

INTRODUCTION

This chapter introduces the concept of the extended enterprise and argues for the benefits of collaborative behavior among supply chain partners. Given the economic turbulence in recent years, it is not surprising that firms are trying to make their supply chains more cost-effective, transparent, and responsive. The rewards of doing so can be great. Successful companies show that leaner inventories, lower working capital, higher profits and productivity, and better customer service are among the benefits.¹ Companies such as Wal-Mart, FedEx, Procter & Gamble, Dell, and IBM have demonstrated that superior supply chain management (SCM) can lead to industry dominance.

Supply chain management systems and Internet-based solutions have become the focus of many reengineering projects aimed at solving supply chain problems. For instance, HP's Internet-based exchange has saved over \$100 million in just 18 months. AMR Research reported that expenditures for supply chain technology grew to \$5.6 billion in 2001 and are expected to grow another 12 percent in 2002. These technology applications all promise to deliver greater control over portions of the supply chain. These gains are not guaranteed and can mistakenly redirect management's attention away from the importance of integrated processes and people issues.

Technology might enhance better information flows among supply chain members but the quality of information shared is far more important. The level of trust among the supply chain drives the quality of information. AMR also reports that most firms are nowhere near exhibiting the level of trust needed to achieve the range of supply chain benefits. When suppliers and their OEM customers were asked what level of price discount would cause them to switch suppliers, their responses were 7 and 10 percent, respectively. The data suggest very strongly that loyalty and collaboration are worth very little in practice.

Even more disturbing is a study published in *Purchasing*² regarding buyers' responses to a CEO's mandate to improve profits in the sluggish 2002 economy. Buyers have beefed up their cost control programs with an average expected cost drop of 5.8 percent. Among the tactics employed are greater reliance on long-term contracts to lock in prices; leveraging size through consolidation of purchases; harder negotiations; use of reverse auctions and search for lower cost labor opportunities; and buying on the spot market. Some buyers are trying to reduce costs through value engineering and product redesign. Although a number of these approaches make sense and have merit, the more popular approaches are focused on the short term and ignore any attempt to think strategically about collaboration and the benefits that accrue from the extended enterprise.

THE NEW COMPETITION: THE EXTENDED ENTERPRISE

Although the ideals of the extended enterprise are relatively new, there have been small numbers of firms that have begun to employ its principles. Competitive pressures, an instinct for survival, and a realization that their traditional business model was likely to fail typically have driven these firms. For example, in 1970, a consortium of four of Europe's aerospace companies joined fortunes to create Airbus, a response to the European's shrinking share of the commercial airline business. France's Aerospatiale, Britain's Aerospace, Spain's CASA, and Germany's Daimler Aerospace each would build sections of planes that would be assembled, marketed, and certified in Toulouse through a separate management company owned by the four partners. Achieving this level of cooperation from firms (and countries) that have competed (and fought) against each other has not been a trivial obstacle to overcome. These partners acknowledged that alone they had neither the skills nor the resources to compete effectively against Boeing, Douglas, or Lockheed. With the introduction of the A320 in 1988, Airbus demonstrated that the consortium and its suppliers could produce a superior plane and make a profit. Despite the debate as to the impact governmental support plays in its sales, Airbus stands today as an example of a network of collaborative partners who compete very successfully on the world scene. In fact, press statements released in January 2003 suggest that Airbus sales this year might exceed Boeing's sales for the first time.

This consortium has seamlessly linked its four prime partners and is currently in the process of incorporating its first-tier suppliers into its information exchange process through the use of bar codes on parts. These codes reduce logistics processing and cycle time relative to service-related problems. Successful horizontal consortia are built on a model of trust where all members must win if the group is to win.

An area in which problems arise is associated with letting go of the reins and letting the group make decisions on behalf

of the members.³ Firms are less willing to relinquish control; however, we are beginning to hear a common rallying cry: *We must cooperate to compete*. The extended enterprise symbolizes a revolutionary approach to competitive behavior and how firms view their exchange relationships. We are witnessing a transformation in the nature of relationships within a value chain (or a supply chain), and this transformation will forever change the manner in which firms compete and cooperate. To begin the journey of understanding how the extended enterprise changes the face of SCM and creates additional value for customers, we first need to appreciate the impact of the new competition.

CHANGING THE FACE OF COMPETITION

The capabilities derived from integrated SCM are delivering benefits across a range of businesses as diverse as construction and software development. These gains are far more powerful than inventory reduction and more efficient than logistics, encompassing new product development, improved cycle time, improvements in customer responsiveness, and overall improved productivity. For instance, Lucent has reduced its warehouses from 200 to 33 as a direct result of better technology that allows monitoring of order status throughout its supply chain. As it relies more on outsourcing, it has reduced inventory and carrying costs. Increased visibility is a result of a seamless information technology system that links suppliers and notifies Lucent of any delays or problems in fulfilling a customer order.

Supply chain-wide thinking is a fairly recent phenomenon, and procurement managers have not always viewed their world through this lens. Adversarial relationships between buyers and suppliers have long been the rule, and price reduction has been the key metric by which success has been measured. Traditional supply chain thinking was based on the premise that lower prices add value. Although price is important, value is created in ways that render price considerations secondary and emphasize innovation and information as critical elements in the value equation. Today, buyers realize that

supplier involvement in new product design and processes provides benefits to the buyer that span areas such as engineering, testing, tooling, and other capabilities.

