

SUPPLY CHAIN STRATEGIES

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By thinking in terms of supply chains instead of individual operations or departments, CIOs can improve their competitive strategies. These strategies, in turn, change organizational operations, roles, and information systems. This article shows how such “supply chain thinking” works.

Supply chains are a hot management topic. Eyes are opening to a more global view of end-to-end material, information, and financial flows. As it is with most good ideas, commercial interest drives much of the hype. The management consulting industry contributes with new buzzwords to stimulate and sustain interest. So *supply chain synthesis* and *demand flow leadership* debut in press releases and seminars. Substantial contingents of software purveyors also vocalize the concept. Companies investing millions in new systems do not want yesterday's solutions.

“Supply chain thinking” is a better characterization. This term infers a more gradual infusion of new mindsets and methods into traditional tasks. Most managers have the same concerns today as managers had ten or 50 years ago. These concerns include products, markets, people and skills, operations, and finance. Supply chain thinking brings change to the tasks managers perform in dealing with these issues.

FIVE TASKS THAT WILL CHANGE

Exhibit 1 lists five tasks important to supply chain design and operation. Alongside each is a brief description of the impact of supply chain thinking.

Exhibit 2 shows the relationship of the tasks. Supply chain design begins with strategy, so it is at the center. The remaining tasks, including the development of information systems, need to align with these strategies. This article

describes practical ways to bring supply chain thinking to the task of strategic planning. Too often strategic planning goes on in an operational vacuum. Gaining advantage from supply chains requires cross-functional thinking that is uncommon in most companies.

SUPPLY CHAINS AND STRATEGIC ADVANTAGE

The competitive field in most markets requires well-designed products. However, at the margin, other factors govern the buying decision. For example, most airlines offer clean, modern aircraft and maintain good safety records. This is the price of entry to the “club.” If an airline did not qualify, we probably would not go near it. The way we view the airline likely depends on flight frequency, prices, frequent flier programs, or the coffee served on flights.

Every product occupies a different competitive position. Traditionally, features of the product itself have dominated in determining this position. Now products increasingly compete on the supply chains that deliver them. The variables in airlines are not in the planes they use or the routes they fly, but in supply chain design. Supply chain thinking has untapped potential for maintaining a competitive position or moving a company from an unfavorable to a more advantageous position.

For this discussion, we describe a *product* as its physical features or functionality. The *supply chain* includes all the processes that put the

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EXHIBIT 1 Supply Chain Design and Operation

1. Designing supply chains for strategic advantage	Today's success stories show that innovation in supply chain design is vital to competitive advantage.
2. Implementing collaborative relationships	Functional command and control will give way to new structures.
3. Forging supply chain partnerships	Working together beats going it alone. The extended enterprise is for real.
4. Managing supply chain information	Opportunities to succeed wildly or fail miserably abound.
5. Making money from the supply chain	Pricing and cost always matter but ways of measuring and managing them will change.

product in the hands of end users. This includes numerous transactions involving physical movement, exchange of information, and the flow of money.

PRODUCT POSITION GRID

Exhibit 3 illustrates how a product might be positioned in its market. It will probably excel or lag behind in product features or supply chain design, or both.

Companies with many products will have some in each category. As a matter of fact, most will prune underachieving products and businesses — characterized by “D’s.” The *Product Excellence* dimension rates the product against competitive products in its chosen market. The *best in class* will rank highest in terms of functionality, reliability, and value for price.

The *Supply Chain* dimension covers many activities. Examples include accompanying services, like technical support, financing, and distribution. The *best in class* often have great service reputations, if not exceptional products. The *also ran* companies are ones we avoid, if possible.

In the grid, “A” products have the best of all worlds. Products and supply chain processes are the best; makers of these products “own” their markets. Microsoft is a good example. Its Windows software is an automatic addition to a new PC, assuring widespread distribution. Also, no software developer would ignore it in developing a new application.

Most products we buy day to day lie in the “B” category. Competition is intense because there is little difference among products, so success requires supply chain innovation. “B”

