New Managerial Challenges from Supply Chain Opportunities

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Supply chain is an emerging term that emphasizes interactions among marketing, logistics, and production. With this term and its application come opportunities associated primarily with managing the logistics channel across the legal boundaries of enterprises, such as between firms and their suppliers. In this paper, there is a discussion of the evolution of logistics to see how it is defined and practiced today, with the intent of highlighting the emerging opportunities for channel performance improvement. It is shown that supply chain management has moved us from an intrafunctional vision of the channel toward an interfunctional and even inter-organizational one. Examples are given to illustrate the type of problems that are associated with each of these visions. Focus is given to those problems inherent in managing inter-organizational, since this is where traditional management tools and techniques are no longer appropriate. The new metrics, informational sharing systems, and allocation-of-benefits procedures needed to operate in the expanded channel are discussed. © 2000 Elsevier Science Inc. All rights reserved.

INTRODUCTION

Supply chain management (SCM) is a business term that has emerged in the last few years and is gaining in popularity. It seems to be replacing more of the traditional terms used to describe the management of material and service flows. These include physical distribution, materials management, production scheduling, logistics, channel management, industrial logistics, logistics of distribution, and even rhocrematics. SCM’s implied scope, which now involves multiple enterprises, is ushering in
challenges for executives not previously addressed by researchers to any great extent. Although the benefits of total supply chain coordination and administration may be relatively easy to identify, realizing these benefits will require new tools and techniques not previously possessed by management.

It is our intent to briefly trace the evolution of the management of product (material or service) flows for the purpose of identifying the trend that has occurred in how it is envisioned and practiced. A framework, involving three distinct areas of supply chain economic opportunity, will be created for capturing how SCM is viewed by different researchers and practitioners. Each case will show the following:

1. How the opportunities for management are identified, mainly through a definitive, quantitative analysis
2. What the primary variables are that need to be managed
3. How the benefits of manipulating and coordinating these variables can be realized.

The focus will then be placed on the newest concern of managing product flows; i.e., managing these flows when they involve more than one enterprise and where the benefits are unevenly distributed among the channel members. Suggestions are offered as to the shape of the new tools and techniques needed to manage in this expanded channel environment.

BACKGROUND

As with any new descriptive term for a field of management, there initially will be a lack of consensus as to its definition and consistency in its application. In the case of SCM, some researchers and practitioners see it as an extension of logistics whereby product and service flows are synchronized across a firm’s internal functional areas (marketing, finance, engineering, information systems, and operations) as well as between suppliers and customers. It is another step in the expanding scope of logistics that has moved from physical distribution where the focus was on the product flows between a firm and its customers with occasional concern for inbound movements, to integrated logistics, where the emphasis was on integrating both inbound and outbound movements, and on to SCM, with its concern for managing product flows across the functional and organizational boundaries of the firm. An example of the first stage can be seen in the definition of physical distribution promulgated by the National Council of Physical Distribution Management (NCPDM) circa 1962.¹

A term employed in manufacturing and commerce to describe the broad range of activities concerned with efficient movement of finished products from the end of the production line to the consumer, and in some cases [emphasis added] includes the movement of raw materials from the source of supply to the beginning of the production line.²

After deregulation of transportation in the late 1970s and early 1980s, there was a strong economic incentive to coordinate inbound and outbound product movements that were not previously present. In addition, product flow activities within the manufacturing operation and purchasing activities were added to the scope of logistics management. As a result, more emphasis was placed on integration among the broader set of activities, as can be seen in the revised definition provided by NCPDM:

Physical distribution management is the term describing the integration [emphasis added] of two or more activities for the purpose of planning, implementing and controlling the efficient flow of raw materials, in-process [emphasis added] inventory and finished goods from point of origin to point of consumption.³

In addition to legal changes, there were advances in information technology, extended product-flow channels brought about by the international and global operations