Changes in both the nature of competition and how competition is defined have demonstrated that the previous adversarial model is inappropriate and, in many instances, is harmful. It makes perfect sense that a firm cannot optimize its operations without consideration for its customers, its customers' customers, its suppliers, and its suppliers' suppliers. The notion of the extended enterprise takes SCM to the next level and focuses on those factors and characteristics that link supply chain members by far more than workflow and logistics. The extended enterprise captures the idea that firms are also linked as learning organizations. Knowledge becomes the currency of exchange, and the goal is to create value for customers so that each supply chain member benefits. Withholding needed information from other supply chain members or creating technological barriers to prohibit supply chain-wide learning shows a lack of appreciation for how winners/losers emerge.

Whirlpool looks for qualities in suppliers that go well beyond competitive costs and quality. It attributes its overall productivity improvements and innovative product introductions to a supply base that helps reduce design costs and assists in migrating innovation globally. Part of its mandate is to leverage existing relationships with suppliers to deliver competitive advantage globally. Whirlpool created a world-class supply base by working with suppliers to develop new supply technologies and by trusting that both were working toward similar goals. Margins in the appliance business are quite slim, and there is little room for noncollaborative partners who do not share insights and capabilities and are not willing to transfer knowledge across the boundaries of the two companies.

However, firms are slow to adapt; a recent study by AMR shows only 6 percent of companies are actually connected throughout their supply chains. Nonetheless, these extended enterprises symbolize flexible, creative, learning organizations whose managers seek new business approaches and are quick to respond to marketplace changes. Texas Instruments (TI) is in the process of installing supply chain event management

(SCEM) software to track exceptions over time and identify and correct bottlenecks. The goal is to provide visibility from suppliers to customers on a global basis. TI estimates that just being able to confirm deliveries electronically will pay for the system.*

As supply chain members begin to think of themselves as adaptive networks that can respond to changes, they are on their way to extended enterprise thinking. These new organizational forms require a transformation in both internal and external processes and procedures. More efficient internal processes alone no longer measure operational excellence; it now entails more effective and relevant responses to customers' needs and requirements that often cross organizational boundaries. You would think that cross-functional cooperation is easily understood and implemented. However, many managers cannot rise above a reward system that provides incentives to individual department thinking based on behaviors that reinforce little consideration for the leverage that accrues when business units (or departments) act in concert, sacrificing individual gains for the benefit of the enterprise. Metrics that emphasize individual unit profit and loss rarely encourage such joint actions where win-win thinking rules the day.

Externally, extended enterprises are managed to optimize efficiency in workflow and to maximize the flows of information/knowledge among partners. To appreciate aspects of supply chain learning better, a survey⁴ of global firms showed that companies that value learning across the supply chain often see information as a shared asset and exhibit very collaborative behaviors. These findings are summarized in Table 1.1. The results suggest that when learning is valued and shared across supply chain members, purchasing efficiency is enhanced, and supply chain partners are better poised to gain a sustainable competitive advantage. Not only are supply chain-wide costs reduced, but these supply chains are more responsive to customers'

* We caution that systems such as SCEM are relatively new, and their full benefits are untested at this juncture. Although the software might not deliver as promised, it is the change in mindset that is important because it signals a movement in the right direction.

TABLE 1.1 Positive Effects of Supply Chain Learning

Greater support for supply chain learning is associated with....	Better performance regarding: <ul style="list-style-type: none"> ■ On-time delivery ■ Adaptation to change ■ Responsiveness to partner needs
	Contributions by supply chain partners to: <ul style="list-style-type: none"> ■ Customer satisfaction and value creation ■ Differentiation of offerings in the marketplace ■ Increased account penetration ■ Reduction in inventory levels ■ Reduction in cycle time and new product development

needs and requirements. By leveraging skills and capabilities across the supply chain, revenue-creating opportunities exist.

A Survey of CEOs and the Extended Enterprise In 2002, *The Economist*⁵ surveyed CEOs to understand the effects the extended enterprise is having on senior managers in global companies. Interestingly, over 65 percent of the respondents report that they have become and will become more dependent on external relations to achieve their business objectives. In areas related to supplier relationships, the three most critical factors for selecting partners were high levels of expertise, reputation, and an excellent knowledge of their companies. At the same time, over 65 percent feared that such relationships would lead to a lack of control and heightened vulnerability. An equal number of executives said they lacked adequate metrics to assess whether these partnerships were successful. This survey highlights two key points:

1. CEOs acknowledge the critical importance of the extended enterprise.
2. Few firms are adequately prepared to accept the loss of control or have sufficient metrics to measure performance.

An Illustration of Extended Enterprise Thinking The previous discussion paints a broad landscape of extended enterprise thinking but lacks the clarity of a more focused portrait. To understand better the nature of the new competition and the rise of the extended enterprise, we offer an illustration from the oil business, with focus on underwater drilling. FMC Energy Systems (FMC) (a U.S.-based multinational manufacturing company) manufactures precision equipment for the oil industry that is used at wellheads in thousands of feet of water to direct the flow of oil and gas from underground reserves to the surface. These “Christmas trees,” along with other highly engineered products and services, provide mission-critical applications and solutions to oil companies that drill globally for oil. You can only imagine the severe conditions found working at the surface and the floor of the North Sea in depths exceeding 6,000 feet of water. Working with many of the major oil companies in locations as dispersed as the coast of Brazil, the North Sea, West Africa, and the Gulf of Mexico, FMC adds value to its customers well beyond lowered total costs of operation. It also works in partnership with its customers (and other suppliers) to provide customized solutions to technical problems in safely ensuring the flow of the oil and gas from these depths to the surface. Although cost, faster system delivery, and other traditional purchasing measures remain important, both FMC and the oil companies have come to realize that their destinies are inextricably linked. Common goals foster a belief that success for one results in success for both.

