

Supply Chain Management

Douglas M. Lambert

...successful supply chain management requires cross-functional integration within the firm and across the network of firms that comprise the supply chain.

Overview

There is a great deal of confusion regarding what supply chain management involves.¹ In fact, many people using the name supply chain management treat it as a synonym for logistics or as logistics that includes customers and suppliers.² Others view supply chain management as the new name for purchasing or operations,³ or the combination of purchasing, operations and logistics.⁴ However, successful supply chain management requires cross-functional integration within the firm and across the network of firms that comprise the supply chain. The challenge is to determine how to successfully accomplish this integration.

In this chapter, supply chain management is defined and the uniqueness of our framework is explained. Descriptions of the transactional and the relationship management views of business process management are provided. The supply chain management processes are described and the case is made for the importance of standard business processes. Then, there is an explanation of how the supply chain management processes can be used to achieve cross-functional and cross-firm integration. This is followed by a description of how customer relationship management and supplier relationship management form the critical supply chain management linkages and how their impact on the financial performance of the organization can be measured. Also, the Partnership Model and the Collaboration Framework, two tools that can be used to build high-performance relationships in the supply chain, are introduced.

¹ This chapter is based on: Douglas M. Lambert, Martha C. Cooper and Janus D. Pagh, "Supply Chain Management: Implementation Issues and Research Opportunities," *The International Journal of Logistics Management*, Vol. 9, No. 2 (1998), pp. 1-19; and, Keely L. Croxton, Sebastián J. García-Dastugue, Douglas M. Lambert, and Dale S. Rogers, "The Supply Chain Management Processes," *The International Journal of Logistics Management*, Vol. 12, No. 2 (2001), pp. 13-36.

² Simchi-Levi, David, Philip Kaminski, and Edith Simchi-Levi, *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies*, Third Edition, New York, NY: McGraw-Hill/Irwin, 2008.

³ Benton, W.C., *Purchasing and Supply Chain Management*, 3rd Edition, New York, NY: McGraw-Hill/Irwin, 2014.

⁴ Monczka, Robert M., Robert B. Handfield, Larry C. Giunipero, and James L. Patterson, *Purchasing and Supply Chain Management*, 5th Edition, Cincinnati, OH: South-Western College Publishing, 2011.

Introduction

One of the most significant paradigm shifts of modern business management is that individual businesses no longer compete as solely autonomous entities, but rather within supply chains. In this emerging competitive environment, the ultimate success of the business will depend on management's ability to integrate the company's intricate network of business relationships.⁵

Increasingly the management of relationships across the supply chain is being referred to as supply chain management (SCM). Strictly speaking, the supply chain is not a chain of businesses, but a network of businesses and relationships. SCM offers the opportunity to capture the synergy of intra- and inter-company integration and management. In that sense, SCM deals with business process excellence and represents a new way of managing the business and relationships with other members of the supply chain.

The Global Supply Chain Forum, a group of executives from non-competing firms and a team of academic researchers, has been meeting regularly since 1992 with the objective to improve the theory and practice of SCM. The definition of SCM developed and used by the members of The Global Supply Chain Forum follows:

Supply chain management is the management of relationships in the network of organizations, from end customers through original suppliers, using key cross-functional business processes to create value for customers and other stakeholders.⁶

This view of SCM is illustrated in Figure 1-1, which depicts a simplified supply chain network structure, the information and product flows, and the SCM processes that integrate functions within the company as well as other firms across the supply chain. Thus, standard supply chain management processes are necessary to manage the links across intra- and inter-company boundaries.

This chapter is organized as follows. First there is a description of what SCM is not. This is followed by a section in which supply chain management is explained and a brief overview of business process management is presented. Next, the supply chain management processes are described. Then, the need for standard business processes is introduced. Next, the case is made for cross-functional and cross-firm involvement in the supply chain management processes. This is followed by a section that illustrates how customer relationship management and supplier relationship management form the critical supply chain linkages. Then, you will be shown how to measure the financial impact of customer relationship management and supplier relationship management. Building high-performance relationships in the supply chain and a summary of the supply chain management framework are the last two topics covered. Finally, conclusions are presented.

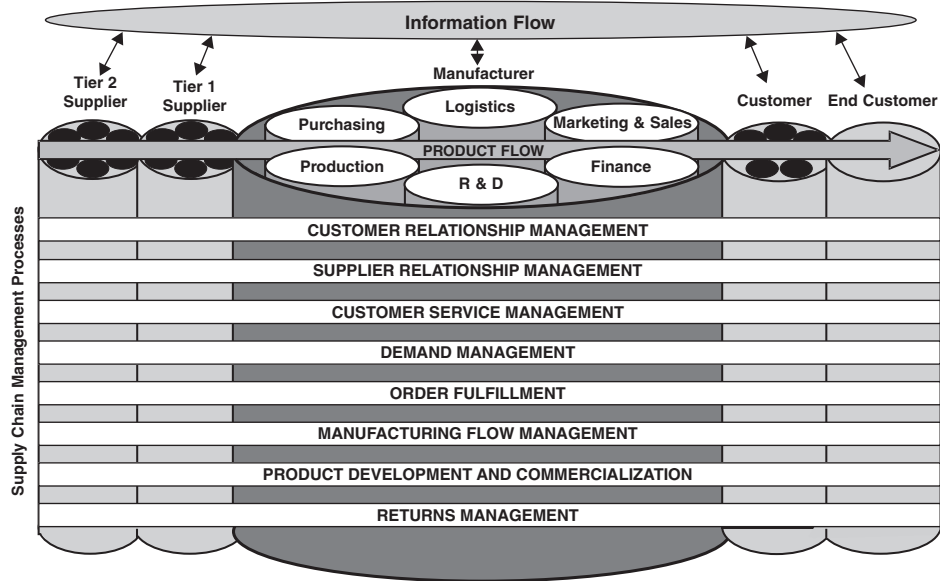
...the ultimate success of the business will depend on management's ability to integrate the company's intricate network of business relationships.

"Supply chain management is the management of relationships in the network of organizations, from end customers through original suppliers, using key cross-functional business processes to create value for customers and other stakeholders."

⁵ Drucker, Peter F., "Management's New Paradigms," *Forbes Magazine*, October 5, 1998, pp. 152-177; and, Martin G. Christopher, "Relationships and Alliances: Embracing the Era of Network Competition," in *Strategic Supply Chain Management*, ed. John Gattorna, Hampshire, England: Gower Press, 1998, pp. 272-284.

⁶ The Global Supply Chain Forum, Fisher College of Business, The Ohio State University. See: fisher.osu.edu/scm.

Figure 1-1
Supply Chain Management:
Integrating and Managing Business Processes Across the Supply Chain



Source: Adapted from Douglas M. Lambert, Martha C. Cooper, and Janus D. Pagh, "Supply Chain Management: Implementation: Issues and Research Opportunities," *The International Journal of Logistics Management*, Vol. 9, No. 2 (1998), p. 2.

What SCM Is Not

The term SCM was originally introduced by consultants in the early 1980's⁷ and subsequently has become widely used. Until recently most practitioners, consultants and academics viewed SCM as not appreciably different from the contemporary understanding of logistics management, as defined by the Council of Logistics Management (CLM) in 1986.⁸ That is, SCM was viewed as logistics that was integrated with customers and suppliers. Logistics as defined by the CLM always represented a supply chain orientation, "from point-of-origin to point-of-consumption." Then, why the confusion? It is probably due to the fact that logistics is a function within companies and is also a bigger concept that deals with the management of material and information flows across the supply chain. This is similar to the confusion over marketing as a concept and marketing as a functional area. Thus, the quote from the CEO who said, "Marketing is too important to be left to the marketing department."⁹ The marketing concept, customer focus, integrated effort and make a profit, does not apply just to the marketing department. Everyone in the organization should focus on serving the customer's needs at a profit.

⁷ Oliver, R. Keith and Michael D. Webber, "Supply-Chain Management: Logistics Catches Up with Strategy," *Outlook*, (1982), cit. Martin G. Christopher, *Logistics, The Strategic Issue*, London: Chapman and Hall, 1992.

⁸ CLM defined logistics management as: The process of planning, implementing, and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information flow from point-of-origin to point-of-consumption for the purpose of conforming to customer requirements. *What's It All About?*, Oak Brook, IL: Council of Logistics Management, 1986.

