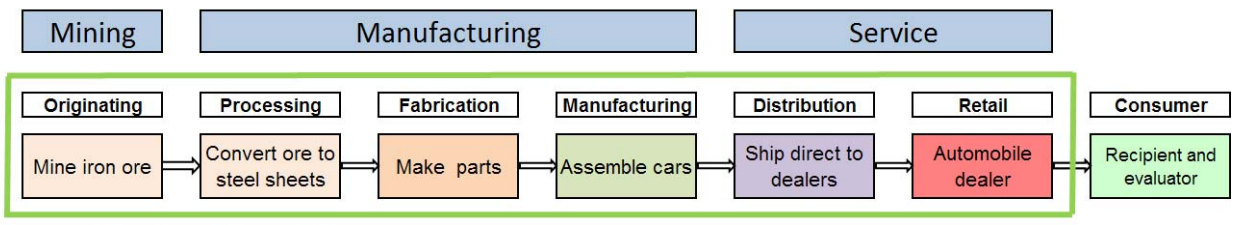

Figure 1. Tightly linked or controlled supply chain under one major participant

While Ford's River Rouge plant represents the past, what about the future? Many writers portray the supply chain of the future as a series of tightly connected links (chains) in which each link is a separate entity that collaborates with its customers downstream and its suppliers upstream. These links are necessary so products and services can flow smoothly from the original suppliers to the ultimate consumers. In this arrangement, the supply chain participants have an agreed upon view of their mission and are all motivated to do what is best for the ultimate consumer, believing that objective will create prosperity for all members of the supply chain. The participants trust each other completely and collaborate to plan and execute their mutually agreed to responsibilities. Should problems arise, they work together to resolve them quickly and equitably. In a manner similar to self-directed teams within a company, the supply chain becomes a self-directed supply chain with members that use their understanding of the big picture to manage their own operations. Geographically speaking, the participants in the supply chain may be any place in the world. Figure 2 shows a supply chain that achieves this singularity of purpose through collaborative links between participants.

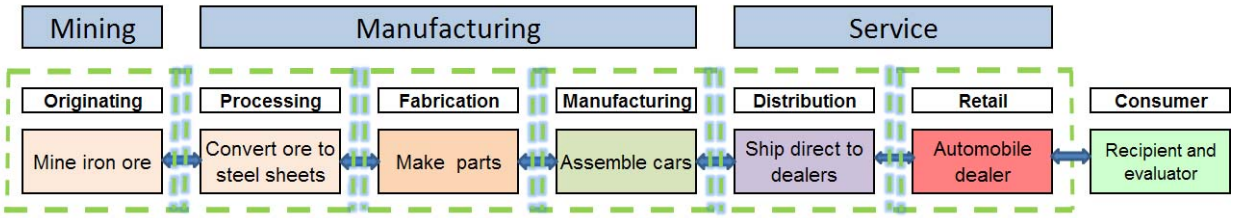

Figure 2. Loosely coupled supply chain with aligned direction through collaborative links throughout

While the future supply chain model has many advocates, they also point out that the scenario described above is not easily achieved. "All managers recognize technology, information, and measurement systems as major barriers to successful supply chain collaboration. However, the people issues – such as culture, trust, aversion to change, and willingness to collaborate – are more intractable" (Fawcett, Magnan, & McCarter 2008).

PRESENT SUPPLY CHAINS

We believe it is safe to say that most supply chains today are somewhere in between the end points described above. But exactly where are they? How are companies dealing with the problem of moving from the security of vertical integration to the uncertainty of loosely-coupled, globally-dispersed, independent operations? Figure 3 shows a supply chain that moves toward the ultimate consumer through loosely coupled links that work at varying levels of effectiveness and efficiency.