As part of its value-added capabilities, FMC touts its product innovation and state-of-the-art technology that provide its partners an advantage when competing for global market share. These technological gains can be achieved only if there is a high level of cooperation internally among different functional units, all of which have their sights set on achieving customer satisfaction. In addition, buyers and sellers work more collaboratively, share plans and strategies, and work toward a mutually shared set of goals and objectives.

This scene is a far cry from behaviors of a decade ago, where the oil companies and their suppliers attempted to gain advantage at the expense of each other. It should be noted that in some instances, spot market transactions still exist in the oil

industry, and buyers still attempt to leverage their size and power. Yet for strategic purchases, such an approach makes little sense. These more critical relationships are based on trust and mutual respect. Purchase price still matters but it is counter-balanced by a number of other factors that are driven by a different mindset. In fact, as part of the proposal process, oil companies have included a survey that is intended to shed light on the collaborative behavior of the potential suppliers. A potential supplier might score high on its technical merits or on the elegance of its design/solution but score low on its partnerlike behavior and attitudes. This profile might be sufficient for the buyer to drop the supplier from further consideration.

The decision to work with a supplier is based on both quantifiable and qualitative data. In addition, technical skills, price-related factors, *and* the extent to which the supplier is seen as a potential partner are viewed as key criteria.

Factors Driving Extended Enterprise Thinking In the oil industry, firms are dependent on a number of other companies to provide a total solution to the technological challenge of drilling for oil in deeper waters all over the globe. Both Shell and Exxon Mobil are listed among *Fortune's* top 10 global firms, with Exxon Mobil being number one at revenues in 2000 of \$210 billion. Yet if you were to add the revenue of all the firms that partner with these companies to explore, drill, and extract oil from the ground, the total revenue for these extended enterprises would be close to \$1 trillion.⁶ These global alliances act in concert as single entities, and when their assets are combined, the total exceeds the GNP of many nations. For example, Brown & Root Energy Services has signed a 10-year alliance with Chevron in the Gulf of Mexico to provide project management and other topside and subsea services, along with Aker Maritime (floating platforms), Saipem, Inc. (pipe laying and heavy lift), and Han-Padron Associates (design and development of deep-water systems). This risk- and reward-sharing alliance allows Chevron to rely on the expertise of its partners as it develops its deep-water leases.

Implicit in the new competition and extended enterprise thinking are several key factors:

- Environmental changes that affect technology development, access to markets, or the ability to predict changing consumer demand are increasing at a faster rate, and competitive responses must be swift and decisive. World-class suppliers often provide insight into these issues and contribute to reducing uncertainty for companies.
- The recognition of fragmented markets and the existence of microsegments have forced firms to respond faster and with greater precision to changing preferences as needed. Agility⁷ is required to anticipate these demands and to create bundles of products and services to meet the needs of these different segments. It is unlikely that one firm has the skills or capability to do this alone. Dell, for example, has demonstrated time and time again its flexibility and speed in adapting to new technology without the inventory problems or unplanned obsolescence that plagues many of its competitors.
- Technology, new product innovation, and the product life cycle are all subject to greater time pressures, such that it is often difficult to achieve a long-term advantage. Product life cycles are shortening; long-term patent protection in some instances is illusory. Supply chain partners allow firms to leverage speed and to shortcut the innovations process. In the pharmaceutical business, each day that a new drug is delayed in its introduction can cost upward of \$5 million in revenue. Supply chain partners can improve speed to market.
- The globalization of markets, free trade, and new economic development serve to accelerate all of the conditions listed above. Although there are increased opportunities, there are also new challenges, not the least of which is how to manage these loose federations/networks and/or supply chain relationships that extend beyond the boundaries and reach of the single enterprise.

One implication is that a new leadership style is needed—a style that embraces change, encourages flexibility, and

simultaneously takes on a firm-wide and extended enterprise perspective. There are few supply chains that have fully implemented metrics to reward system-wide thinking and capture systemwide performance. For instance, one key issue is how to determine profitability at the firm and the supply chain levels. A truly win-win supply chain examines profitability at all levels and ensures that profits are distributed equitably, based on a model in which supply chain partners share risks and rewards.

Such changes must begin with a corporate vision that transcends the single firm to encompass the partners that comprise this extended enterprise. Managers must learn to utilize assets and coordinate activities they do not directly control or own and cannot directly see. In addition, they must now consider their suppliers' views on resource needs/constraints, threats/opportunities, and weaknesses/strengths when considering setting goals and objectives.

To meet the volatile demands of the semiconductor market, MKS Instruments (a maker of gas-flow controllers and throttle valves) maintains capacity at 85 percent so that it has the flexibility to react to the needs of Intel and other key customers.⁸ It has also worked with its suppliers to ensure that the entire system can react in time to the changing demand requirements of its customers. In its commitment to customer service, MKS willingly holds some stock on consignment at customer locations. Although 19 days of finished inventory might not be considered "lean," MKS sells its products for less than \$10,000; they are part of final products priced in excess of \$1 million. MKS understands where it sits in the customers' value equation and feels that such actions are a sign of commitment.

DIFFERENT VIEWS AND PERSPECTIVES

For the CEO and the senior management team, the level of analysis is the full constellation of cooperating companies that work together toward a commonly shared set of goals and objectives. For instance, when Shell attempted ultra deep water (8,000 feet) exploration in the Gulf of Mexico, its

prime partners were other exploration companies from Amoco, Mobil, and Texaco who helped share the risk of this deep-water opportunity. In addition to the principals who shoulder the financial risks, there are numerous other partners who manage the platforms, oversee the daily operations, and do the work of drilling.

