

***SUPPLY CHAIN MANAGEMENT:  
IMPLICATIONS FOR SMALL AND RURAL  
SUPPLIERS AND MANUFACTURERS***

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## EXECUTIVE SUMMARY

Supply chain management is a major concern in many industries as companies realize the importance of creating an integrated relationship with their suppliers and customers. Managing the supply chain has become a way of improving competitiveness by reducing uncertainty and improving service. One aspect of successfully managing the supply chain requires that a company understand their logistical strategies and practices.

Personal interviews with logistics managers employed by firms from the Twin Cities Round Table suggest the following issues are important to supply chain management.

- Firms believe supply chain management is a fundamental change in industry.
- Six characteristics define current supply chain management philosophy.
  1. Shared Information
  2. Organizational Relationships
  3. Inventory Management
  4. Total Pipeline Coordination
  5. Firm Flexibility
  6. Costing Issues
- There are three major reasons for establishing supply chains.
  1. To reduce inventory investment in the chain
  2. To increase customer service
  3. To help build a competitive advantage for the channel
- Information is crucial and drives the entire supply chain system.
- Third parties are becoming popular and will continue to be important for having a cost effective business.

## PROJECT OVERVIEW

Supply chain management is a major issue in many industries as companies realize the importance of creating an integrated relationship with their suppliers and customers. Managing the supply chain has become a way of improving competitiveness by reducing uncertainty and improving service. One aspect of successfully managing the supply chain requires that a company understand their logistical strategies and practices.

Underlying this research is a belief that supply chain management will place new demands on the logistical capabilities of suppliers. The objective of this project is to assess and determine whether the logistical practices of small and rural suppliers will allow them the opportunity to successfully participate in an integrated supply chain.<sup>1</sup> The project consists of two steps. First, we identified minimal logistical capabilities a supplier must have to do business with “leading edge” companies. To achieve this goal, our research began with a series of expert interviews with “leading edge” firms in the Twin Cities. Later, our research will determine the capability of small and rural suppliers to apply logistical requirements to their company. This will be done through a combination of expert interviews and mail surveys.

The goal of the expert interviews with the “leading edge” companies was to obtain opinions on various issues about supply chain management (SCM). Twelve firms with members in the Council of Logistics Management (CLM) were selected to be interviewed. In July 1996, 16 people from 10 firms participated in the expert interviews. The titles of these individuals ranged from president to director of distribution and from director total supply chain management to vendor compliance manager. For the most part, these individuals work at some of Minnesota's larger corporations. The types of companies included warehousing, manufacturing, and retailing.

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<sup>1</sup> This project has been endorsed by the Twin Cities CLM Round Table.

The results of the interviews do not represent a scientific sample, nor are they statistically valid. Instead, they will be used to develop a basis for further analysis of supply chain management. Although a set of six questions guided the interviews, the discussions were typically unstructured, with many diversions (see Appendix A). The responses were categorized as best as could be done. Many ideas could easily fit into two or more issues of supply chain management, so categorizing was difficult. Nevertheless, the following discussion captures the spirit of the interviews. For each question, a conclusion or observation is drawn, followed by comments made by the experts.

**1. From your experience, is supply chain management (SCM) a passing fad or a fundamental change? Alternatively or in addition, how important is SCM to your firm and industry?**

There was resounding agreement among the respondents that SCM is a fundamental change in industry. While some seemed to say it was dramatic, others were more reserved on the effects it had on their business.

Supply chain excellence is a major element in most of the companies. While it is a business practice, it also is a mind set for some of them. The fundamental idea behind SCM is the management of information instead of the management of inventory. SCM also has helped companies make the transition from an organizational structure based on functional silos to a process-orientated structure. This transition can lead to confusion and conflict between firms and SCM has helped to buffer these effects.

Some companies began implementing SCM policies about three years ago. Others believed or thought it is the most current buzzword for something that has been going on for a long time. Many companies are still struggling with the question of what is SCM and what the future will be. The future of SCM remains open, but it will probably depend on what the industry demands. In conclusion, SCM appears to have longevity and is the right thing to do.

## **2. What characteristics define your company's current supply chain management philosophy?**

Six common characteristics were identified by the respondents. The responses were consistent with a list developed by Coyle, Bardi and Langley (1996). They are: 1) shared information, 2) organizational relationships, 3) inventory management, 4) total pipeline coordination, 5) firm flexibility, and 6) costing issues. At some point during every interview, the firms mentioned that information sharing is probably the most important characteristic in a successful supply chain.