⁹ David Packard, former CEO and co-founder, Hewlett-Packard Company.

The understanding of SCM has been re-conceptualized from integrating logistics across the supply chain to integrating and managing key business processes across the supply chain. Based on this emerging distinction between SCM and logistics, in 2003, CLM (now CSCMP) announced a modified definition of logistics. The modified definition explicitly declares CLM's position that logistics management is only a part of SCM. The revised definition follows:

Logistics is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point-of-origin and the point-of-consumption in order to meet customers' requirements.¹⁰

SCM is not just confused with logistics. Those in the operations management area, such as APICS, are renaming what they do as supply chain management¹¹ as are those working in the procurement area.¹² Some universities have created departments of supply chain management by combining purchasing, operations and logistics faculty, which is a perspective that has appeared in the literature.¹³

Just What is Supply Chain Management?

Before we can determine how to manage something, it is important to define what it is. So, what is a supply chain? Generally, there is agreement that a supply chain is a network of companies/organizations. Every organization exists as part of a supply chain network whether management recognizes this or not. Since a supply chain is a network of companies, then the management of that network is supply chain management. If one can accept this argument, then how could one logically believe that a network of companies could be managed with fewer business functions than are necessary to manage one company? All business functions must be involved in supply chain management.

Figure 1-1 illustrates the supply chain network structure of a manufacturer with two tiers of customers and two tiers of suppliers, the information and product flows, and the eight supply chain management processes that must be implemented within each organization across the supply chain. All of the processes are cross-functional and cross-firm in nature. Every organization in the supply chain needs to implement the same business processes. Otherwise, it will be difficult to link them across firms. The six business functions shown for the manufacturer represent what is typical in most businesses but are not meant to all inclusive. For example, chemical companies may have a vice president responsible for environmental health and safety and in such cases this function should be represented on each process team. The same would be true if the company has a senior executive responsible for sustainability. The general rule is that any activity with a vice president in charge should be represented on the process teams.

Successful management of the supply chain requires the involvement of all of

Since a supply chain is a network of companies, then the management of that network is supply chain management.

¹⁰ The definition is posted at the CSCMP's homepage: www.CSCMP.org.

¹¹ APICS, *Basics of Supply Chain Management*, CPIM Certification Review Course, Participant Guide, Version 2.1, Alexandria, VA: APICS, The Educational Society for Resource Management, 2001.

¹² Monczka, Robert M., Larry C. Giunipero, and James L. Patterson, Robert B. Handfield, *Purchasing and Supply Chain Management*, 5th Edition, Cincinnati, OH: South-Western College Publishing, 2011.

¹³ Wisner, Joel D., Keah-Choon Tan and G. Keong Leong, *Principles of Supply Chain Management: A Balanced Approach*, Mason, OH: Thomson South-Western, 2011.

A network of companies cannot be managed with fewer functions than are necessary to manage one company.

the corporate business functions. A network of companies cannot be managed with fewer functions than are necessary to manage one company. However, corporate silos and functional silos within companies are barriers to cross-functional and cross-firm integration (see Figure 1-1). In most major corporations, functional managers are rewarded for behavior that is not customer friendly or shareholder friendly. This is because the metrics used focus on functional performance such as cost per case, asset utilization, and revenue goals, not on customer value or shareholder value.

In his keynote address to the International Association of Food Industry Suppliers, Tom Blackstock, Vice President of Supply Chain Operations at Coca-Cola North America, confirmed the need to involve all business functions in supply chain management when he said: "Supply chain management is everybody's job."¹⁴ John Gattorna expressed a similar perspective on the breadth of management necessary for successful implementation of supply chain management:

We have to embrace a far more liberal view of the supply chain. In effect, the supply chain is any combination of processes, functions, activities, relationships, and pathways along which products, services, information, and financial transactions move in and between enterprises. It also involves any and all movement of these from original producer to ultimate end-user or consumer, and everyone in the enterprise is involved in making this happen.¹⁵

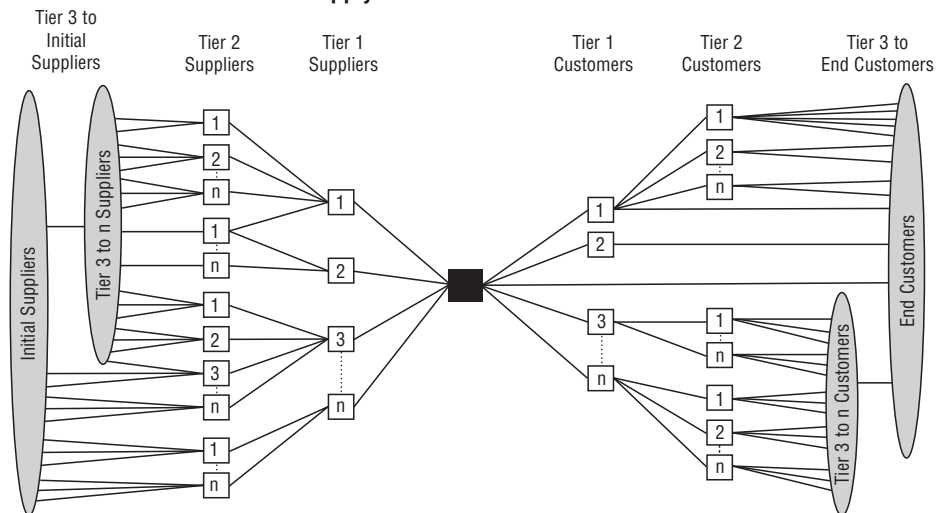
In reality, a supply chain is much more complex than the row of silos depicted in Figure 1-1. For a company in the middle of the supply chain like a consumer goods manufacturer, the supply chain looks like an uprooted tree (see Figure 1-2) where the root system represents the supplier network and the branches of the tree represent the customer network. It should be noted that only corporate entities are shown in Figure 1-2 not locations of facilities. Also, the supply chain will look different depending on a firm's position in it. For example, in the case of a retailer, like Wal-Mart Stores, Inc., the consumers would be next to the dark square (Wal-Mart) in Figure 1-3 making them the only tier in the customer network. For an initial supplier, such as a shrimper, there would be no suppliers associated with the product flow.

Managing the entire supply chain is a very challenging task. Managing all suppliers back to the point-of-origin and all products/services out to the point-of-consumption in most cases would be overwhelming. For example, if an organization has 225 tier 1 suppliers and each of these suppliers has 200 suppliers. There could be as many as 45,000 suppliers at the tier 2 level. It is probably easier to understand why executives would want to manage their supply chains to the point-of-consumption because whoever has the relationship with the end-user has the power in the supply chain. Intel created a relationship with the end-user by having computer manufacturers place an "Intel inside" label on their computers. This affects the computer manufacturer's ability to switch microprocessor suppliers. However, opportunities exist to significantly improve profits by managing the supplier network as well. For example, The Coca-Cola Company is one of the largest purchasers of PET resins in the world as a result of managing its suppliers of

¹⁴ Blackstock, Thomas, Keynote Speech, International Association of Food Industry Suppliers, San Francisco, CA, March 11, 2005.

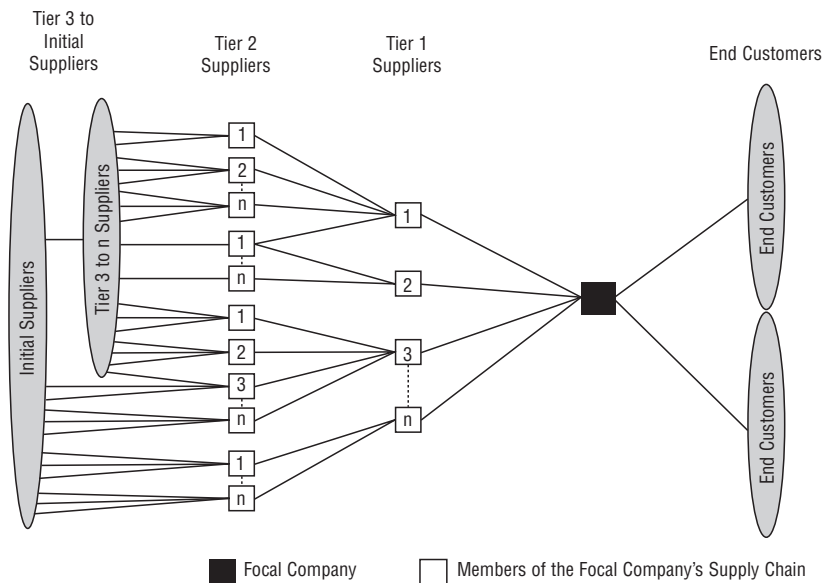
¹⁵ Gattorna, John, "Supply Chains Are the Business", *Supply Chain Management Review*, Vol. 10, No. 6 (2006), pp. 42-49.