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¹ An organization of logistics professionals now known as The Council of Logistics Management, with executive offices at 2803 Butterfield Road, Suite 380, Oak Brook, Illinois 60521-1156.
² Part of NCPDM’s 1962 definition.
³ Part of NCPDM’s 1976 definition.
of many firms, and increased customer demands for customized products and services with quick delivery response forced by high levels of competition. These have encouraged managers to define their strategies in terms of product-flow channels that now encompass *multiple enterprises* of suppliers, customers, and carriers. This is leading to a new way in which product-flow channels are researched and managed. Although earlier definitions did not exclude product-flow channels of this scope, there appears to have been little attention given to interfactual and inter-organizational managerial concerns. Now, as Handfield and Nichols point out:

> All organizations are part of one or more supply chains. Whether a company sells directly to the end customer, provides a service, manufacturers a product or extracts material from the earth, it can be characterized within the context of its supply chain. Until recently, however, organizations focused primarily on their direct customers and internal functions, and placed relatively little emphasis on other organizations within their supply chain network [1].

Some definitions limit the supply chain to just the inter-enterprise aspect for material flows. For example, “A supply chain is two or more parties linked by a flow of goods, information, and funds” [2]. However, to capture the comprehensive nature of SCM, we propose the following definition:

The supply chain refers to all those activities associated with the transformation and flow of goods and services, including their attendant information flows, from the sources of raw materials to end users. Management refers to the integration of all these activities, both internal and external to the firm.

Cooper, Lambert, and Pagh seem to agree in their examination of the SCM term, in that it involves “some level of coordination of activities and processes within and between organizations in the supply chain that extend beyond logistics” [3]. The scope of the supply chain is illustrated in Figure 1. We proceed to develop a conceptual framework around this definition.

**A CONCEPTUAL FRAMEWORK**

SCM, as practiced today, is emerging from the marketing, logistics, and production. There are three dimensions of SCM, as shown in Figure 2. Namely, these are (1) in-
trafunctional coordination (administration of the activities and processes within the logistics function of a firm); (2) coordination of interfunctional activities, such as between logistics and finance, logistics and production, and logistics and marketing, as they take place among the functional areas of the firm; and (3) coordination of interorganizational supply chain activities that take place between legally separate firms within the product-flow channel, such as between a firm and its suppliers. A distinguishing factor between each of these dimensions is the degree of control with which a product-flow manager has to achieve the coordination. When the coordination is needed strictly between activities under the direct responsibility of the product-flow manager—say, warehousing and transportation—coordination is relatively easy to achieve since the manager’s responsibility and authority for these activities are in alignment. When supply chain opportunities involve other functional areas beyond the product-flow function within the same firm, managerial control becomes more difficult. These boundary-spanning opportunities involve additional functional areas such as sales, production, purchasing, and finance, depending on how the firm is organized. Integration is more difficult to achieve when these areas have different motivations and rewards.

With supply chain opportunities now being identified between enterprises, the problem of control becomes even more difficult. The functional manager may have little or no direct control over product movements between firms and must resort to managerial tools and techniques not necessarily available within the firm. This is the new challenge for managers. Although the definition of the product-flow channel encompassing multiple enterprises has theoretical appeal, there are problems associated with its implementation. As Leenders and Fearon point out, these problems refer to (1) the ability of the product-flow manager to handle a job of this scope, crossing so many traditional lines of organizational authority and responsibility, and (2) the state of computer software systems to support the system-wide approach [4].

**INTRAFUNCTIONAL COORDINATION**

Trading off one cost against another has been at the heart of product-flow management since the early 1960s, when the first physical distribution textbook was written [5] and the first university course that highlighted this economic phenomenon was offered. Optimizing the product-flow activities that are in conflict has been a major contributor to cost reductions over the years. It was common for a firm to spend 15% to 30% of its sales dollar on product-flow activities in the 1960s [6,7], whereas today that percentage averages about 8% [8]. It was recognized that there are cost conflicts between such areas as transportation and inventories, production or purchasing and inventories, and transportation and warehousing. Since these areas are frequently under the direct control of the product-flow manager, cost tradeoffs are readily evaluated and optimized. This type of management is likely to continue since it is central to good cost control.

Consider how decision making in the supply channel can be entirely within the control of the logistics func-

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**Figure 2.** The three dimensions of supply chain management.
Cooperation between marketing and supply chain management is essential.