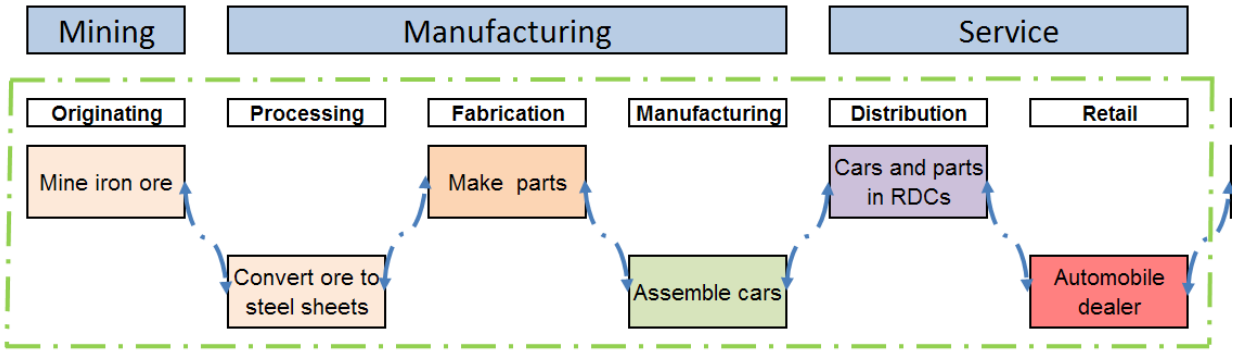

Figure 3. Loosely linked supply chains without direct route to ultimate consumer

In reviewing the literature on supply chains, it is difficult to find articles that deal directly with this issue of supply chain management, or governance. Much of the forward-looking research describes efforts in moving toward trusting and collaborative relationships. However, there is little written on what to do in the interim, although there are some suggestions. Presently, there are at least five major approaches that supply chain management falls under. They are:

1. Virtual supply chains
2. Contractual alliances
3. Dominant party management
4. Third-party direct management
5. Third-party indirect management

We will describe these alternatives in generic terms; however, there are variations for each of these approaches, depending on industry and individual company practices.

Virtual supply chains

The APICS Dictionary defines a virtual corporation as "the logical extension of outpartnering. With the virtual corporation, the capabilities and systems of the firm merge with those of their suppliers, resulting in a new type of corporation where the boundaries between the suppliers' systems and those of the firm seem to disappear. The virtual corporation is dynamic in that the relationships and structures formed change according to the changing needs of the customer," (Blackstone 2008).

A further definition of a virtual organization is "short-term alliances between independent organizations in a potentially long-term relationship to design, produce, and distribute a product. Organizations cooperate based on mutual values and act as a single entity to third parties" (Blackstone 2008). This latter definition has more relevance to supply chains. An example of this type of virtual supply chain is the one established by Boeing to create their Dreamliner 787. They created a tightly linked supply chain for the entire life cycle of that specific airplane. Participants are clearly identified and bound together with contractual agreements involving mutual commitments (Wikipedia 2009).

Contractual Alliances

A step removed in the formal arrangement from virtual supply chains is a supply chain linked together by contractual agreements. These agreements can clarify many issues, but are not guarantees disputes will not arise or adjustments will not be required as the supply chain evolves over time and changing conditions.

Williamson (2008) suggests that, as bilateral dependency increases between participants, the relationship moves from a simple market exchange to a hierarchical form involving contractual safeguards.

Dominant party management

Supply chains are composed of companies ranging in size from small to large. In recent years, retail companies have tended to become the largest entities in the supply chain. Companies such as Wal-Mart, Target, Home Depot, Lowe's, Best Buy and Macy's are large in comparison with most of their suppliers. As a result, the retail company is often the dominant player in a supply chain and can exercise significant direction over other members of the supply chain. While they may not have direct control, they have considerable influence on what their suppliers do.

Some manufacturing companies are equally dominant in their supply chains. For example, automobile manufacturers, computer manufacturers, oil drilling operators, refining companies, and pharmaceutical companies can also effectively dictate what other members of their supply chains do.

Third-party direct management

Another possible alternative is to have a third party that is not a member of the supply chain, assume a measure of managerial responsibility for the supply chain. UPS provides a variety of services, including the operation of warehouses that receive orders and ship products to customers for other companies. Amazon provides website management and order processing services for a vast number of companies. Contract manufacturers, such as Selectron, provide manufacturing services for a number of companies that design and market their products. The outsourcing movement offers numerous opportunities for transferring not only production work but also the management of a portion of the supply chain.

One recent study by Fabbe-Costes, Jahre, and Roussat (2009) looked at the role of logistics service providers (LSPs) in supporting supply chain integration (SCI). In their literature review, they were surprised to find that very few articles consider LSPs in discussing supply chain management. LSPs are divided about whether they should be pure "resource providers" or assume the riskier role of "supply chain designers." Apparently, there is indecision about the role of third providers in supply chain management.

Third-party (indirect) management

There is a growing interest in the use of third parties to assist in the indirect management of supply chains. We will highlight several approaches that may be considered.