Combine the needs of these risk-sharing partners with the efforts of those firms that provide drilling platform management, deep-water equipment and services, seismic expertise, and the entire range of operational activities; it is fairly easy to envision the complexities inherent in coordinating and integrating the members of the extended enterprise. Competitive assessments are now made up and down the supply chain, and the constellation of cooperating companies is as strong as its weakest partner.

Boeing and Lockheed Martin competed to build the Joint Striker Fighter, the next-generation multi-role fighter. Both assembled teams of supplier partners who are core to the success of the effort. The partner firms that comprise the Boeing team (one extended enterprise) competed against the Lockheed team for a prize in excess of \$200 billion in orders to be delivered over the next 20 years. On October 27, 2001, the Pentagon announced that the Lockheed team had won the competition. To understand the competitive realities, the playing field does not pit Boeing against Lockheed. Rather, it is the Boeing team, comprised of dozens of suppliers (e.g., Pratt Whitney, Raytheon, BAE Systems, Messier-Dowty) and their entire set of skills and capabilities, compared with the Lockheed team and its key partners, as well as the set of first- and second-tier suppliers.

Calling the constellation of firms a *team* implies that, for buyer and supplier, this is not business as usual. Although the aerospace industry has long assembled project teams, these have been very product-focused and were managed under the umbrella of traditional subcontractors and prime contractor relationships. The reporting relationships were clear, and the power in all aspects of decision making rested solely with the prime contractor. There were manuals governing the nature of the prime sub-contractor relationship that tried to leave no stone unturned and attempted to adjudicate any dispute that

might arise. There existed a natural tension between contractual relations and working relationships.

During the early stages of the competition, both teams used the terms *partner* and *partnering behavior* to describe the manner in which members would interact. Contracts are still written but they are not used on a daily basis to dictate interaction and set the tone of the relationship among the team members. This does not minimize the importance of contract management as much as it changes the emphasis of living by the contract to managing a set of working relationships that must be flexible and adaptive. Simply, all team members are given voice and are valued beyond the materials/systems purchased; they are acknowledged for the expertise and capabilities they bring to the relationships.

Important to the new relationships is the role of trust that is often lost within the context of contractual relationships. This is not to say that in the past companies mistrusted one another. Previously, trust tended to be limited to the letter of the contract and reinforced the arm's-length contractual relationship.

The View from Procurement At the level of the procurement function, there are new behaviors that must be developed and adaptations in mindset that must occur to accommodate the change in perspective to the extended enterprise. Table 1.2 summarizes the different expectations and roles associated with procurement and shows how those new roles reflect a more strategic view of the relationship among the members of the extended enterprise. Procurement now takes a more proactive role in orchestrating a networkwide response to customer needs, as well as in looking for opportunities to leverage the capabilities of its partners. The total enterprise is the relevant competitive entity. This perspective belies the past, where buyers were rewarded on variance to purchase price and on the quality and timely delivery of goods purchased.

From Table 1.2 it is clear that the focus becomes less transactional and short term. Procurement is now actively involved in developing suppliers for the long term who complement the buying firm's existing skills and whose capabilities bring value to the marketplace. Change must happen quickly because

TABLE 1.2 Procurement's New Role in the New Competition

EVOLUTIONARY CHANGE	REVOLUTIONARY CHANGE
Primary point of supplier contact Administers the contract and manages the supplier base Reacts to the market and minimizes risk to the firm Tends to be transaction-focused Sees the flow of information to be one-way and into its own firm Engages in some cross-functional coordination but tries to be the main point of contact	Acts as a facilitator to enable multifunction, multilevel interaction Manages relationships among supply chain partners to maximize market acceptance Proactively looks for opportunities to leverage skills and bring value to customers Thinks long term and is willing to sacrifice in the short term for the long-term win Information flows are simultaneous and two-way Seeks functional integration by managing and leveraging the skills of partners

movement at a snail's pace is totally inadequate for the task at hand. Revolutionary change reflects the fact that suppliers offer opportunities for cost reduction and revenue enhancement. They provide an opportunity for the entire enterprise to learn from its members because information flows openly among them, and they contribute to systemwide innovation and technology development through early involvement in design and other processes that enable idea sharing. Procurement activities now include management of internal relationships that integrates across functions/units and externally with supply chain partners. Suppliers are chosen because they are problem solvers and can use their experience/capabilities toward mutually beneficial solutions.

Mercer Management⁹ isolated key characteristics of the firms most prepared to embrace the notions of the extended enterprise. Among these characteristics are:

- Customer alignment—the process begins with customers, and they drive the process.

- Collaboration—partners are linked through trust and respect, and roles are assigned by virtue of comparative advantage.
- Flexibility and speed—partners are quick to respond to change and are able to make adaptations quickly. Information replaces inventory, and information is a shared resource. Sustained advantage is a function of information that is transformed into knowledge from which the set of supply chain partners benefit.

In an attempt to facilitate such interaction, several software vendors have collaborated to provide a product management solution that links product development and strategic sourcing. An alliance between SDRC and i2 will allow users strategically to source, collaboratively design, engage in Web-based negotiations, manage the request for proposal (RFP) process, and link all supply chain partners to a common product view.

Challenges Brought on by Working Closely Think about the challenges of integrating activities, information, and processes among independent firms that come together to compete against other extended enterprises while maintaining their own separate identities. There is an inherent tension in that firms come together to work jointly but each retains its own autonomy, and the default option is to act in its own self-interest.

One source of tension is the awkwardness between competing and partnering that is exacerbated by trade-offs between trust/opportunistic behavior and teamwork/self-serving behavior. Another source of tension is related to the role of suppliers and the functions they perform in the supply chain. If activities are not seen as complementary, it is likely that conflict will surface as supply chain partners argue over how much value they create and who performs a particular task more effectively. This debate becomes more heated and often results in discussions regarding equitable treatment and the sharing of risk and reward.