An illustration involving shipment consolidation and order filling is helpful to understanding interfunctional coordination.

A small firm that provides oils and lubricants for construction equipment at sites around the country is competitive with major oil companies because of the responsive delivery service that is offered. It is not uncommon for the firm to receive a small order involving a few hundred pounds and ship it 600 miles to a remote construction site. The customer service policy is to deliver an order within 3 days of its receipt. Although a logical operating procedure would be to hold orders as long as possible for the purpose of combining orders and building larger loads that would result in fewer trucks and miles driven, most orders are shipped as received. Wanting to reduce costs while still meeting the target service level, the firm’s logistician developed a plan whereby truck routes would be designed for orders within the 3-day time horizon. If an order’s delivery could be postponed to a subsequent day and the truck is not loaded to capacity, the order can be held for later delivery in the hope of consolidating it with other orders that might arrive in the future. Since the transportation operation was strictly under the control of the logistician, such a plan could be implemented without coordination among parties outside the immediate functional domain.

INTERFUNCTIONAL COORDINATION

Some years ago, Stolle pointed out that managing logistical activities involves other functions within the firm, namely marketing, finance, and production [9]. Altering the levels of the various activities, often referred to as logistical in nature (such as transportation, inventories, facility location, and order processing), may adversely affect achieving the objectives of these other functional areas. That is, altering a logistical activity may lower logistics costs but work at cross-purposes with the maximizing revenue objective of marketing (selecting a lowcost but slow transport service at the expense of customer service and revenues); the minimizing capital require-
ments objective of finance (adding numerous warehouses to lower direct logistical expense but with a resulting increase in investment); or the minimizing per-unit cost objective of production (choosing frequent, small deliveries may force production into small, but expensive lot-size quantities). To achieve a benefit for the firm as a whole requires balancing the effect of the change with these other functional areas. Control remains within the company, but it is outside the logistics function. Consider an example where cooperation is needed between production and logistics to achieve a cost reduction.

A fish packer on the West Coast canned its product under the company label as well as under private brand-name labels. There was no difference in the canned product, only the label was different. All caught fish were packed and sent to warehouses from where demand was served. Demand for each brand is difficult to forecast accurately, which often resulted in excess inventory of one brand and not enough of another. Brands in short supply often lost sales to competing brands, whereas those brands having excess inventory were priced at a discount to clear the inventory.

A substantial cost reduction could be realized if the product were packed in “brights” (unlabeled cans) and shipped to the field warehouses, where labels would be added at the time demand occurred. Forecast uncertainty would be reduced and safety stock could be lowered, since the forecast could be made on the common product rather than for each brand label. By coordinating between production and logistics, the labeling operation was moved from the production site to the field warehouses. The slight increase in labeling expense was more than offset by the reduction in inventory holding costs.

Coordination may be required between marketing and the company’s internal supply chain to realize the desired benefits for the firm. We offer an example of such interfunctional coordination in setting a price policy.

A steel distributor adds value by cutting standard steel coils and slabs into smaller, more workable sizes and con-
Customer inventory requirements and supply chain requirements must be balanced.

configurations, usually for further processing by its customers. The services are highly undifferentiated among competing firms and, therefore, competition is based largely on price. Customers have come to expect very short procurement lead times and currently have no incentive to provide advanced notice of their needs. As a result, they often wait until the day before they need an item to order it. This behavior causes a large amount of demand uncertainty for the distributor. An analysis of the internal supply chain shows that costs associated with inventory holding and production scheduling are sensitive to this uncertainty. Extrapolating the economic benefits of reducing this uncertainty through advanced customer purchase commitments, a price incentive scheme can be established that encourages a buyer to make this commitment. Cooperation between purchasing, production, and marketing to implement the price schedule results in both the distributor and its customers having the potential to benefit economically along a dimension (time uncertainty) not typically used as a competitive variable in this industry.

In this case, the company’s sales department executes the pricing scheme and interfaces with the customer to realize economies that directly benefit purchasing and production, which in turn attract more sales through expanded pricing alternatives.