**Figure 1-2
Supply Chain Network Structure**



Source: Adapted from Douglas M. Lambert, Martha C. Cooper and Janus D. Pagh, "Supply Chain Management: Implementation Issues and Research Opportunities," *The International Journal of Logistics Management*, Vol. 9, No. 2 (1998), p. 3.

**Figure 1-3
Supply Chain Network Structure for a Retailer**



Source: Adapted from Douglas M. Lambert, Martha C. Cooper and Janus D. Pagh, "Supply Chain Management: Implementation Issues and Research Opportunities," *The International Journal of Logistics Management*, Vol. 9, No. 2 1998, p. 3.

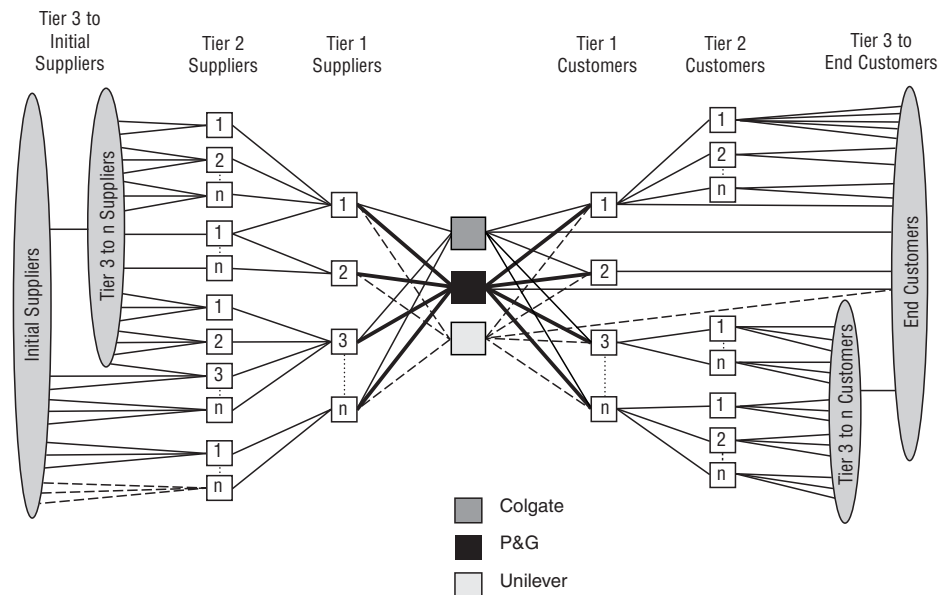
packaging materials beyond tier 1. Because resin costs represent such a large portion of the package cost, Coca-Cola contracts for PET resins directly with the resin producer. This practice results in improved availability, less price volatility and the best price.

It has become common to say that “competition is no longer between companies, but between supply chains”. While this has some appeal given that companies exist in supply chains, it is not technically correct. For the competition to be supply chain versus supply chain, there would have to be an “A team” playing a “B team”. When does this happen? The Coca-Cola Company and PepsiCo Inc. both purchase sweeteners from Cargill and packaging from the Graham Packaging Company, and in many cases, their products are sold to the same customers. This overlapping of supply chains is the rule not the exception. Figure 1-4 illustrates how the supply chains of major competitors can overlap, for example the oral care business of Colgate-Palmolive, P&G and Unilever. If all three purchase from many of the same suppliers and sell to the same retailers, how can it be supply chain versus supply chain? It is not! If executives at Colgate-Palmolive manage relationships with suppliers and customers better than the executives at P&G and Unilever, Colgate-Palmolive will win more often.

At the end of the day, supply chain management is about relationship management. A supply chain is managed, link-by-link, relationship-by-relationship, and the organizations that manage these relationships best will win.

At the end of the day, supply chain management is about relationship management. A supply chain is managed, link-by-link, relationship-by-relationship, and the organizations that manage these relationships best will win. The links in the chain are formed by the customer relationship management

**Figure 1-4
Typically Competitors Buy from the Same Suppliers
and Sell to the Same Customers**



Source: Adapted from Douglas M. Lambert, Martha C. Cooper and Janus D. Pagh, “Supply Chain Management: Implementation Issues and Research Opportunities,” *The International Journal of Logistics Management*, Vol. 9, No. 2 (1998), p. 3.

process of the seller organization and the supplier relationship management process of the buyer organization.

Business Process Management

Increasingly, managers want to implement business processes and integrate them with other key members of the supply chain. A business process is a structured set of activities with specified business outcomes for customers.¹⁶ Initially, business processes were viewed as a means to integrate corporate functions within the firm. Now, business processes are used to structure the activities between members of a supply chain. Hammer declared that it is in the integration of business processes across firms in the supply chain where the real “gold” can be found.¹⁷

The concept of organizing the activities of a firm as business processes became popular in the early 1990s.¹⁸ The motivation for implementing business processes within and across members of the supply chain might be to make transactions efficient and effective, or to structure inter-firm relationships in the supply chain. The transactional view of business process management is rooted in advances in information and communication technology which enabled time compression and availability of information throughout the organization. The focus is not on automating the established business processes, but on redesigning businesses.¹⁹ In this case, business process redesign is based on standardizing transactions and the transfer of information.²⁰ The goal is to improve outcomes for customers by making transactions more efficient and accurate.

The second view of business process management focuses on managing relationships in the supply chain and is based on an evolving view from the field of marketing. A significant amount of the marketing literature is concerned with market transactions (business transactions with customers) and the fulfillment of orders. Rooted in economic theory, researchers studied the efficiency of transactions with the customers, which raised awareness about the importance of customer retention. Obtaining repeat business, that is to conduct multiple transactions with the same customer, is more cost efficient than obtaining a new customer.²¹

The early marketing channels researchers such as Alderson and Bucklin conceptualized why and how channels are created and structured.²² From a supply

The motivation for implementing business processes within and across members of the supply chain might be to make transactions efficient and effective, or to structure inter-firm relationships in the supply chain.

¹⁶ Davenport, Thomas H. and Michael C. Beers, “Managing information about processes,” *Journal of Management Information Systems*, Vol. 12, No. 1 (1995), pp. 57-80.

¹⁷ Hammer, Michael, “The Superefficient Company,” *Harvard Business Review*, Vol. 79, No. 8 (2001), pp. 82-91.

¹⁸ Hammer, Michael and James Champy, *Reengineering the Corporation: A Manifesto for Business Revolution*, 1st ed, New York, NY: Harper Business, 1993; and, Thomas H. Davenport, *Process Innovation: Reengineering Work through Information Technology*, Boston, MA: Harvard Business School Press, 1993.

¹⁹ Hammer, Michael, “Reengineering Work: Don’t Automate, Obliterate,” *Harvard Business Review*, Vol. 68, No. 4 (1990), pp. 104-112.

²⁰ Davenport, Thomas H. and James E. Short, “The New Industrial Engineering: Information Technology and Business Process Redesign,” *Sloan Management Review*, Vol. 31, No. 4 (1990), pp. 11-27.

²¹ Kotler, Philip, *Marketing Management: Analysis, Planning, Implementation and Control*, 7th ed, Englewood Cliffs, NJ: Prentice-Hall, 1991.

²² Alderson, Wroe, “Marketing Efficiency and the Principle of Postponement,” *Cost and Profit Outlook*, Vol. 3, September (1950); Reavis Cox and Wroe Alderson (eds.) *Theory in Marketing*, Chicago, IL: Richard D. Irwin, Inc., 1950; and, Louis P. Bucklin, *A Theory of Distribution Channel Structure*, IBER Special publication, Berkeley, California, 1966.