### ***Shared Information***

Information sharing is necessary to reduce uncertainty and lower inventory levels. The respondents stressed that willingness to share information must extend both in the firm and across the supply chain (suppliers and buyers). Communication in the company is important and may decide who the customer is and what the company's goals are, and may make sure that these two issues match.

The long term logistics goal is to increase information sharing in the supply chain. Communicating the following types of information is essential for a successful buyer/supplier relationship:

- product development information (new products, improvements, etc.)
- cost data
- demand schedules (including point of sale data)
- how much material the buyer will need
- production schedules

It is crucial to get information about end-use consumers back through the chain to manufacturers. This results in better product information about what the customer wants and improved production operations.

### ***Organizational Relationships***

Strategic alliances and partnerships are important for a successful supply chain. They encourage firms to focus their attention on the entire supply chain and reduce the number of suppliers they deal with. Many companies have developed preferred vendor (supplier) programs, as well as core carriers, to ensure that a quality product is received where and when it is needed.

A successful strategic alliance/partnership has the following characteristics:

- extreme trust
- win/win relationship
- team building
- common goals
- cooperation (willingness to assist, better negotiations, less money driven)

Most companies interviewed were aggressively developing strategic alliances, however one company was not actively seeking partnerships, but partnering only with the customers who request it.

### ***Inventory Management***

In the past, holding large amounts of inventory was a normal business practice to guard against risk. Today many companies find holding inventory is costly and try to push the inventory onto someone else in the supply chain. Where inventory is held is a challenge in most chains. Some companies are demanding the manufacturer deliver the inventory to private customer warehouses in smaller lots, more frequently.

Some important inventory issues for SCM include:

- shorter delivery times (as part of cycle time reduction)
- just in time (JIT) (a shift from batch ordering)
- point of sales (POS) data
- vendor managed inventory
- consignment inventory

The first three issues are quite complementary. To utilize a JIT system, shorter delivery times are needed. POS data are required to know what products need to be quickly replenished. These three issues rely on information sharing to succeed. Vendor managed and consignment inventory are emerging management strategies designed to efficiently place inventory in the supply chain.

### ***Total Pipeline Coordination***

Each company has multiple supply chains and each of these chains have different needs. It is difficult to service everyone with one logistical system, so cross channel coordination is crucial. This coordination allows supply chains in a company to integrate with each other.



Creating supply chain value is important for successful coordination. The most important single factor in creating supply chain value is the ability to predict/forecast demand. The goal for total coordination is to be demand driven, not lot size driven. This basically means that suppliers should supply products according to demand, not according to lot quotas. One company has a complete demand management program consisting of demand, sales and operation, manufacturing and supply planning. These data are shared with suppliers to improve their operational efficiency.

In the past, forecasting was done using primarily historical data. Companies are moving away from this method and beginning to use point of sale (POS) data, which tells them exactly how much was purchased during a certain time frame.

### ***Firm Flexibility***

Large manufacturers stressed that an important attribute for all suppliers will be flexibility or agility. An agile company modifies plant and distribution networks by:

- operational efficiency (quick line change-overs)
- productivity savings (back hauling)
- speed of new product introduction
- standardized packaging machines (quick change-over)
- accelerated development of new products

As firms move to SCM, they are concerned not only with internal plant efficiency, but also the relationship to supplier's efficiency. The key driving force to supply chain operational efficiency seems to be agility rather than economies of size. Investments in plant and distribution equipment are important to remain an agile company in a supply chain.

### ***Cost Issues***

Supply chain management must be able to quantify a bottom line impact. A concern, however, is that some supply chains will quickly realize the "low hanging fruit," and then neglect long term investments required to acquire the more difficult, but potentially larger gains.

### **3. What do you believe is the major reason(s) for establishing supply chains?**

An article by Cooper and Ellram (1993) identified three major reasons for establishing supply chains: 1) to reduce inventory investment in the chain, 2) to increase customer service, and 3) to help build a competitive advantage for the channel. The responses from the respondents also can be classified into these three areas.

#### ***Reduce inventory investment in the chain***

Most respondents addressed the issue that no one sector wants to hold inventory in the supply chain. One reason to establish a supply chain is to reduce inventory levels by taking out the redundancies in the chain. For example, in most situations the distributor wants less inventory and tries to push it back to the manufacturer. As a result, the concept of vendor managed inventory has become a trend in inventory management. This system allows the inventory to be pushed back to the vendor and as a result lowers the investment and risk for the other chain members.