INTER-ORGANIZATIONAL COORDINATION

Coordinating product flows that span multiple enterprises is the arena in which new opportunities for cost-service improvement may be found. This is currently a popular area for researchers who model the flows and identify the opportunities for cost improvement for the entire channel that cannot be realized by each channel member acting independently to optimize its cost structure. Also, managers now are coordinating with companies beyond their own, seeking new ways to lower costs or improve service through such mechanisms as vendor-managed inventory and just-in-time scheduling.

Once the potential benefits have been identified in the supply chain, the product-flow manager will need to convert the opportunities into tangible benefits. At times, the action will be clear and will simply require the adjustment of some variables, such as prices and order quantities. The result may be that all channel members involved will benefit. In others, coordination will need to be achieved across enterprise boundaries. If the benefits of coordination and cooperation accrue to all parties, the coalition will likely remain and the benefits will continue. However, if cooperation results in one of the parties benefiting at the expense of the others, the coalition will likely falter. Therefore, in the more difficult cases, there needs to be a means of managing the coalition. For the coalition to remain intact, the rewards of cooperation must be redistributed. This requires three things:

1. A new type of metrics beyond normal accounting procedures for capturing inter-organizational data and expressing them in terms that facilitate benefits analysis
2. An information sharing mechanism for transferring information about cooperative benefits among channel members
3. An allocation method for redistributing the rewards of cooperation in a way that all parties benefit fairly.

SCM beyond enterprise boundaries is uncharted territory for product-flow managers. The following are some examples of the benefits derived from inter-organizational thinking and the general form of the management tools and techniques needed to resolve the economic conflicts that inevitably arise.

Benefits Identification

Some research has been conducted on inter-organizational coordination. One line of study has focused on transferring a quantity of items within a limited supply channel involving a seller and a buyer operating in a stable market. The primary variable is the quantity flowing...
between the firms. In most of this research, it is assumed that the buyer produces a product for which demand is relatively predictable and stable. Thus, the buyer operates in an Economic Order Quantity (EOQ) type of environment—i.e., where he attempts to minimize its setup and holding costs in order to satisfy constant demand. The potential conflict arises because the order quantity that is optimal for the buyer may not be optimal for the seller, or for the channel as a whole.

A number of researchers, including Heskett and Ballou [10], Monahan [11], Weng [12], Weng [13], Crowther [14], Dada and Srikanth [15], Dolan [16], Lal and Staelin [17], and Lee and Rosenblatt [18], have analyzed the effects of coordination in this type of environment. To illustrate the benefits of channel coordination, consider a simple hypothetical example. Suppose that a channel is composed of two members, a buyer and a seller. The buyer (i.e., an original equipment manufacturer) produces \( D = 10,000 \) units of a certain model of his product line per year at a constant rate. This firm purchases a component for this product from an upstream supplier. Each time that the buyer places an order, he or she incurs an ordering cost associated with administrative details, such as transportation, etc. This ordering cost is \( S_b = \)
When the benefits of channel—member cooperation are shared among the members, no formal action is necessary to redistribute benefits in a supply chain.

$100. The buyer also incurs an inventory holding cost. The cost of holding one component is $H_b = $10 per year. Obviously, the buyer will attempt to determine an order quantity ($Q_b$) that balances his or her costs of ordering against his or her costs of holding inventory. From the familiar EOQ formula, the optimal order quantity for the buyer is:

$$Q_b^* = \sqrt{\frac{2DS_b}{H_b}} = \sqrt{\frac{2(10,000)(100)}{10}} = 447 \text{ units}$$

The supplier produces to order whenever one is received from the buyer. Each time the seller sets up to produce a batch of components, a production setup cost of $S_s = $300 is incurred, and the total annual setup cost ($C_s$) is a function of the buyer’s order quantity: $C_s = S_sD/Q_b$. Obviously, the more frequently the buyer places orders, the more setup costs are incurred by the seller.