The management of inter-organizational relationships with members of the supply chain involves people, organizations, and processes.

chain standpoint, these researchers were on the right track in terms of: 1) identifying who should be a member of the marketing channel, 2) describing the need for channel coordination, and 3) drawing actual marketing channels. However, most marketing channels researchers ignored two critical issues. First, they did not build on the early contributions by including suppliers to the manufacturer, and thus neglected the importance of a total supply chain perspective. Second, channels researchers focused on marketing activities and flows across the marketing channel, and overlooked the need to integrate and manage cross-functionally within and across companies. Webster²³ challenged marketers and marketing researchers to consider relationships with multiple firms and called for cross-functional consideration in strategy formulation.

During the 1990s, a paradigm shift occurred with the introduction of the concept of relationship marketing. The goal of relationship marketing "...is to establish, maintain, and enhance... relationships with customers and other partners, at a profit, so that the objectives of the parties involved are met. This is achieved by mutual exchange and fulfillment of promises".²⁴ Thus, the focus of developing and maintaining relationships in the supply chain is beyond the fulfillment of one or a set of transactions. In the new environment, managers need to focus on helping customers achieve their objectives.

The field of relationship marketing is focused on the customer, looking downstream in the supply chain. However, the development and maintenance of relationships with key suppliers should be based on the same pillars, mutuality and fulfillment of promises, in order for suppliers to be profitable. Management needs the support of the firm's key suppliers to fulfill the promises made to customers and meet financial goals. In other words, corporate success is based on relationship management with *both* suppliers and customers. The management of inter-organizational relationships with members of the supply chain involves people, organizations, and processes. In fact, the ability to manage inter-organizational relationships "... may define the core competence of some organizations as links between their vendors and customers in the value chain".²⁵

In 1992, executives from a group of companies with global operations and a team of academic researchers, began development of a relationship oriented and process-based SCM framework. In February 1996, The Global Supply Chain Forum (GSCF) framework was presented in a three-day executive seminar co-sponsored by the Council of Logistics Management, and was first described in the literature in 1997 and 1998.²⁶ The eight GSCF processes are cross-functional and are meant to be implemented inter-organizationally across key members of the supply chain. The motivation for developing the framework was to provide practitioners with implementation guidelines and to assist academics with their research on supply chain management.

²³ Webster, Frederick E. Jr., "The Changing Role of Marketing in the Corporation," *Journal of Marketing*, Vol. 56, No. 4 (1992), pp. 1-17.

²⁴ Grönroos, Christian, *Service Management and Marketing, Managing the Moments of Truth in the Service Competition*, Lexington, MA: Free Press/Lexington Books, 1990.

²⁵ Webster, Frederick E. Jr., "The Changing Role of Marketing in the Corporation," *Journal of Marketing*, Vol. 56, No. 4 (1992), pp. 1-17.

²⁶ Cooper, Martha C., Douglas M. Lambert and Janus D. Pagh, "Supply Chain Management: More than a New Name for Logistics," *The International Journal of Logistics Management*, Vol. 8, No. 1 (1997), pp. 1-14; and Douglas M. Lambert, Martha C. Cooper and Janus D. Pagh, "Supply Chain Management: Implementation Issues and Research Opportunities," *The International Journal of Logistics Management*, Vol. 9, No. 2 (1998), pp. 1-19.

The Supply Chain Management Processes

Empirical research has led to the conclusion that “the structure of activities within and between companies is a critical cornerstone of creating unique and superior supply chain performance”.²⁷ In our research, executives believed that competitiveness and profitability would increase if key internal activities and business processes were linked and managed across multiple companies. Thus, “corporate success requires a change from managing individual functions to integrating activities into supply chain management processes”.²⁸ In many major corporations, such as The Coca-Cola Company, management has reached the conclusion that optimizing the product flows cannot be accomplished without implementing a process approach to the business.²⁹ Several authors have suggested implementing business processes in the context of supply chain management, but there is not yet an “industry standard” on what these processes should be. The value of having standard business processes in place is that managers from organizations across the supply chain can use a common language and can link-up their firms’ processes with those of other members of the supply chain, as appropriate. The supply chain management processes identified by The Global Supply Chain Forum and shown in Figure 1-1 are:

- Customer Relationship Management
- Supplier Relationship Management
- Customer Service Management
- Demand Management
- Order Fulfillment
- Manufacturing Flow Management
- Product Development and Commercialization
- Returns Management

Each supply chain management process has both strategic and operational sub-processes. The strategic sub-processes provide the structure for how the process will be implemented and the operational sub-processes provide the detailed steps for execution. The strategic process is a necessary step in integrating the firm with other members of the supply chain, and it is at the operational level that the day-to-day activities take place. Each process is led by a team that is comprised of managers from each business function, including: marketing, sales, finance, production, purchasing, logistics and, research and development. Teams are responsible for developing the procedures at the strategic level and for managing their implementation at the operational level. A brief description of each of the eight processes follows.

Customer Relationship Management

The customer relationship management process provides the structure for how relationships with customers will be developed and maintained. Management identifies key customers and customer groups to be targeted as part of the firm’s business mission. These decisions are made by the leadership team of the

The customer relationship management process provides the structure for how the relationships with customers will be developed and maintained.

²⁷ Håkansson, Håkan and Ivan Snehota, *Developing Relationships in Business Networks*, London: Routledge, 1995.

²⁸ Blackstock, Thomas, Keynote Speech, International Association of Food Industry Suppliers, San Francisco, CA, March 11, 2005.

²⁹ Blackstock, Thomas, Keynote Speech, International Association of Food Industry Suppliers, San Francisco, CA, March 11, 2005.

enterprise and the owner of the strategic process is the CEO. The goal is to segment customers based on their value over time and increase customer loyalty of target customers by providing customized products and services. Partnerships are developed with a small group of key customers. Cross-functional customer teams tailor Product and Service Agreements (PSAs) to meet the needs of key accounts while achieving the firm's profit goals. For other customers, teams develop PSAs that provide value for a segment of customers and meet the firm's profit goals. In this case, the PSAs are not negotiable and are delivered by a sales person to a buyer. The PSAs specify levels of performance. The teams work with key customers to improve processes and reduce non-value-added activities. Performance reports are designed to measure the profitability of individual customers as well as the firm's impact on the financial performance of the customer.³⁰

Supplier Relationship Management

The supplier relationship management process provides the structure for how relationships with suppliers will be developed and maintained. As the name suggests, this process is very similar to customer relationship management. Just as a company needs to develop close relationships with its key customers, it also needs to foster such relationships with its key suppliers. Close relationships are developed with a small subset of suppliers based on the value that they provide to the organization over time, and more traditional relationships are maintained with the others. Supplier teams negotiate a PSA with each key supplier that defines the terms of the relationship. For each segment of less critical suppliers, a standard PSA is provided to the supplier salesperson by a buyer and it is not negotiable. Supplier relationship management is about defining and managing these PSAs. Partnerships are developed with a small core group of suppliers. The desired outcome is a win-win relationship where both parties benefit.

Customer Service Management

Customer service managers monitor the PSAs and proactively intervene on the customer's behalf...

Customer service management is the supply chain management process that deals with the administration of the PSAs developed by customer teams as part of the customer relationship management process. Customer service managers monitor the PSAs and proactively intervene on the customer's behalf if there is going to be a problem delivering on promises that have been made. The goal is to solve problems before they affect the customer. Customer service managers will interface with other process teams, such as supplier relationship management and manufacturing flow management to ensure that promises made in the PSAs are delivered as planned.

Demand Management

Demand management is the supply chain management process that balances the customers' demand with the capabilities of the supply chain. With the right process in place, management can match supply with demand proactively and execute the plan with minimal disruptions. The process is not limited to forecasting. It includes synchronizing supply and demand, reducing variability

³⁰Lambert, Douglas M. and Terrance L. Pohlen, "Supply Chain Metrics," *The International Journal of Logistics Management*, Vol. 12, No. 1, (2001), pp. 1-19.

and increasing flexibility. For example, it involves managing all of the organization's practices that increase demand variability, such as end-of-quarter loading and terms of sale which encourage volume buys. A good demand management process uses point-of-sale and key customer data to reduce uncertainty and provide efficient flows throughout the supply chain. Marketing requirements and production plans should be coordinated on an enterprise-wide basis. In advanced applications, customer demand and production rates are synchronized to manage inventories globally.

Order Fulfillment

The order fulfillment process involves more than just filling orders. It includes all activities necessary to design a network and enable a firm to meet customer requests while maximizing its profitability. At the strategic level, for example, it is necessary to determine which countries should be used to service the needs of various customers considering service requirements, tax rates and where profits should be earned as well as import and export regulations. While much of the actual work will be performed by the logistics function, it needs to be implemented cross-functionally and with input from key suppliers and customers. The objective is to develop a seamless process from the various customer segments to the organization and then on to its suppliers.