EXHIBIT 2 Relationship of Tasks

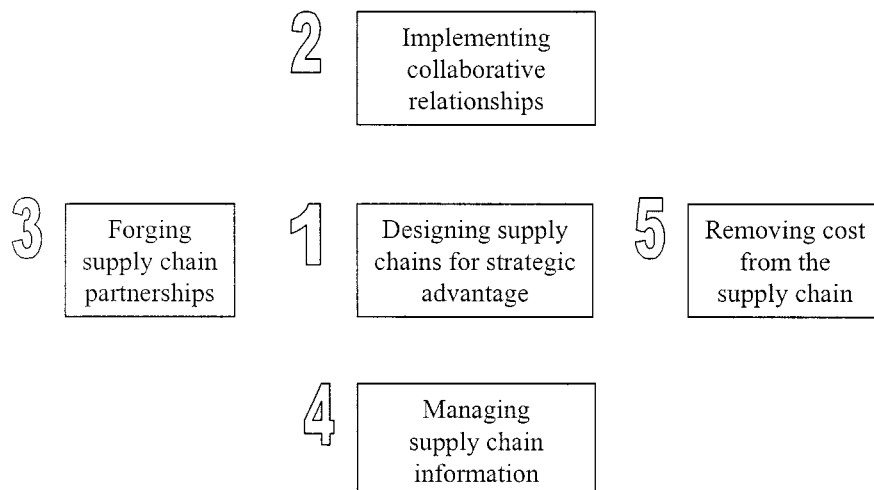
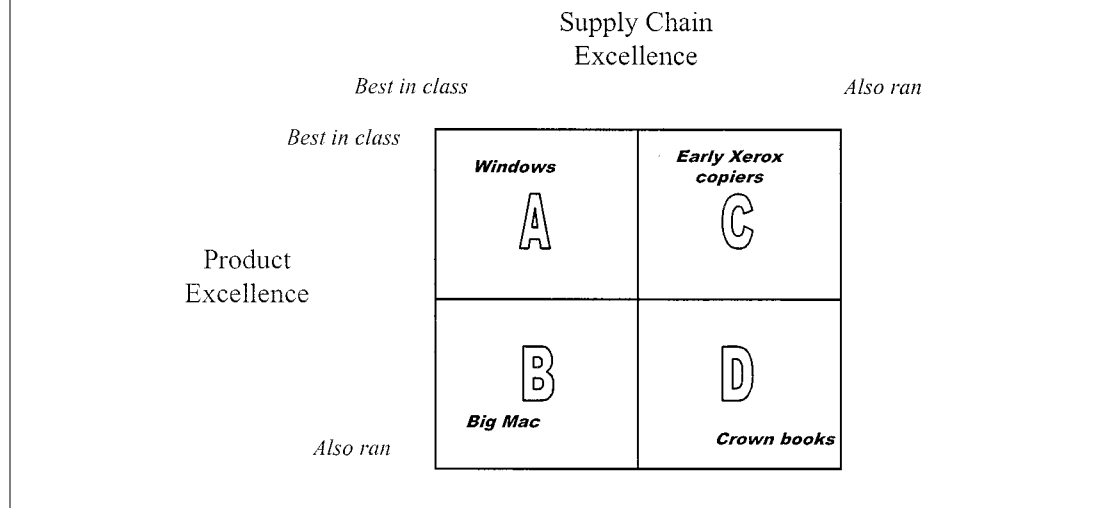


EXHIBIT 3 Market Positions of Products



products may be former “A” products whose early success attracted competitive offerings. While their efficient supply chains remain intact, they are no longer the standard for product excellence. McDonald’s has a widespread store network. It opens new outlets with precise, efficient procedures built on long experience. However, its product is, to many, dated and low quality — even for the price charged.

Wonderful products supported by sloppy operations populate the “C” category. Xerox, when it invented copier technology, was a “C” situation. Such companies are vulnerable to copycat competitors, just as Xerox was in time. “D” products are hanging on for dear life.

Unless they move to another category, they will not survive. Crown Books, an early discounter, lost marketshare to Barnes & Noble and Borders who sell the same books, but with more amenities.

SUPPLY CHAIN THINKING ACROSS THE GRID

One’s supply chain strategy will depend on grid placement. Exhibit 4 has examples of how supply chain thinking can apply to each box.

The remaining sections describe and apply this framework. A case study shows how a company with “D” products might move to friendlier environs.

EXHIBIT 4 Applying Supply Chain Thinking

Competitive Position	Supply Chain Thinking
A. Excellent product and supply chain	Continuously improve both product and supply chain to deter competitors. If there are any flanking, break-through innovations in product or supply chain design to be made, make them yourself. Do not let someone else.
B. Excellent supply chain, “commodity” product	Maintain parity in product design. Work hard to innovate the supply chain. Test new concepts for supply chain design.
C. Excellent product, unexceptional supply chain	Your technology lead will not last. Be prepared to move to the B quadrant. Work hard on supply chain innovations while you enjoy an advantage.
D. Poor product and supply chain	In the time you have (if any), innovate toward one of the other quadrants. If product innovations will take too long or are unavailable (a move to A or C quadrants), redesign your supply chain (a move to quadrant B).

By failing to choose how to compete, a company ensures it will have no strategy at all.