Systems Integrator

As supply chains expand in size and complexity, the interfaces between partners become more difficult to maintain. One study by Britran, Gurumurthi and Sam (2007) maintains the process of disintegration in many industries is not sustainable from a coordination and control viewpoint, and therefore will be followed by eventual reintegration - although it may take different forms in different industries. They believe there is a need for a systems integrator, which, in many cases, goes beyond critical coordination services and extends into issues related to control and governance of portions of the supply network.

Advisory Board

A variation of the systems integrator would be to select an advisory board, composed of representatives from companies participating in the supply chain. The advisory board would be more concerned with strategic and jurisdictional issues; however, they could be empowered to become more directly involved in day-to-day issues should the partners agree on the increased responsibilities.

Auditor

Still another variation would be to use third parties to audit the functioning of a supply chain and identify problems or opportunities for improvement. This function would be similar to public accounting firms that audit companies, but would not carry the same regulatory requirements. This approach could lead to the development of standards for use in designing effective supply chain partnerships.

Program Manager

Designing and building an integrated supply chain has similar characteristics to a project. Companies can use a third-party (consultant) to help them design their supply chain and assist them in its implementation. Once the supply chain is working satisfactorily, its management can revert to the companies involved.

Arbitrator

Another type of third party involvement can include an arbitration function to resolve disputes and, in so doing, establish policies that can serve the supply chain members in resolving future disputes.

MANAGING THE INTERFACES

If businesses want to more clearly identify the management structure in a supply chain, they need to manage not only the operations within their companies, but more importantly, the interfaces between companies.

Davis and Spekman (2004) distinguish between typical boundary-spanning activities and emerging boundary-spanning activities. They point out that typical boundary-spanning activities such as gatekeeping (managing information flow), transacting (managing flow of goods) and protecting (due diligence, forecasting and monitoring supplier performance) are not new. Emerging boundary-spanning activities include managing information exchange, formation and implementation of strategic relationships, co-management of external manufacturing, and leveraging the skills of the supply chain. The authors believe a skills gap exists in most organizations that limits their ability to manage essential boundary-spanning activities.

Building interfaces requires technology, primarily in the form of interorganizational systems (IOS) that enable supply chain partners to communicate effectively. In addition to the ability to communicate, supply chain members must be willing to share information with their partners. This task requires trust, another topic that has been widely written about, but which remains one of the most important barriers to achieving integrated supply chains (Crandall 2008).

MANAGING THE VITAL FEW

Whatever the approach that members of a supply chain take in managing it, one must conclude that, at best, they can manage only the vital few issues that arise. The sheer complexity of most supply chains make it impossible to manage it with the same level of precision that companies can take in managing their own internal operations.

RELEVANT RESEARCH QUESTIONS

While the management of supply chains is in itself, a complicated endeavor, the research of supply chains is equally difficult. A number of research questions need to be considered.

1. What methods do companies use to manage their supply chains?
2. Are companies currently satisfied with their present supply chain management format, or do they plan to change?
3. What are the benefits from a more formal supply chain management method?
4. What are the obstacles incurred in implementing a more formal method?
5. Are there other organizational variations that need to be considered?
6. What does “management” of supply chains include?

7. What are the objectives of supply chain management?
8. What are the possibilities for changes in the future?

SUMMARY

How do companies manage their supply chains? One group of management scholars summarize their research efforts with the following comment: "Our study suggests an increased need for emphasis on managing the supply chain and the key role that knowledge sharing plays in effective supply chains. More broadly, collaborative inter-organizational relationships, such as supply chains, can be strategic weapons geared towards improving focal firm performance," (Crook et al. 2008).

At present, research in supply chain management has focused on a number of issues related to supply chains, including:

- Concepts and definitions
- Objectives – cost, quality, response time, flexibility
- Benefits and obstacles in building integrated supply chains
- Components of supply chains – types of suppliers and customers
- Technologies used, especially information technology (IT)
- Strategies to employ, such as outsourcing
- Need for communication and flow of goods along the supply chain
- Issues of establishing trust and collaboration among participants in the supply chain
- Issues of changing infrastructures and cultures in transition to supply chains
- Needs for flow of goods, services, information and funds along the supply chain.

While there has been extensive research in a number of areas related to supply chains, there is a lack of research in the best way to organize and manage supply chains. We see this as an area of future research opportunity.

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