Manufacturing Flow Management

Manufacturing flow management is the supply chain management process that includes all activities necessary to obtain, implement and manage manufacturing flexibility in the supply chain and to move products into, through and out of the plants. Manufacturing flexibility reflects the ability to make a wide variety of products in a timely manner at the lowest possible cost. To achieve the desired level of manufacturing flexibility, planning and execution must extend beyond the four walls of the manufacturer to other members of the supply chain.

Product Development and Commercialization

Product development and commercialization is the supply chain management process that provides the structure for developing and bringing to market products jointly with customers and suppliers. Effective implementation of the process not only enables management to coordinate the efficient flow of new products across the supply chain, but assists other members of the supply chain with the ramp-up of manufacturing, logistics, marketing and other activities necessary to support the commercialization of the product. The product development and commercialization process team must coordinate with customer relationship management process teams to identify customer articulated and unarticulated needs; select materials and suppliers in conjunction with the supplier relationship management process teams; and, work with the manufacturing flow management process team to develop production technology to manufacture and implement the best product flow for the product/market combination.

Product development and commercialization is the supply chain management process that provides the structure for developing and bringing to market products jointly with customers and suppliers.

Returns Management

Returns management is the supply chain management process by which activities associated with returns, reverse logistics, gatekeeping, and avoidance are managed within the firm and across key members of the supply chain. The correct

implementation of this process enables management not only to manage the reverse product flow efficiently, but to identify opportunities to reduce unwanted returns (avoidance) and to control reusable assets such as containers. While significant opportunities to reduce costs are possible through better management of reverse logistics, even greater potential to reduce costs and increase revenue are possible by avoiding those management practices and performance failures that cause returns.

The Requirement for Standard Business Processes

Thousands of activities are performed and coordinated within a company, and every company is by nature in some way involved in supply chain relationships with other companies.³¹ When two companies build a relationship, some of their internal activities will be managed between the two companies.³² Since both companies have linked some internal activities with other members of their supply chain, a link between two companies is thus a link in what might be conceived as a supply chain network. For example, the internal activities of a manufacturer can affect the internal activities of a distributor, which in turn have an effect on the internal activities of a retailer. Ultimately, the internal activities of the retailer are linked with and can affect the activities of the end customer.

Our research team has found that in some companies, executives emphasize a functional structure (see Figure 1-5, Tier 1 Supplier) and others a process structure (see Figure 1-5, Manufacturer, Tier 2 Supplier and Tier 1 Customer). Those companies with processes had different numbers of processes consisting of different activities and links between activities. Different names were used for similar processes, and similar names for different processes. This lack of inter-company consistency is a cause of significant friction and inefficiencies in supply chains. It is important that managers in different firms speak the same language (use the same terminology). There is generally an understanding of what corporate functions like marketing, manufacturing and finance represent. If management in each firm identifies its own set of processes, how can these processes be linked across firms?

If management in each firm identifies its own set of processes, how can these processes be linked across firms?

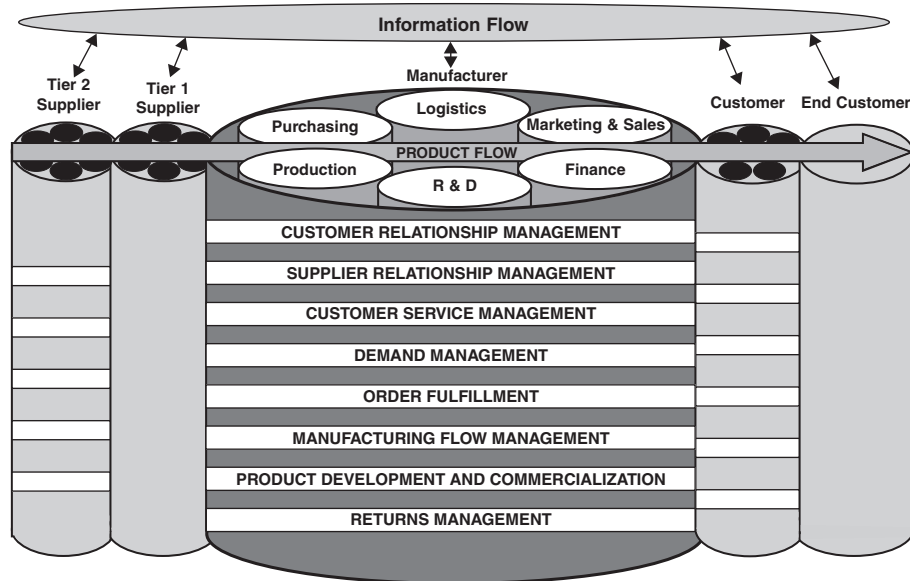
In some of the GSCF companies, business processes extended to suppliers and were managed to some extent between the two firms involved. This may imply that when a leadership role is taken, firms in the supply chain will use the same business processes. When this is possible, each member of the band is playing the same tune.

The number of business processes that should be integrated and managed between companies will likely vary. For example, every supplier should not be involved in new product development. It is important that executives thoroughly analyze and discuss which key customers and suppliers to integrate into the processes.

³¹ Bowersox, Donald J., "Integrated Supply Chain Management; A Strategic Perspective," *Annual Conference Proceedings*, Chicago, Illinois: Council of Logistics Management (1997), pp. 181-189; and George E. Stigler, "The Division of Labor Is Limited by the Extent of the Market," *Journal of Political Economy*, Vol. 59, No. 3 (1951), pp. 185-193.

³² Håkansson, Håkan and Ivan Snehota, *Developing Relationships in Business Networks*, London: Routledge, 1995.

Figure 1-5
Supply Chain Management: The Disconnects



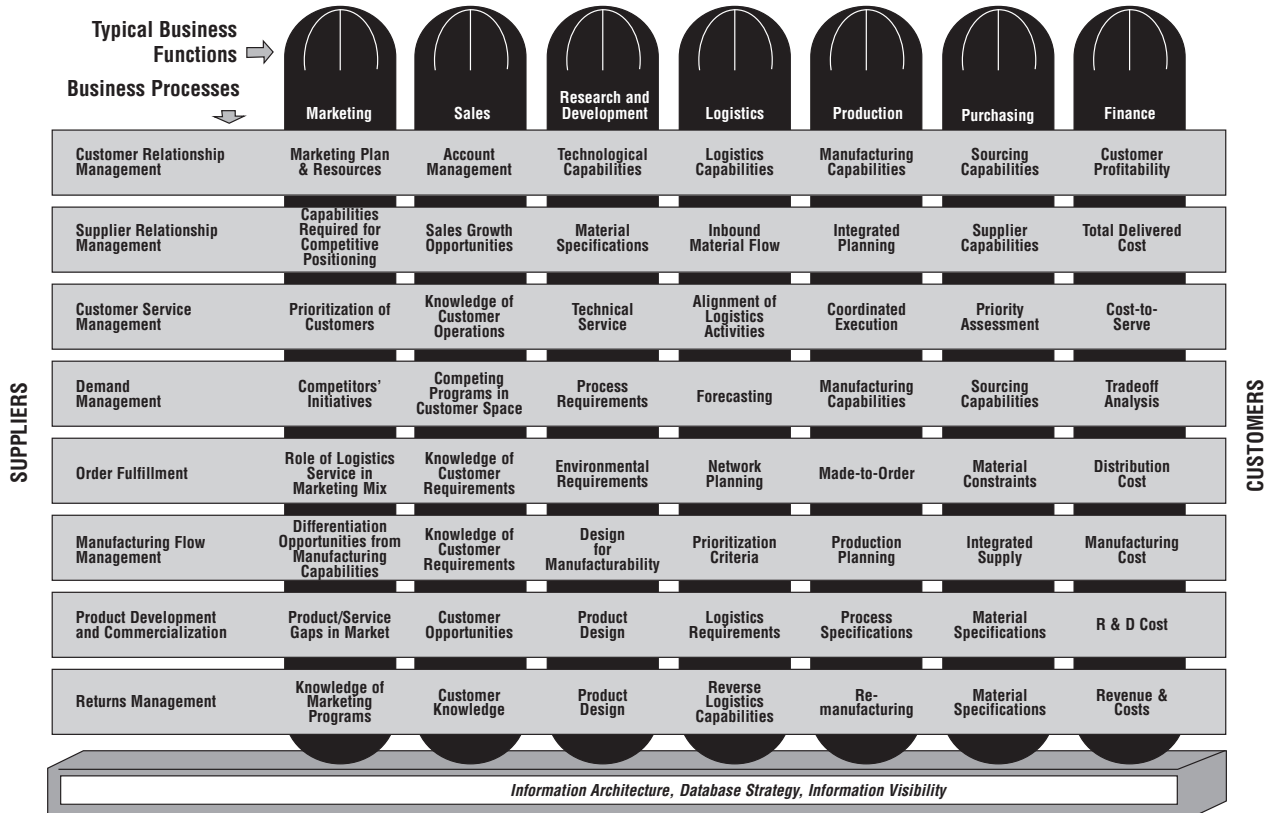
Source: Adapted from Douglas M. Lambert, Martha C. Cooper, and Janus D. Pagh, "Supply Chain Management: Implementation Issues and Research Opportunities," *The International Journal of Logistics Management*, Vol. 9, No. 2 (1998), p. 10.