As product life cycles shorten, reducing inventory investment in the chain has become important. Cycle times are being reduced as a result of quick response inventory system. The quick response system improves customer service because the customer gets the right amount of product, when and where it is needed. Quick response also serves to increase inventory turns and velocity, which manufacturers like to see.

#### ***Increase customer service***

The respondents stressed that customer service is an important aspect of doing business. To remain competitive, firms implement supply chain management to improve customer service through increased frequency of reliable product deliveries. Some respondents stated that increasing demands on customer service levels is driving partnerships with vendors and suppliers. The ability to serve their customers with higher levels of quality service, including speedier delivery of products, is an important

concept that results in partnering. Having a successful relationship with a supplier or vendor results in trust and the ability to be customer driven, customer intimate and customer focused.

### ***Build competitive advantage for the channel***

Achieving and maintaining competitive advantage in an industry is not an easy task for a company. There are many competitive pressures that strive to force a company to remain efficient. Supply chain management is seen by some as a competitive advantage for companies that employ the resources to implement the process. It also serves to increase clout in the channel because these companies are recognized as “leading edge” and are treated with great levels of respect.

Attaining competitive advantage in the channel came with top management support for decreased costs and waste, in addition to increased profits. Many companies want to push costs back to their supplier and take labor costs out of the system. These cost-reducing tactics tend to increase the competitive efficiency of the entire chain.

Companies have become more market channel focused, in other words, they are watching how the entire channel's activities affect the system operation. Recently, the channel power has shifted to the retailer. Retailer channel power in the distribution channel is driven by the shift to some large retail companies (e.g., Walmart, Target, K-mart). The large size of these retailers allow them the power to dictate exactly how they want their suppliers to do business with them. The use of point of sales (POS) data and increased efficiency of distribution also have been instrumental in improving channel power and competitive advantage.

#### **4. What role can information technology play to improve supply chain performance?**

When respondents were asked to address this question, they replied unanimously that information is crucial and drives the entire supply chain system. The concept that moving information is as important as moving product is an essential part of the growth and improvement in information technology

capabilities. However, the respondents differed on exactly how important information technology is to the system.

### ***Information Technology Overview***

The overall goal of the information technology system is to improve a company's communication capability. The current information systems have given companies abilities that they did not have before the information technology (IT) explosion. Information technology has been and will continue to be the catalyst for change, but some respondents believe there is a "limit" to technology. This "limit" could be addressing the problem involved with information systems compatibility sometimes associated with the many systems.

Some respondents stated that a fundamental requirement for their company is to improve their IT systems. This concept could be seen as a competitive advantage idea. Improved information technology has the potential to reduce the manual drudgery of extensive paperwork and data entry.

One respondent stated they are working to effectively implement IT, but are finding it difficult because 80 percent of the shipments handled are not labeled with bar codes. These shipments seem to represent products of Fortune 100 companies. Bar code technology is only one part of the IT puzzle. This company's inventory and shipment control systems, financial control system, and customer P&L systems are state-of-the-art and provide information to customers and management.

It also was stated that for IT to be effective and productive, the human element must be integrated. Information technology will play a greater role in controlling the order selection process in the future, but the human mind is still better at some functions and needs to remain in the system. Key benefits to this include flexibility, adaptability, and decision-making ability, which are done best using the human mind.

### ***Electronic Data Interchange***

Electronic Data Interchange (EDI) is the standard communication system used in many industries. It serves to link business processes with business partners and increase the accuracy of information exchanged. EDI will continue to grow in importance and some respondents believe eventually everyone will implement it. In the future, a company should not need a management information systems personnel to run EDI. In theory, the system will get easier to use and any employee should be able to install and run the program.

While EDI systems are not difficult to implement, some company policies make it troublesome. There have been some problems in the past defining EDI. Because of this, some respondents said there are problems with several types of EDI systems being used and system compatibility with their suppliers. Most companies do not have good application systems, and may need to focus more on interfacing their programs.

In response to this concern, the respondents stated that the EDI system should be kept simple, yet efficient. This would allow all suppliers to communicate more effectively. Respondents that stated there was no problem with coordination among systems emphasized the need to stick to basic EDI standards for it to work. While some companies are making major capital investments on electronic linkages, others feel that expensive equipment does not pay because the systems are always changing.