The optimal order quantity from the buyer ($Q_b$) is not the same as what would be optimal for the entire supply chain ($Q_c$). These two order quantities are labeled $Q_b$ and $Q_c$, respectively, in Figure 3. If the supply chain were owned and operated by a single firm, the total cost of ordering and setting up for a batch of components would be $S_c = S_b + S_s$. The total holding costs would be the holding costs incurred by the buyer, $H_c = H_b$. The optimal order quantity for this centralized firm (the channel) would be:

$$Q_c^* = \sqrt{\frac{2DS_c}{H_c}} = \sqrt{\frac{2(10,000)(100 + 300)}{10}} = 894 \text{ units}$$

Unfortunately, when the buyer and the seller are legally separate entities, there is no motivation for the buyer to deviate from his optimal order quantity of 447 units, even though the total costs to the supply chain would be lower if he did. In fact, in this particular example, the total setup and holding costs incurred by the supply chain are 25% higher, because the self-interested decision of the buyer causes him to order in quantities that are about half as large as what is optimal for the supply chain. The economic situation is summarized in Table 1 and is shown graphically in Figure 3.

It is clear from this example that supply chain costs can be reduced by switching to order quantities based on the costs for the entire supply chain rather than letting the buyer dictate the order size. If it were true that switching to the optimal order quantity for the supply chain resulted in both the seller and buyer realizing lower costs, the channel would be economically stable (will likely remain in the new state). No member wishes to switch to another order quantity, since his or her costs would be higher. As seen in Table 1, if a switch were made to the supply chain optimal quantity, the seller could benefit at the expense of the buyer whose costs increase by 25 percent. Since the buyer controls the quantity, he will not order the supply chain optimal quantity unless the benefits are redist-

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<th>Buyer’s optimal</th>
<th>Supply chain’s optimal</th>
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<tr>
<td>Seller</td>
<td>$6,711</td>
<td>$3,356</td>
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<tr>
<td>Buyer</td>
<td>$4,472</td>
<td>$5,589</td>
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<td>Supply chain</td>
<td>$11,183</td>
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$^{a} TC_s = S_sD/Q_c$.

$^{b} TC_b = S_bD/Q_b + H_bQ/2$.

$^{c} TC_c = (S_s + S_b)D/Q_c + H_cQ/2$. 

TABLE 1
Annual Costs for Buyer, Seller, and Supply Chain under Various Order Quantities in Units
A partner committed to the relationship will cooperate with another because of a desire to make the relationship work.

distributed to reward him for doing so. The benefits are said to “pool” when one of the channel members benefits at the expense of the other. Finding ways to manage the redistribution of channel cooperation benefits and to resolve this conflict is one of the emerging challenges for supply chain managers.

Conflict Resolution

When the benefits of channel—member cooperation are shared among the members, no formal action is necessary to redistribute benefits, since all members are better off through their cooperation. However, if the benefits are unequally distributed, and an individual member may or may not be better off economically, then some mechanism is needed to balance the benefits among the membership so that the coalition remains intact and the benefits of multiple enterprise cooperation are realized. These transfer mechanisms may be formal or informal.

A formal transfer mechanism is one where a product-flow variable under the control of one channel member can be altered in such a way as to influence the action of another member, so as to cause the system-wide optimum to be achieved. An example in our illustration would be to adjust the price in the channel that is under the seller’s control. In Table 1, the buyer’s costs are shown to increase by $1,117 per year if he agrees to an order quantity of 894 units, whereas the seller’s costs are reduced by $3,356 for this quantity. If the seller transfers some of his benefits in the form of a price discount that reduces the buyer’s annual costs by at least $1,117, an economically rational buyer will take the incentive and order the supply chain optimal quantity. Although price is one variable that can be manipulated to achieve the redistribution of benefits, other formal transfer mechanisms might include order minimums, reapportionment of orders among channel members to reward cooperation, and incentives on future orders, depending on the configuration of the channel and where in the channel the benefits tend to collect.

Ensuring cooperation in a supply chain when a formal mechanism is not present or is not to be used, requires other mechanisms that are less direct and obvious, i.e., informal. Informal cooperative mechanisms arise outside the scope of traditional economic understanding of exchange since, unlike the economic theory of pure and perfect competition, there is no development of a theory of pure and perfect cooperation.