Achieving Cross-Functional and Cross-Firm Involvement Using the Supply Chain Management Processes

If the proper coordination mechanisms are not in place across the various functions, the process will be neither effective nor efficient. By taking a process focus, all functions that touch the product or are involved in the service delivery must work together. Figure 1-6 shows examples of what managers from each function within the organization might provide as input to the eight supply chain management processes. For example, in the customer relationship management process, marketing provides the knowledge of customers and marketing programs as well as the budget for marketing expenditures, sales provides the account management expertise, research and development provides the technological capabilities to develop product solutions that meet customer requirements, logistics provides knowledge of logistics and customer service capabilities, production provides the manufacturing capabilities, purchasing provides knowledge of supplier capabilities, and finance provides customer profitability reports. Customers and suppliers are shown in Figure 1-6 to make the point that each of these processes, to be properly implemented, requires the involvement of all business functions as well as customers and suppliers. When third-party logistics providers are used, representatives from these firms should serve on the process teams to provide their logistics expertise. Also, the functions shown in Figure 1-6 are the most common business functions but others may be included. For example, if there is a vice president level person responsible for sustainability, someone from that organization should be a member of each process team.

If the proper coordination mechanisms are not in place across the various functions, the process will be neither effective nor efficient.

Figure 1-6
Functional Involvement in the Supply Chain Management Processes



Note: Process sponsorship and ownership must be established to drive the attainment of the supply chain vision and eliminate the functional silo mentality.

Source: Adapted from Keely L. Croxton, Sebastian J. García-Dastugue and Douglas M. Lambert, "The Supply Chain Management Processes," *The International Journal of Logistics Management*, Vol. 12, No. 2 (2001), p.31.

In order to achieve cross-firm integration, management needs to choose the type of relationship that is appropriate for each link in the supply chain.³³ Not all links throughout the supply chain should be closely coordinated and integrated. The most appropriate relationship is the one that best fits the specific set of circumstances. Determining which members of the supply chain deserve management attention is based on their importance to the firm's success. In some companies, management works closely with second-tier members of the supply chain in order to achieve specific supply chain objectives, such as product availability, improved quality, improved product introductions, or reduced overall supply chain costs. For example, a tomato ketchup manufacturer in New Zealand conducts research on tomatoes in order to develop plants that provide larger tomatoes with fewer seeds. Their contracted growers are provided with young plants in order to ensure the quality of the output. Since the growers tend to be small, the manufacturer negotiates contracts

³³ Lambert, Douglas M. and A. Michael Knemeyer, "We're in This Together," *Harvard Business Review*, Vol. 82, No. 12 (2004), pp. 96-108 and Lambert, Douglas M., Margaret A. Emmelhainz, and John T. Gardner, "Developing and Implementing Supply Chain Partnerships," *The International Journal of Logistics Management*, Vol. 7, No. 2 (1996), pp.1-17.

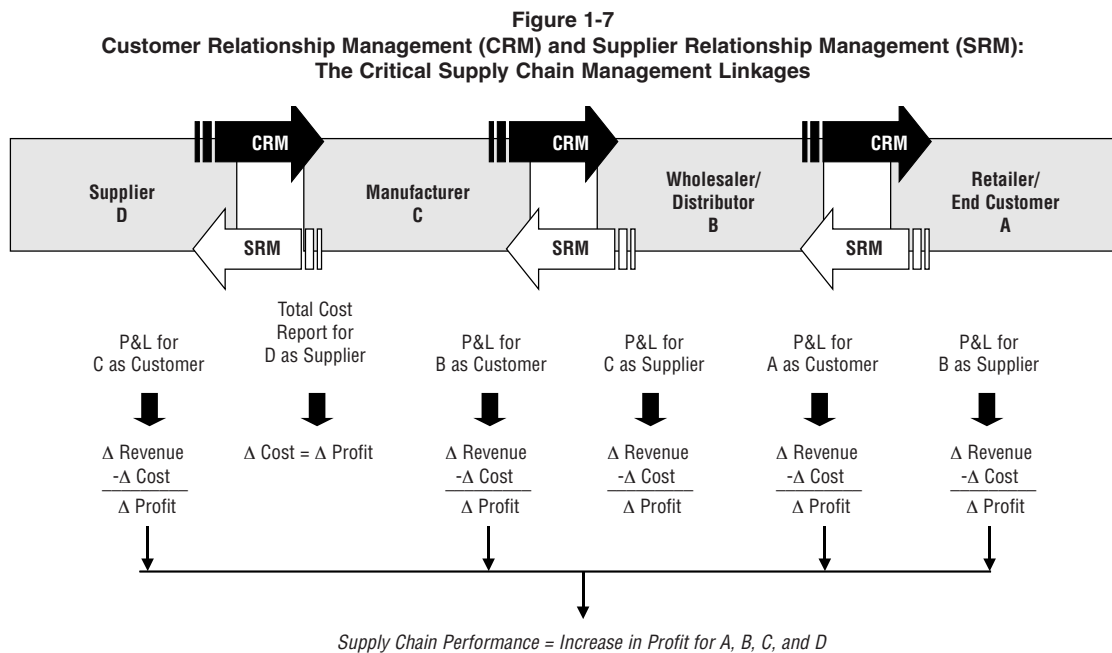
with suppliers of equipment and agricultural chemicals such as fertilizer and pesticides. The farmers are encouraged to purchase materials and machinery using the manufacturer's contract rates. This results in higher quality tomatoes and lower prices without sacrificing the margins and financial strength of the growers.

The Critical Supply Chain Management Linkages

Customer relationship management and supplier relationship management form the critical linkages throughout the supply chain (see Figure 1-7). For each supplier in the supply chain, the ultimate measure of success for the customer relationship management process is the positive change in profitability of an individual customer or segment of customers over time. For each customer, the most comprehensive measure of success for the supplier relationship management process is the impact that a supplier or supplier segment has on the firm's profitability. The goal is to increase the profitability of each organization by developing the relationship. The biggest potential roadblock is failure to reach agreement on how to split the gains that are made through joint improvement efforts. The overall performance of the supply chain is determined by the combined improvement in profitability of all of its members from one year to the next.

The decision regarding who is a key customer requires evaluation of the profitability and potential profitability of individual customers. Then, cross-functional customer teams tailor PSAs to meet the needs of key accounts and segments of other customers. Just as all customers are not the same, all suppliers are not the same. Some suppliers contribute disproportionately to the firm's success and with these organizations, it is important to have cross-functional teams

The decision regarding who is a key customer requires evaluation of the profitability and potential profitability of individual customers.



Source: Adapted from Douglas M. Lambert and Terrance L. Pohlen, "Supply Chain Metrics," *The International Journal of Logistics Management*, Vol. 12, No. 1 (2001), p. 14.

interacting. Teams are established for each key supplier and for each segment of non-key suppliers. The teams are comprised of managers from several functions, including marketing, finance, research and development, production, purchasing and logistics. Teams work with key customers and suppliers to improve processes, reduce demand variability and non-value-added activities, and identify opportunities to increase revenues.