Retail companies are utilizing EDI orders the most. If the manufacturer knows what is going on in the retail sector, inventory can be reduced and service increased. Inventory turns also are improved because key accounts are able and willing to share information about product in the distribution centers. In contrast to the retailers, it was found that the food service industry is less familiar with EDI. One respondent (a non food service company) stated that most of their information received is not transmitted electronically, but rather through a fax machine.

**5. What are the minimum logistical capabilities your suppliers must have to do business with your company?**

The most important concept of a successful business partnership is the ability to deliver a top quality product. This ability was the most common issue addressed when discussing minimum logistical capabilities. Many respondents used the term “perfect order” to describe this ability. This concept consists of a product order being 100 percent complete, on time and damage free, in addition to adding value to the product. It is also important to have a strong quality and inspection program to ensure that the perfect order concept is being followed. ISO 9000 certification was mentioned as an important aspect of an inspection program, but is not an essential requirement.

The remaining logistical issues discussed have been categorized into six areas including 1) supplier relationships, 2) marketing, 3) flexibility, 4) communication, 5) shipment requirements, and 6) transportation.

***Supplier Relationships***

As discussed earlier, strategic partnerships with suppliers are important for a successful supply chain. Companies have started to limit the number of suppliers they do business with by implementing vendor review programs. These programs strive to find suppliers with operational excellence, so the buyer can determine which suppliers are serving them better. The ability to have a close buyer/supplier relationship is very important because these suppliers are easier to work with.

With the evolution toward a sole supplier relationship, companies need full disclosure of the following:

- financial information
- gain sharing
- joint design work
- comparable culture

Many respondents mentioned that their companies use suppliers that implement the same forecasting techniques and information technology. This is because their suppliers must be able to link electronically into the buyer's system to get shipping and production schedules. The compatibility of these information systems is vital to the success of the electronic link.

The respondents thought that overall small and rural suppliers do a good job and should not have too many problems working with large buyers. A few even stated that these suppliers play a key role in their business. Small companies have the advantage of being hungry for expanded business and continued growth. This hunger serves to encourage them to do whatever is in their power to ensure they are satisfactory in supplying their large customers.

### ***Marketing***

Small and rural suppliers must continue to find and carve out niche markets. This will allow them to specialize in servicing a certain market area that gives them a competitive advantage. The respondents stressed that small suppliers must focus on better service offerings, such as store delivery. The basis behind this concept is that larger companies have become more concerned about reducing costs and have lost sight of offering special services. However, it also was mentioned that the small suppliers might not be able to afford these special services. This would depend on the expense of services provided. There probably would not be any reason to invest a lot of money unless there was a significant competitive advantage involved.

The process of having a buyer commitment for a supplier's product also is important for success. Respondents stressed that small and rural suppliers must be willing to sign long term agreements with their buyers. This allows the suppliers to have a continuous revenue for their products. In addition, small suppliers show they are committed to excellence and willing to go through extra efforts for the buyer.

An innovative suggestion for small and rural suppliers to remain competitive is to form a cooperative relationship between certain departments (MIS or R&D) among various companies. This

would allow smaller companies to be more competitive and increase their service offerings. A cooperative of special services in companies could be a way to reduce the expenses that were mentioned previously.

### ***Flexibility***

A smaller supplier can be more flexible in manufacturing and production than its larger counterparts. A small supplier is flexible when it is willing to look at new programs. It also will be more responsive and agile in productivity and competitive pressures. The respondents stressed that small suppliers will have to stay close to batch manufacturing at a good price.

The ability to hold inventory closer to the markets also was an issue that was discussed. If small suppliers do not have the capability to transport the product quickly to the destination, then alternative methods of storage and transportation might have to be implemented. By building or leasing a warehouse close to the market, a company could give itself an advantage by providing products to their buyers more quickly and efficiently.

### ***Communication***

The ability to communicate with buyers is an essential part of doing business. The respondents stated that the need to build an interface to communicate with their suppliers was quite important. Many of these companies are helping their small suppliers set up an EDI communication system, and are implementing other technical capabilities needed to communicate efficiently. These large companies predict that EDI usage will increase for both transmittal and verification of orders. As the current information technology gets easier to use, it will be easier for all companies to get involved and implement these programs.