At least two major and distinct informal mechanisms, power and trust, can be used to generate cooperation in a supply chain. These mechanisms are usually regarded as alternatives to each other. Power is a central concept because its mere existence is thought to condition others [19]. Power is also seen as a central tenet in achieving cooperation [20]. In contrast, Morgan and Hunt theorize that central to successful relationship marketing is the presence of trust, not power, and its ability to condition others [21]. The study of trust norms is considered a characteristic distinguishing management theory from organizational economics [22].

Cooperation through Power. We first examine the role of power as a mechanism to achieve cooperation. The exercise of power by a channel member might be used especially against the one worse off as a result of cooperation. A member might be so dominant that other members may be coerced into acting to achieve the system-wide benefits. In our illustration, if the seller had the status of being the only supplier, he might coerce the buyer to accept purchasing in the larger quantity. The buyer may have to accept the additional costs as a pseudo price increase, yet the seller has not changed his pricing policy with the attendant legal problems that might be involved.
Additional forms of power include reward power, expert power, and referent power. In our illustration, an example of reward power is to establish the buyer as a preferred customer, which might include for him faster and easier transactions or guaranteed service regarding quantity availability and delivery time. The benefit to the buyer is the reduction in uncertainty. Similarly, a member might use expert power. In this case, the seller might provide training, information, or problem-solving assistance as an incentive for cooperation. Another form might be the use of referent power. Here, the seller’s brand name or image may be so strong that the buyer may be permitted to use it in his advertising and to his benefit (e.g. “Intel Inside”). This is an indirect benefit to the buyer, who then may agree to supply chain cooperation. If the value of these incentives exceeds the $1,177-cost increase experienced by the buyer, then a rational buyer is likely to accept ordering in the larger order quantities.

COOPERATION THROUGH TRUST. Another informal mechanism, trust, is defined as a general expectancy held by a channel member that the word of the other can be relied upon. That is, one party has confidence in an exchange partner’s reliability and integrity. Trust, as a means of engendering cooperation between allaying partners, receives support in the literature. Deutsch’s findings, using prisoner’s dilemma experiments, suggest that the initiation of cooperation requires trust [23, 24]. Pruitt suggests that a party will undertake high-risk, coordinated behaviors if trust exists [25]. Mariotti states that trust is the quality that allows cooperation and collaboration to take place both within the organization and across the supply chain partners [26]. Once trust is established, parties learn that coordinated, joint efforts lead to outcomes that exceed what the firm can achieve acting solely in its own interest, which is exactly the phenomenon we illustrate in our example [27]. In buyer–seller bargaining situations, trust is found to be central to the process of achieving cooperative problem solving and constructive dialogue [28].

Trust may lead directly to cooperation, or indirectly through development of commitment, which then leads to cooperation. A partner committed to the relationship will cooperate with another because of a desire to make the relationship work. In interfirm relationships, commitment and trust are seen to have strong positive relationships with cooperation [21]. In industrial marketing, the concepts of trust and commitment are used as mechanisms to enhance relationship marketing, which refers to unique value-added partnerships for which the buyer may be willing to pay a price [29].

Given that trust and commitment lead to the desired outcome of supply chain cooperation, we examine what can be precursors of trust and commitment in a supply chain. A major precursor of trust is communication, which can be defined broadly as the formal, as well as informal, sharing of meaningful and timely information between the channel members. LaLonde notes that sharing of information is one of five building blocks that characterize solid supply chain relationships [30]. Timely communication fosters trust by assisting in resolving disputes and aligning perceptions and expectations about the benefits of cooperation. This accumulation of trust, in turn, leads to better communication. Thus, relevant, timely, and reliable information will result in greater trust. Relevant to our case, Anderson and Narus find that from the perspectives of both from manufacturers and distributors, past communications are positively related to trust [27].