Still another source of tension is the unintended flow of information. Consider that the assets held by the supplier are of two kinds: tangible and intangible. Tangible assets are

accounted for on the balance sheet, and intangible assets are not. Employee know-how is one of the firm's intangible assets. Explicit knowledge is codified and can be observed and copied. Tacit knowledge is not codified and is not easily copied. By working closely and spending considerable time with its supply chain partner, a firm can begin to learn and absorb this knowledge. To be resolved is how much tacit knowledge a supplier (or buyer) can transfer to the partner without jeopardizing its core expertise through the unintended leakage of information.

To be more competitive, Motorola, a pioneer in the market, has taken a second look at its personal communications sector (PCS) and has developed a strategy to lower costs and raise profits, in part, by more strategic purchasing. Motorola will simplify its product portfolio and, as a consequence, will simplify the way it designs and purchases materials. Central to this strategy is the selection of suppliers that are technologically superior. These gains could not be achieved without longer term supply agreements based on performance guidelines, not "specs"; a mutual commitment to work closely over a period of years; and an implied expectation that best practices will be shared and technology will be jointly developed. Of concern is the unintended leakage of information that might affect Motorola's future competitive advantage.

Rather than rely on integration processes as a vehicle to leverage technology, integration is also used to learn how much a company buys what from whom and how these discrete purchases can be rolled up to gain the full advantage of size. Raytheon estimates that it could save 5 percent annually on the \$5.1 billion it currently spends by sorting out where its leverage points are.¹⁰ Supplier integration occurs by knowing which divisions the same suppliers serve. Focusing on leverage to reduce costs fails to appreciate the other gains afforded by leverage, such as exchanging engineering data to improve the product development cycle.

LIFE AFTER PRICE LEVERAGE

Extended enterprise members must develop norms that support and extend the principles of the supply chain partnership.

When problems arise, they are treated as joint problems, rather than belonging to the individual responsible. Instead of having formal communications where information follows the chain of command, communications are more balanced and informal. Planning efforts include consideration for the relationship *and* the business.

Equally as important is the level of senior management commitment that requires visibility and transparency in operations among the members. The full benefits of an integrated supply chain cannot be achieved without access to an unprecedented amount of data and financial information. For all the talk in support of the extended enterprise, barriers are still in place that impede the level of collaboration required. Where barriers exist, a recent *Industry Week* survey suggests that a lack of leadership followed by a lack of strategic direction were viewed as the key impediments.¹¹

Arvin-Meritor Corporation, a major supplier to the automotive industry, has developed a close cadre of suppliers that work with it globally. Arvin and its partners work hard to develop a sense of shared destiny. These companies are linked by trust and a belief that one partner will not act opportunistically at the other's expense. William Hunt, CEO, has taken the position that what is good for Arvin is good for its supply base and has rolled out several key programs to Arvin's key partners. Now the lean production systems that worked internally for Arvin are shared with its suppliers. A senior executive at Thyssen Steel, a major provider, buys the concept and states that it is exploiting the word *partnerships*. Both parties recognize that the better each treats the other, the longer the relationship will be successful and profitable. Recall that Arvin sells to automobile manufacturers, and we would be hard pressed to find a more cost-obsessed set of customers.

At an intellectual level, it is fairly simple to understand the benefits gained from such collaborative behavior. Yet at an operational level, reality sets in. Customers must provide accurate and reliable forecasts and must share data with suppliers who then must provide timely delivery, reliable quality, and responsiveness to changes that might occur. The ability to provide data integrity is important but the true challenge is a process that is based on a willingness to communicate openly

and share sensitive information. As information replaces inventory, firms that are either unable or unwilling to share internal information will have higher costs and will not be viewed as potentially strong partners.

To be sure, technology is an enabler that facilitates interaction among levels in the extended enterprise. Cross-system compatibility is enhanced by advanced protocols that link customer requests directly to the shop floor production schedule. Cisco Systems reports that improved accuracy in communications within its supply chain has saved hundreds of millions of dollars. Access to information has become an expected part of the total product offering. The implications are:

1. Trust must lie at the core of the relationship.
2. Cross-functional integration is essential because the requisite information is located in different parts of the firm.
3. Products and services are bundled as part of the total value-added package, thereby solidifying the need for heightened cooperation internally and across the different supply chain members.

BEGINNING THE CONVERSATION NEEDED FOR THE EXTENDED ENTERPRISE

Despite the perceived gains and positive words, in the background is the skepticism that what people really want is price concession. The same *Industry Week* survey cited earlier reveals that pricing pressure is also a major barrier to achieving the goals of the extended enterprise. As criteria shift away from price to considerations of time saving, reliability, leverage, and end-use customer satisfaction, we witness an emerging conversation among trading partners. This conversation is relatively new, and many companies lack both the vocabulary and vision for this important dialogue.

A recently published study¹² reveals an interesting difference between buyers and sellers that supports the *Industry*

TABLE 1.3 Different Perspectives Required to Begin the Dialogue: How Buyers and Sellers See the World Differently

SELLER'S PERSPECTIVE	BUYER'S PERSPECTIVE
<p>Sellers engage in SCM to:</p> <ul style="list-style-type: none"> ■ increase end-use customer satisfaction ■ gain a strategic market position <p>Sellers see the relationship as critical to success.</p> <p>Sellers select supply chain partners who:</p> <ul style="list-style-type: none"> ■ are reliable and consistent ■ have strong reputations ■ offer both economic benefit <p>Sellers describe the relationship:</p> <ul style="list-style-type: none"> ■ lasting a long time ■ willing to devote extra effort ■ willing to share technical information ■ customers to this customer are important 	<p>Buyers engage in SCM to:</p> <ul style="list-style-type: none"> ■ gain better pricing ■ reduce lead times <p>Buyers see the relationship as one where supply chain members can be easily replaced.</p> <p>Buyers select supply chain partners who:</p> <ul style="list-style-type: none"> ■ are trustworthy ■ have integrity ■ know Buyer's business ■ are committed <p>Buyers describe the relationship:</p> <ul style="list-style-type: none"> ■ have faith in partner ■ have sense of fair play ■ focus mainly on price ■ tend to use fewer criteria to evaluate

Week survey. Table 1.3 summarizes the findings and highlights the different perspectives of buyers and sellers.