Even with the advancements to make information technology easier to use, updates and advances still are critical to companies. Being informed allows everyone to remain competitive and up-to-date on new avenues of communicating information between buyer and supplier. Satellite and computer capabilities both are essential for small companies and should be accessible. One respondent specifically said that the



advent of the computer makes the idea of being “rural” irrelevant. Technological advances have allowed many so called rural companies to become more competitive with the larger companies.

### ***Shipment Requirements***

Having and supplying the correct shipment information could be the most important aspect of having a "perfect order." The concept of having proper shipping procedures implemented was an important issue for most respondents. It is extremely important that the product is received in a condition that will make it easy for the buyer to use it in their company.

A good supplier must ship products with speed and reliability in a reasonable time frame. This requires that the supplier has an efficient ordering and distribution process. Most respondents stressed the need for electronic ordering and this is where the EDI system is almost a necessity. A successful supplier also should have credit worthiness with no signs of defaulting in the past.

The packaging and palleting requirements most frequently mentioned were:

- carton markings (UPC codes on product package and detailed product description)
- bar coded palletizing (UPC codes on pallet)
- uniform pallets (same size pallets)
- one item per pallet
- uniform packaging requirements

Uniform packaging requirements is an important issue, especially for warehousing companies. Some companies have less strict, more lenient packaging requirements and this can cause their packages to become damaged more easily. Consequently, the warehousing company ultimately will deliver a faulty product, but rarely is it their fault. Implementing stronger packaging requirements for certain products would alleviate this problem.

## ***Transportation***

It was a basic consensus among the respondents that having access to low cost, reliable transportation is important to be a successful supplier. The idea of backhauling is becoming an important concept to make transportation more efficient and less costly.

The respondents also seemed to feel that the rural areas will always suffer from transportation capabilities and it will get worse. One respondent stated that supply chain management cannot help a company resolve distance issues. They choose where they want to locate and if distance is a detriment it is the company's own fault. Some respondents said that rural suppliers will need other assets to overcome the distance disadvantage.

### **6. What will be the role of third party logistics in supply chain management?**

Third party firms are external partners and perform various functions that the buyer/seller might be capable of, but may not have the resources to do efficiently. The respondents stated that third parties are becoming popular and will continue to be important for having a cost effective business.

Third party logistics or outsourcing has become popular because most companies, even Fortune 500 businesses, cannot do everything. There seems to be undefined opportunities for third party suppliers especially on the outbound side. Many companies are currently outsourcing the distribution process and are able to track all deliveries through the third party provider.

Third party providers are quite valuable if they can do a process cheaper or they meet a need that the company cannot fulfill itself. Some respondents felt that many third party companies oversell their capabilities, especially at large levels, and their systems cannot deliver what is needed. It also was stated that third party outsourcing is not right for everyone and some would prefer not to do it, but believe it is a necessity. A company must have great trust in the outsourced process provided by the third party. This seems to be a hurdle that many companies cannot get over. The companies we interviewed used and will continue to use third party suppliers. Some drawbacks that have been experienced include 1) it is an

expensive service, 2) a few days lost in transit (if shipment is involved), and 3) the third party does not care much about the company. Some problems can stem from the buyer's lack of understanding and knowledge as to how the relationship works. Because of these reasons, the transition to using an outside provider can be difficult. In contrast, some companies found their experiences with third party providers quite valuable.

## REFERENCES

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## APPENDIX A

### SUPPLY CHAIN MANAGEMENT LOGISTICS RESEARCH PROJECT ISSUES JULY 23-25, 1996

These questions will give you an idea of what we would like to discuss. Additional issues also may be addressed by either the research team or by your company depending on the format of conversation.

6. Many sessions at the 1996 CLM annual conference focus on supply chain management (SCM). From your experience, is SCM a passing fad or a fundamental change? Alternatively or in addition, how important is SCM to your firm and industry?
7. What characteristics define your company's current supply chain management philosophy?
8. What do you believe is the major reason(s) for establishing supply chains?
9. What role can information technology play to improve supply chain performance?
10. What are the **minimum** logistical capabilities your suppliers must have to do business with your company? What types of logistical capabilities do your suppliers currently provide and do they meet your company standards? How important is it to your company that suppliers employ up to date technological and informational advances?
11. What will be the role of third party logistics in supply chain management?

**\*\* A reminder that the research team consists of four people: Frank Dooley, Joel Honeyman, Matt Titus, and Christy Geiger. We will all be attending the meeting with you, so if you feel the need to ask other people in your company to join us, please do so.**