Customer relationship management and supplier relationship management are the key processes for linking firms across the supply chain and each of the other six processes is coordinated through this linkage. For example, if the customer relationship management and supplier relationship management teams decide that there is an opportunity to improve performance by focusing on the demand management process, the demand management process teams from the two companies are involved. When the process is improved, product availability is improved. If this is important, revenue for the customer increases. In addition, inventories are reduced, thereby reducing the inventory carrying cost charged to the customer's profitability report. There also may be fewer last minute production changes and less expediting of inbound materials which will impact the costs assigned to the customer. If profitability reports by customer are properly developed, they will capture improvements made in all of the processes. So having accurate profitability reports is key. However, it is important that metrics are in place for the demand management process teams so that members can be compensated for the improvements derived.

Measuring the Financial Impact of Customer Relationship Management and Supplier Relationship Management

The development of customer profitability reports enables the customer relationship management process teams to track performance over time.

The development of customer profitability reports enables the customer relationship management process teams to track performance over time. These reports should reflect all of the cost and revenue implications of the relationship. In the case of a manufacturer, variable manufacturing costs are deducted from net sales to calculate a manufacturing contribution. Next, variable marketing and logistics costs, such as sales commissions, transportation, warehouse handling, special packaging, order processing and a charge for accounts receivable, are deducted to calculate a contribution margin. Assignable non-variable costs, such as salaries, customer related advertising expenditures, slotting allowances and inventory carrying costs, are subtracted to obtain a segment controllable margin. The net margin is obtained after deducting a charge for dedicated assets. Because these statements contain opportunity costs for investments in receivables and inventory and a charge for dedicated assets, they are much closer to cash flow statements than traditional profit and loss statements. They contain revenues minus the costs (avoidable costs) that disappear if the revenue disappears.

In the case of retailers and wholesalers, profitability reports also can be developed for each supplier. However, for manufacturers who purchase materials, total cost reports are used to evaluate suppliers. If a supplier is involved in activities that enable the customer to increase revenues, such as co-branding, new product development, or improvements in product quality, then the profit implications of these efforts must be considered (this topic, value co-creation, will be covered in-depth in Chapter 17). In addition to measuring current performance, the profitability reports and total cost reports can be used to track performance of customers and suppliers over time and to generate pro-forma statements that can be

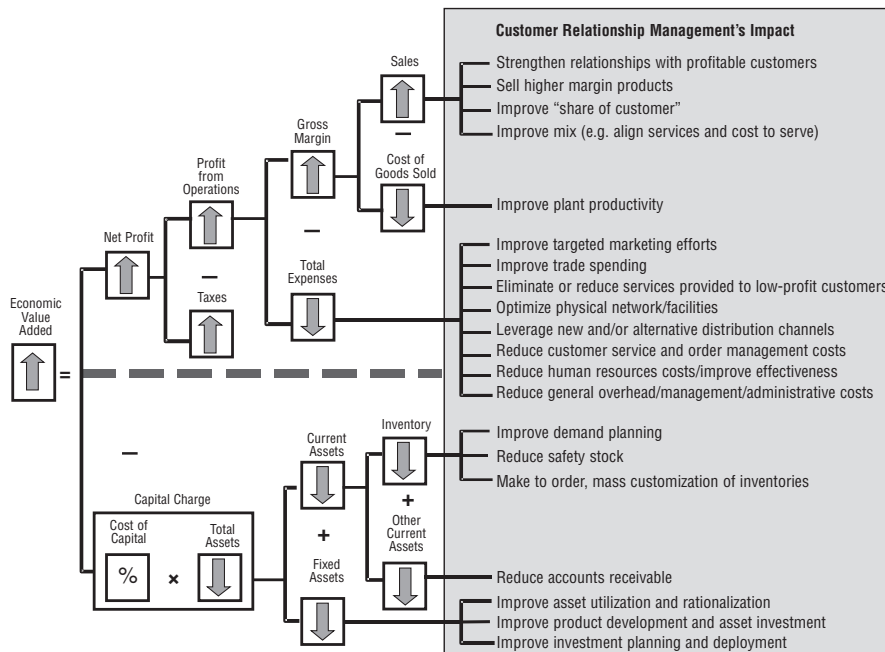
used to evaluate potential process improvement projects. Decision analysis can be performed to consider “what if” scenarios such as best, worst and most likely cases.

Figure 1-8 shows how the customer relationship management process can affect the firm’s financial performance as measured by economic value added (EVA®).³⁴ It illustrates how customer relationship management can impact sales, cost of goods sold, total expenses, inventory investment, other current assets, and the investment in fixed assets. For example, customer relationship management can lead to higher sales volume as a result of strengthening relationships with profitable customers, selling higher margin products, increasing the firm’s share of the customer’s expenditures for the products/services sold, and/or improving the mix, that is, aligning services and the costs to serve. The same approach can be used for each of the eight SCM processes to measure its impact on EVA®.

Management should implement processes that increase the profitability of the supply chain not just the profitability of a single firm. Key supply chain members should share equitably in the risks and the rewards. If the management team of a firm makes a decision that positively affects that firm’s EVA® at the expense of the EVA® of customers or suppliers, every effort should be made to share the benefits in a manner that improves the financial performance of each firm involved and thus give each one an incentive to improve overall supply chain performance.

Key supply chain members should share equitably in the risks and the rewards.

Figure 1-8
How Customer Relationship Management Affects Economic Value Added (EVA®)



Source: Adapted from Douglas M. Lambert and Terrance L. Pohlen, "Supply Chain Metrics," *The International Journal of Logistics Management*, Vol. 12, No. 1 (2001), p. 10.

³⁴ Stewart, III, G. Bennett, *The Quest for Value*, New York: Harper Collins Publishers, Inc., 1999.

...management needs tools that can be used to structure the key relationships that are identified when implementing customer relationship management and supplier relationship management.

Building High-Performance Relationships in the Supply Chain

Successful implementation of The Global Supply Chain Forum Supply Chain Management Framework is dependent on developing close relationships with key customers and suppliers. In other words, supply chain management is relationship management. For this reason, management needs tools that can be used to structure the key relationships that are identified when implementing customer relationship management and supplier relationship management. There are two tools, developed as part of the GSCF research, that can be used for developing high-performance business relationships: The Partnership Model and The Collaboration Framework.

The Partnership Model

The Partnership Model separates the drivers, the facilitators, the components and the outcomes of partnership into four major areas for attention. Drivers are the compelling reasons to partner, and must be examined first when approaching a potential partner. The drivers are assessed independently by each organization in order to arrive at a common vision of the business benefits of building more closeness into the relationship. Facilitators are characteristics of the two firms that will help or hinder the partnership development process and they are assessed by the two groups together. Together, drivers and facilitators determine the potential for partnership. Components are the managerially controllable elements that should be implemented at a particular level depending on the type of partnership. Outcomes measure the extent to which each firm achieves its drivers. The Partnership Model provides a structure for assessing the drivers and facilitators, and component descriptions for the prescribed type of partnership.

Using the Partnership Model to tailor a relationship requires a one and one-half day session. The correct team from each firm must be identified and committed to a meeting time. These teams should include top managers, middle managers, operations personnel and staff personnel. A broad mix, both in terms of management level and functional expertise, is required in order to ensure that all perspectives are considered.

The success of the partnership building process depends on the openness and creativity brought to the session. The process is not about whether to have a business relationship; it is about the style of the relationship. The partnership building session is only a first step in a challenging but rewarding long-term effort to tailor your business relationship for enhanced results. The Partnership Model is described in detail in Chapter 15.

The Collaboration Framework

The Collaboration Framework is appropriate to use when either one of two conditions are met. First, the relationship is new and individuals in the two organizations do not have enough information about each other and/or their joint business opportunities to score the drivers and facilitators in a full partnership meeting, but significant potential from collaboration exists. Second, collaboration meetings are appropriate when the two organizations have significant joint business at stake but managers in one or both firms do not view the relationship as strategic. Also, it provides a structure for developing and implementing product and service agreements (PSAs) with key customers and suppliers.

The Collaboration Framework is comprised of six activities: assess drivers for each company, align expectations, develop action plans, develop product and service agreement, review performance, and reexamine drivers. Assess drivers requires that each firm's representatives identify their business goals for the relationship. Align expectations involves mutually establishing goals for the relationship based on the drivers of both firms. Develop action plan includes prioritizing initiatives, assigning responsibilities, establishing time lines, and agreeing on the appropriate metrics. The PSA is a written summary of the rules of engagement and the action plan. It is necessary to regularly review performance to insure that each firm has achieved its drivers. Finally, the teams should periodically reexamine the drivers.