Although buyer and seller seem to mouth the right words, it should be apparent that buyer and seller do not share compatible views in practice. Telling differences lie in the findings that:

- Buyers see the relationship as commodity-like, where sellers can be easily replaced. Sellers see buyers as critical to their success. Sellers value the unique contribution potentially offered by buyers who can affect end-use customer satisfaction. Buyers attribute no such uniqueness and, in fact, are predisposed to short-term thinking.

- Buyers think very little about selection criteria beyond price and fail to consider a host of other factors that might lead to higher market share for the entire supply chain membership.
- Sellers talk about relationships, value-added capability, and supply chain-wide benefits. Buyers understand the importance of customer-driven supply chains but are uncomfortable with such talk. To demonstrate how stark the differences between buyer and seller can be, buyers and sellers were asked to describe their relationship using a sports analogy. Buyers referred to chess and focused on the mental exchange with the seller. Sellers, on the other hand, referred to rugby, roller derby, and football as games that best described the interaction with the buyer. It would be a mistake to look at the difference and respond that a little competition is healthy and keeps the seller honest and ensures a low price. Such an observation ignores the underlying premises that guides extended enterprise thinking.

DEFINING THE EXTENDED ENTERPRISE

Thus far, the discussion of the extended enterprise has not included a formal definition. The extended enterprise is the entire set of collaborating companies, both upstream and downstream, from raw material to end-use consumption, that work together to bring value to the marketplace. The advantages of the extended enterprise derive from a firm's ability to quickly utilize the entire network of suppliers, vendors, buyers, and customers. The flows of information that lie at the core of the coordination and collaboration among network members not only link disparate information sources, they also provide an opportunity to build knowledge-based tools. Companies engage in longer term partnering relationships built around mutual goals and accompanied by a very rich and deep exchange of information. Members' view that their

destinies are interdependent. This serves to separate the extended enterprise from other loose confederations of buyers and suppliers. The fact that success is now a function of the collective performance of the enterprise and not individual firm actions signals a significant change: The important words implied by the above are seamless and transparent.

Extending the notion of an integrated supply chain, members are bound by a shared set of norms and social contracts that emphasizes a win-win philosophy such that each shares equitably in the gains and the risks inherent in any form of competitive arena. Through their collaborative efforts, partners recognize:

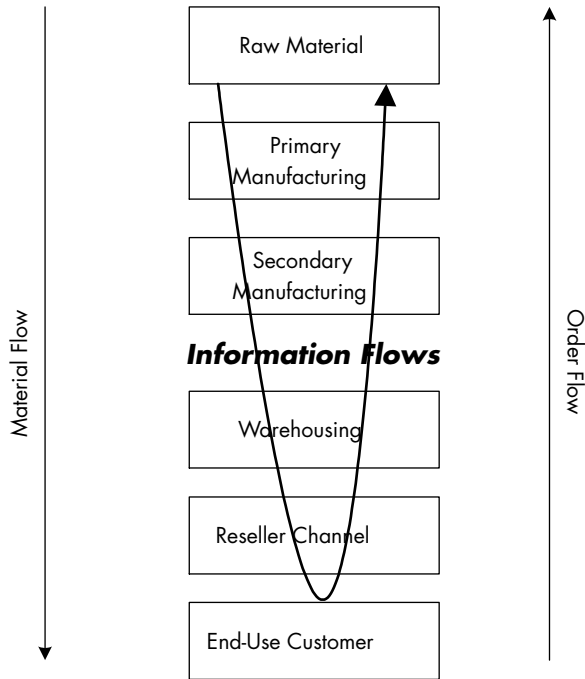
- The importance of maximizing value for the marketplace and the entire network of suppliers. The gains, benefits, and costs savings should be felt system-wide throughout the extended enterprise. The advantages should be equitable, not necessarily equal. Advantage should be realized in proportion to individual contribution made.
- To achieve these benefits, extended enterprise members must be willing to relinquish total control.
- The need to gain system-wide synergies such that $1 + 1 = 3$ and not something less than 2, as is often the case. The challenge here is one of integration and combining the complementary skills of each member of the extended enterprise.
- Members develop a laser-like focus on achieving end-use customer satisfaction so that competitive advantage results. A litmus test is whether the extended enterprise is able to operate with greater effectiveness and efficiency than is the single firm.
- Development of product and process is enhanced because companies can strategically link their core competencies with the competencies of their partners. The level of analysis is now the extended enterprise, and the entire network benefits from this leverage. Speed to market is accelerated, costs are lowered, and new market opportunities are more easily accessed.

It is natural to draw similarities to the definition of value chains and supply chains when describing the extended enterprise. However, the differences are more profound. At one level, the *link and node* supply chain models of production are not adequate to capture the way information and materials flows are managed. This approach is best suited for the sequential production schedule where interaction is viewed more as handing off from one point of production to another. The differences bring the extended enterprise to a higher level of integration and collaboration. Rather than moving linearly, it would not be uncommon to find a complex web of interchange and not a straight-line flow, as is depicted in Figure 1.1.