Another precursor of trust is shared values. Shared values are the extent to which partners have beliefs in common about what behaviors, goals, and policies are important or unimportant, appropriate or inappropriate, and right or wrong. Behavior results from (1) sharing, identifying, or internalizing the values of an organization or (2) cognitive evaluation of the instrumental worth of continued relationship with an organization. Thus, shared values lead to trust and commitment and, in turn, cooperation. In a supply channel of the type proposed in this article, channel members are likely to share common economic goals.

THE NEW CHALLENGE

The challenge for product-flow managers occurs when the benefits of channel cooperation are not easily identified and the mechanisms for realizing the benefits are not well established. However, there appear to be the three elements of metrics, information sharing, and benefits allocation that are essential to inter-organizational management. These provide a basis for determining the opportunity associated with channel-wide cooperation, where the benefits reside among channel members, and how the

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benefits of cooperation might be fairly distributed within the channel so as to keep the coalition of channel members together. Moreover, these elements help to build trust among the members, which is essential to maintaining the coalition.

**Metrics**

Being able to define and measure costs and other relevant data among the various channel members is the first step to analyzing the multienterprise channel for cost-saving opportunities. Current accounting systems focus on the individual firm and do little to incorporate data for other channel members. On the other hand, an inter-organizational accounting system would need to report such costs as inventory holding, transportation, ordering or production setup, product storage, and handling—all the costs, demand, and service information associated with product flows between the firms. Ideally, an inter-organizational report can be developed that combines the information for channel members in such a way as to encourage their identification of product-flow opportunities in a channel-wide context.

**Information Sharing**

Cost and other information are generally not shared among firms in the supply channel, probably for fear that competitors would use it to their advantage. The lack of information about the extent to which each member may benefit if there has been cooperation involved to achieve the system-wide optimum can be a source of mistrust among channel members. Mistrust leads to the potential breakdown of the channel coalition and a return to a member’s self-interest state. Appropriate and reliable information about the extent to which each member benefits through channel cooperation is needed. Then, such information needs to be shared among the members.

Methods for sharing of information are underdeveloped, although there are some examples where it occurs, such as a retailer providing point-of-sale data to suppliers that manage the retailer’s inventory, or where a manufacturer gives its suppliers production requirements information to support just-in-time schedules. Additional methods will need to be developed for the variety of opportunities that are likely to emerge from inter-organizational thinking.

**Benefits Allocation**

Finally, even though inter-organizational information may be available and is reliable and trustworthy, system-wide benefits will not be achieved without their fair distribution among the members. Several formal and informal mechanisms already have been discussed for doing this. Ideally, additional formal methods can be developed, since the worth of the benefits transferred through informal mechanisms is difficult to evaluate precisely.

**CONCLUSION**

SCM is directing our thinking toward opportunities that exist, by managing across functional and company boundaries. Although SCM is a new term to describe the management of product-flow activities, the concept has been imbedded in physical distribution and logistics since the beginning of the 1960s. What is new is the emphasis given to boundary-spanning management. Exploring the opportunities that SCM provides is a popular research area.

The elements of SCM are captured in a trilogy of intrafunctional, interfunctional, and inter-organizational coordination. Much effort over the years has been directed toward managing the product-flow activities intrafunctionally, probably because they were under the immediate control of the product-flow manager and easiest to accomplish. Coordination beyond the immediate function is difficult but offers promise of yet underexplored opportunities.

Identifying boundary-spanning opportunities is reasonably easy, at least in a theoretical sense. Armed with data and basic management models, the benefits of managing interfunctionally or inter-organizationally can be demonstrated. The difficulty remains in achieving the projected benefits. Since cooperation is usually among members that either have different reward systems or are legally separate, members need to realize benefits from their cooperation. The most challenging situation occurs when the benefits “pool” with some members at the detriment of others. Balancing these benefits so that all members are better off for their cooperation is the new challenge for supply chain managers. This new challenge will require that managers find a way to measure and report costs and other data, such as demand and customer service that span company boundaries; share information about the level of the benefits and with which members they reside; and reallocate the benefits that put some channel members in a worse position as a result of their cooperation. Success in managing in this new arena will be the next frontier for lowering costs and increasing service in the product-flow channel.
REFERENCES