The collaboration meeting is a one-day session in which expectations are set, action plans are developed, and responsibilities are assigned. The meetings are enhanced by the presence of individuals from multiple levels within the organizations who represent diverse functional expertise. The make-up of the group sends a message to those in the other firm about the importance of the relationship. It is important to involve the highest-level executives possible. The more levels of management above the people in the meeting, the more difficult it may be to achieve the commitments made. If key executives are not present and significant resource commitments are being made, then these executives should be briefed as soon as possible and their commitment obtained. The Collaboration Framework is described in detail in Chapter 16.

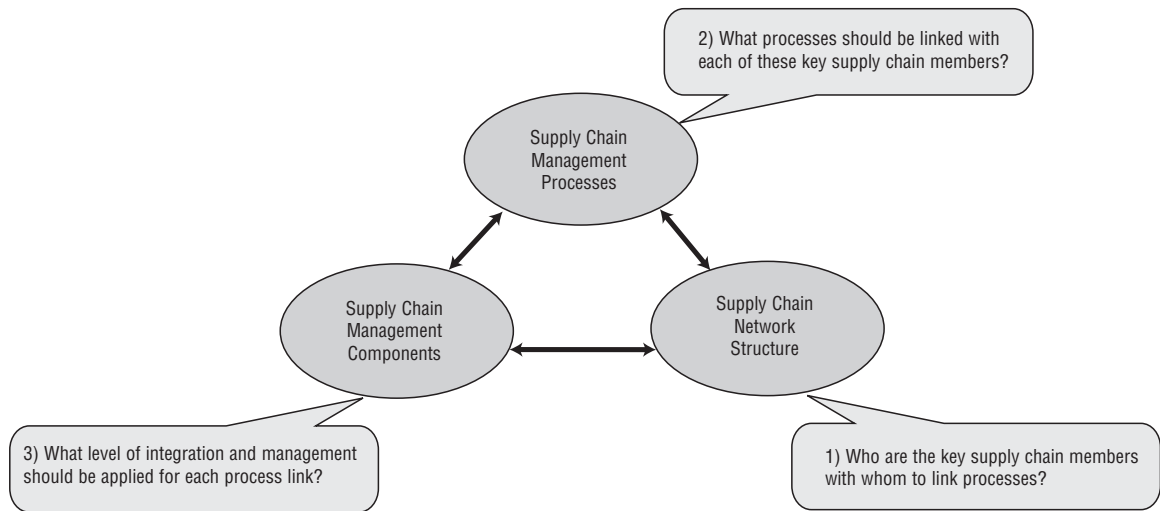
While use of the Collaboration Framework is appropriate for the situations described above, the framework should not be viewed as a replacement for the Partnership Model. Consideration of the facilitators is important to ensure a smooth working relationship. Similarly, the evaluation of the components in the Partnership Model offers advantages with respect to using all of the available managerial tools for relationship building. Setting components at the appropriate level ensures optimal use of scarce managerial and other resources. The Partnership Model supports a depth of relationship that offers potentially greater rewards if the conditions of partnership are met. In particular, if symmetry is present and the knowledge of the joint environment is adequate, the Partnership Model is more appropriate.

The collaboration meeting is a one-day session in which expectations are set, action plans are developed, and responsibilities are assigned.

Summary of the Supply Chain Management Framework

Figure 1-9 illustrates the inter-related nature of SCM and the need to proceed through several steps to design and successfully manage a supply chain. The SCM framework consists of three closely inter-related elements: the supply chain network structure, the supply chain management processes, and the supply chain management components. The supply chain network structure is comprised of the member firms and the links between these firms. Business processes are the activities that produce a specific output of value to the customer. The supply chain management components are the managerial methods by which the business processes are integrated and managed across the supply chain. These topics will be covered in detail in the chapters of this book that follow.

Figure 1-9
Supply Chain Management: Elements and Key Decisions



Source: Adapted from Douglas M. Lambert, Martha C. Cooper and Janus Pagh, "Supply Chain Management: Implementation Issues and Research Opportunities," *The International Journal of Logistics Management*, Vol. 9, No. 2 (1998), p. 4.

Conclusions

Executives are becoming aware of the emerging paradigm of inter-network competition, and that the successful integration and management of the supply chain management processes across members of the supply chain will determine the ultimate success of the single enterprise. Organizations exist in supply chains whether the relationships are managed or not. Managing the supply chain cannot be left to chance.

Research with member firms of The Global Supply Chain Forum indicates that successful SCM requires integrating business processes with key members of the supply chain. Considerable waste of valuable resources results when supply chains are not integrated, appropriately streamlined and managed. The structure of activities/processes within and between companies is vital for creating superior competitiveness and profitability. A prerequisite for successful SCM is to coordinate activities within the firm by implementing the eight supply chain management processes using cross-functional teams. The Partnership Model and The Collaboration Framework are tools that can be used to structure these cross-functional relationships with key customers and suppliers.

Failure to implement cross-functional business processes will result in missed opportunities that with the level of competitiveness faced by most firms can no longer be tolerated.

Failure to implement cross-functional business processes will result in missed opportunities that with the level of competitiveness faced by most firms can no longer be tolerated. For example, a manufacturer of consumer durable goods implemented a rapid delivery system that provided retailers with deliveries in 24 or 48 hours anywhere in the United States. The rapid delivery system was designed to enable the retailers to improve service to retail customers while holding less inventory and thus improving per unit profitability. Six years later, the company had not seen the anticipated reductions in retailers' inventories and reduced the service promise to 48 or 72 hours depending on the retailer's location. The rapid delivery system never achieved its full potential because the sales and marketing

organizations still provided customers with incentives to buy in large volumes.³⁵ This example should make it clear that failure to manage all the touches will diminish the impact of initiatives within the supply chain. Implementing the eight supply chain management processes will increase the likelihood of success because all functions as well as key customers and suppliers will be involved in the planning and implementation of the initiative. The penalty for not gaining the full involvement of all functions and aligning the metrics is dealing with the actions of those who maliciously or inadvertently undermine the initiatives.

The implementation of SCM involves identifying: the supply chain members, with whom it is critical to link; the processes that need to be linked with each of these key members; and, the type/level of integration that applies to each process link. The objective of SCM is to create the most value not simply for the company but the supply chain network including the end-customer. Consequently, supply chain process integration and reengineering initiatives should be aimed at boosting total process efficiency and effectiveness across members of the supply chain.

At a meeting of The Global Supply Chain Forum, a series of break-out sessions were devoted to the topic “the supply chain of the future”. At the end of the day, the conclusion of the group was that when an organization’s management had successfully implemented all eight of the SCM processes, they would have achieved the supply chain of the future and would be able to respond to whatever challenges the business might face. Where is your company in terms of successful implementation of cross-functional business processes? In order to create the most value for the company’s shareholders and the supply chain including end users/consumers, management must take action to integrate the supply chain. The time for action is now.

The remaining 17 chapters of this book are organized as follows. Chapters 2 through 9 contain detailed descriptions of the eight supply chain management processes: customer relationship management, supplier relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, product development and commercialization, and returns management. In Chapter 10, you will be shown how to conduct assessments of the supply chain management processes using the assessment tools at the end of the book. Chapter 11 deals with mapping for supply chain management. In Chapter 12, the authors describe lean thinking and supply chain management. Chapter 13 contains material on implementing and sustaining the supply chain management processes. Chapter 14 deals with supply chain metrics. In Chapter 15, The Partnership Model, a systematic process for developing, implementing and continuously improving relationships with key members of the supply chain is presented. In Chapter 16, you will be shown how to use The Collaboration Framework to align expectations with key customers and suppliers and develop an action plan. In Chapter 17, you will be shown how to improve performance through value co-creation with key customers and suppliers. Finally, Chapter 18, Supply Chain Management: The Next Steps, provides a comparison of The Global Supply Chain Forum and Supply Chain Council supply chain management frameworks and opportunities for the future.

The implementation of SCM involves identifying: the supply chain members, with whom it is critical to link; the processes that need to be linked with each of these key members; and, the type/level of integration that applies to each process link.

³⁵ Lambert, Douglas M. and Renan Burduroglu, “Measuring and Selling the Value of Logistics”, *The International Journal of Logistics Management*, Vol. 11, No. 1 (2000), pp. 1-17.