One popular text¹³ defines the extended supply chain as the integrated set of activities completed by full supply chain participants upstream and downstream. It is clear that in this text an underlying emphasis is given to managing the logistics of the process. The observation that a small number of firms have comprehensive channel integration capability is compelling but downplays the gains achieved beyond cost saving and customer service.

Value chain analysis is a method for decomposing the firm into strategically important activities to understand their impact on costs and value. The framework argues that competitive advantage is understood by disaggregating the value-creation process into its discrete parts that contribute to a firm's costs and create a basis for differential advantage.¹⁴ In fact, one might argue that too much attention is directed to finding costs, and less energy is devoted to value creation and creation of competitive advantage. Conversations about the extended enterprise require a different perspective—a different world view.

At the extreme, we are sympathetic to the notions of a virtual corporation, where it is difficult to know where one firm ends and the other begins, by virtue of the permeable boundaries, the flows of information, and the level at which members jointly plan. Table 1.4 reflects the level of transformation needed to move from more traditional supply chain or value chain thinking to the extended enterprise mindset. In many value chain discussions, firms ask questions regarding where they should be to reap the greater value-added position. Despite an

**FIGURE 1.1**

A typical supply chain.

element of joint action, value chain partners still retain some vestiges of self-serving behavior. In the extended enterprise, such behavior violates basic norms and rules of engagement.

Supply chain management tends to focus on supply or demand issues but rarely incorporates the two. In addition, the intent is often to maximize flows and assets based on manufacturing resource planning (MRP) systems or other inventory-/production-based systems. These are all-important and are part of extended enterprise thinking, but although these considerations are necessary, they are not sufficient for the full impact to be realized. Shared product development, providing a complete business solution, and integrated long-term planning are also part of the extended enterprise.

Another differentiating factor is the role of learning and knowledge sharing/creating. Extended enterprises are learning

TABLE 1.4 Comparison of Supply Chains, Value Chains, and the Extended Enterprise¹⁵

BUSINESS FACTOR	SUPPLY CHAINS/ VALUE CHAINS	EXTENDED ENTERPRISE
Environment	More stable and static	Dynamic and changing
Focus	Tends to be industry-centric	Finds partners who bring part of the business solution
Value-creation approach	Leverages own competencies, more self-sustaining	Leverages the competencies of all members
Relationship type	A teaming approach with some aspects of partnerlike behavior	Strong collaborative behavior with very solid partnering behavior
Infrastructure thrust	Cost-driven	Value-driven
Profit focus	Increasing own profit is the default	Increasing profits system-wide
Knowledge	Shared carefully but tends to look internally	Shared widely over the system
Orientation	Tends to emphasize workflows, etc.	Emphasizes also knowledge and learning

organizations where knowledge is viewed as a quasi-public good to be shared across the member firms. Not only must managers now share insights and knowledge, they must also develop mental models that espouse a systems view. Enterprise members search for system-wide leverage points that bestow competitive advantage throughout the network.

The extended enterprise recognizes that people are one of the most valued assets a firm can bring to the relationship. People are empowered to act, are trusted to use information as intended (i.e., for the good of the extended enterprise), and are trained to work well in teams and to support the notions of cooperative behavior. Learning is valued, and opportunities to learn are provided. Neither value chain nor supply chain analysis explicitly speaks of people as a valued resource. These competencies are the essential ingredient of the relationship

that unleashes the value-creating ability of the extended enterprise. Many of these value-adding activities are less visible in the immediate term and can be related to measures such as return on assets, growth in market share and sales, and higher returns to stockholders.^{16–18}

Table 1.5 further illustrates some of the unique characteristics of the extended enterprise by making comparisons with more traditional procurement thinking. By emphasizing a small set of criteria, we show that extended enterprise thinking is not business as usual and certainly is different from both a purchasing department perspective and a single firm perspective.

First, the focus of information technology is on cross-firm solutions and enables the free and honest flow of information to all partners in the supply chain.

Second, processes and structures emphasize decentralization and participation throughout the supply chain, with each partner given a say in how value is created and delivered to end-use customers. It is not possible to deliver a supply chain-wide solution if enabling mechanisms do not foster participation across all extended enterprise players. System-wide thinking replaces both a procurement function and a single firm orientation.

Third, people lie at the core of the extended enterprise. People trust, people share information, and people must be equipped to address the changes in perspective that are required. It is essential that we recognize that most managers do not currently possess the skills or mindset needed to operate in an extended enterprise environment.

Fourth, having enabling technology does not ensure that the right information is shared across companies. Workflow-related information is necessary to make the process work. However, the ability and willingness to share company-specific knowledge and expertise grant a competitive advantage to the extended enterprise.

The outcomes derived from the above do, in fact, differentiate winners from losers. Leverage is not seen as one firm's ability to gain concessions at another's expense; rather, it is the harnessing of complementary resources for the benefit of all members and especially for the end-use customer for whom the value proposition must be relevant.

TABLE 1.5 Comparisons across More Traditional Approaches to Procurement and the Extended Enterprise Framework

BUSINESS FACTOR	TRADITIONAL PROCUREMENT FOCUS	FIRM-LEVEL PERSPECTIVE	EXTENDED ENTERPRISE PERSPECTIVE
<p>INFORMATION TECHNOLOGY</p>	<p>Decision support is transaction-based</p> <p>Decision support and transactions internally focused</p> <p>Heavily transaction-oriented</p>	<p>Sourcing plus logistics, cross-disciplinary</p> <p>Decision support tools and transaction internally focus</p> <p>Some attempt to seek external opportunities</p>	<p>Seek cross-firm linkages to gain a competitive advantage</p> <p>Use of enterprise software and e-hubs</p> <p>Enterprise-wide is encouraged and includes partners</p>
<p>FOCUS OF PROCESSES AND RE-DESIGN</p>	<p>Cost reduction and transaction-focused</p> <p>Risk avoidance to total cost of ownership</p> <p>Make vs. buy</p> <p>Operational silo-centric</p>	<p>Risk mitigation to reduce total cost of ownership</p> <p>EVA</p> <p>Outsource to lower costs</p> <p>Some cross-function/processes</p> <p>Enterprise-centric</p>	<p>Total cost of ownership and revenue enhancement</p> <p>EVA and seek profits system-wide</p> <p>Core skills drive strategy to bundle product/service</p> <p>Encourage sharing risk-taking system-wide</p> <p>Learning system-wide to leverage skills of others</p> <p>Customer-centric</p>

TABLE 1.5 Comparisons across More Traditional Approaches to Procurement and the Extended Enterprise Framework (Continued)

BUSINESS FACTOR	TRADITIONAL PROCUREMENT FOCUS	FIRM-LEVEL PERSPECTIVE	EXTENDED ENTERPRISE PERSPECTIVE
<p>ORGANIZATIONAL STRUCTURE</p>	<p>Bureaucratic and hierarchical Hybrid centralized/decentralized Internally focused Encourages command and control</p>	<p>Bureaucratic but flatter Some empowerment Virtual under-utilization Multiple interactions upstream and downstream Shared services internally Mostly transaction efficiencies Some effectiveness measures</p>	<p>Our supply chain Unnatural alliances Non-bureaucratic and hierarchical Virtual ownership Complex networks Look to fill skills Does not seek only to reduce fixed costs by shifting to variable costs</p>
<p>PEOPLE</p>	<p>Focus on own company What do you do for me? Some shift from price variance to some strategic thinking</p>	<p>Less command and control, although it remains the default option Broader skills, more analytical with strong logistics to lower the cost for me</p>	<p>Win-win Relationship management Business/general management thinkers Enlightened self-interest Manage for good of the supply chain</p>

TABLE 1.5 Comparisons across More Traditional Approaches to Procurement and the Extended Enterprise Framework (Continued)

BUSINESS FACTOR	TRADITIONAL PROCUREMENT FOCUS	FIRM-LEVEL PERSPECTIVE	EXTENDED ENTERPRISE PERSPECTIVE
INFORMATION CONTENT	<p>Cross-organizationally focused but still internal</p> <p>Multiple sets of data</p> <p>Tries to find supply chain opportunities for firm</p>	<p>Some two-way exchanges and information sharing</p> <p>Linkages for just in time and electronic data interchange</p> <p>Mostly emphasizes workflow with some planning information</p>	<p>Widely shared and transparent</p> <p>Closed-loop system</p> <p>Share plans that are jointly developed</p> <p>Information and knowledge are key</p> <p>Value relationships and information</p>
OUTCOMES	<p>Rationalize supply base to leverage cost</p> <p>Gain efficiencies</p> <p>Turnover high because skill sets begin to change</p> <p>Transform role</p>	<p>Expand supply to gain efficient use of working capital and assets</p> <p>Increased opportunity/challenges for human capital</p> <p>Some chain-wide thinking and information sharing</p>	<p>Expand market access</p> <p>Leverage financial assets</p> <p>Operational excellence</p> <p>Velocity</p> <p>Look to customers to build networks</p> <p>Differentiated value chains</p> <p>Unleash human capital from the entire extended enterprise</p>

Although there is still no consensus as to the correct set of metrics to use to measure the performance of the extended enterprise, it should:

- reflect qualitative and quantitative measures
- capture supply chainwide margins, return on investment (ROI), return on sales (ROS), and the like
- reveal competitive metrics related to other extended enterprises
- measure end-use customer satisfaction, repeat purchases, and loyalty
- reflect both short-term and longer term goals
- value learning as a viable outcome

SUMMARY

The transformation from SCM to extended enterprise thinking is more than just developing a new vocabulary and seeing this change as a fad. Firms that embrace this thinking have already acknowledged that the pace of change is such that speed and adaptability are critical to their future success and that they have no choice but to change.

There exists a strong rationale for why change is essential; nonetheless, change will come at a price in the short term as management grapples with the loss of old-fashioned control and the need for information-intense exchanges that are fundamental to the process. Seamless delivery, transparency in all aspects of logistics, and permeable boundaries are less problematic than is the need to trust other network members, especially in light of the historic nature of their relationships. Trust will build slowly but it must be built, for it is the bedrock of the extended enterprise's foundation.

If a company is to embrace the extended enterprise, senior management must be firmly behind it and must demonstrate a consistent and clear commitment to the norms and values that guide behavior. Because trust is key to the success of these collaborative relationships, there can be no question as to the

buyer's intentions. If senior management does not align its strategy with its systems and processes, there is room for confusion.

As stated previously, the extended enterprise is the entire set of both upstream and downstream collaborating companies, from raw material to end-use consumption, that work together to bring value to the marketplace. Its primary goal is to leverage the skills/capabilities of its members to achieve a sustainable competitive advantage relative to other competitive supply chain networks by better meeting and anticipating end-use customer needs. This goal can be achieved only if:

- Each supply chain member is valued, given voice, and is taken into consideration when short- and long-term plans are developed.
- Reward and risk are shared equitably across the entire supply chain, and performance is measured at both the firm and the extended enterprise levels.
- All members value learning and share their knowledge such that all members benefit from new product innovation, as well as innovative processes, systems, and procedures that transcend the entire network and serve to link all the members.