ANALYTICAL FRAMEWORKS

Two notable articles by Marshall Fisher and Michael Porter prescribe ways to implement these strategies.^{1,2} Fisher points out that supply chain design depends on the nature of the product. He divides products into *functional* and *innovative* categories. Functional products sell at low margins — equivalent to categories B and D on our grid. Supply chains for functional products should be efficient; customers are buying on price. Innovative products — equivalent to categories A and C — command higher margins. Delivery and availability, not efficiency, should drive supply chain design.

A supply chain contains multiple activities and processes. These processes include manufacturing, distribution, customer service, and selling functions. Porter maintains that linked activities and processes in the supply chain are especially resistant to competitive pressures. He emphasizes that, in any market, operations improvement can only go so far. The philosophy is consistent with the observation; “You cannot save your way to success.” While product technology and supply chain imitators can duplicate an isolated activity, linked activities are difficult to duplicate. This uniqueness leads to invulnerability.

Both strategic frameworks are notable for their recognition that the supply chain should be a cornerstone for competitive success. Certainly products with superior features and design contribute greatly to company success. But innovation in the supply chain dimension is at least on a par with product design as a determinant of success.

CASE STUDY — APPLYING THE FRAMEWORKS

A case study for a fictitious company called Acme illustrates how to construct an activity system for innovative and functional products.

Acme had long manufactured a widely used line of aircraft fasteners, which Acme had originally designed. Fasteners hold aircraft together — they are essential components. Customers respected Acme for the quality of its product, but usually bought on price and availability. All suppliers were certified to quality standards.

Unlike other fastener companies, Acme maintained technical services to support its technologies. But quality and technical services — while desirable — seemed to carry little weight in most purchasing decisions.

Acme’s profit had languished in a cyclical downturn in the commercial aircraft market. A recent boom in business brought profitless prosperity. Boeing, a price-driven buyer, dominated this market. Over the years, Acme had also aggressively licensed its technology. Many licensees had lower costs and greater marketshare, including sales to the dominant buyer, Boeing.

Many non-Boeing customers were turning to distributors for fasteners. This displaced manufacturers like Acme from dealing directly with customers. For these users, buying from distributors brought lower inventory, just-in-time delivery to assembly lines, and reduced purchasing overhead.

Despite these changes in industry supply chains, Acme maintained a one-size-fits-all production planning system. There were no supply chain accommodations for industry segments. Lack of innovative products and ignoring new supply chains caused most of Acme’s products to fall into the D quadrant of the product grid. Particularly vexing to customers in a time of tight supply were long lead times for Acme’s products.

The following sections illustrate how a supply chain redesign, using the conceptual frameworks of Porter and Fisher, might improve Acme’s competitive position.

Select Strategic Themes to Underpin Your Strategy

Porter’s framework begins with strategic *themes*. Strategic themes are the cornerstones of a supply chain strategy. The themes require clear choices regarding how to compete. This is a difficult but necessary step and not to be taken lightly. Too often companies try to be all things to all people. Failure to choose how one will compete means there is no strategy at all.

In Exhibit 5, the choices for Acme centered on the four themes listed in the left-hand column. The exhibit shows the “as-is” choice implicit in Acme’s operation. These positions evolved historically and were not the result of conscious decisions along the way. The last two columns illustrate the range of options from the high to the low end. Various competitors chose to compete along the spectrum from high to low. Most successful competitors had made conscience choices.

Acme had choices in each of these areas. A possible set of choices could include those shown in Exhibit 6.

Exhibit 7 shows how these choices of strategic themes might anchor a supply chain strategy.

EXHIBIT 5 Acme's Range of Choices

Theme	Acme "As-Is"	High End	Low End
Technical leadership	Provides a variety of resources — engineers, laboratories, etc.	Cutting edge.	Copy cat.
Service customization	No customization for segments. Services designed around direct sales to OEMs.	Tailored approaches to all segments.	Narrow choices directed at niches — at low prices.
Production flexibility	Inflexible scheduling. First in, first out.	Excess capacity, short lead times.	Take a number. Get it when it is ready.
Contribution margins	Not Managed, poorly measured.	Plush, service driven.	Narrow, price driven.

Exhibit 7 displays an Acme decision to maintain its technical leadership position (1) while adding flexibility to its production and customer service systems (2 and 3). Profitable operations require new financial approaches (4). Therefore, pursuit of measures to assure that prices and costs align became a choice to be made.

Deceptively simple in concept, the four boxes represent real choices for Acme. As an example, Acme could choose to forego technical leadership. That would produce a dramatically different company and supply chain. Gone would be laboratories, the engineering department, and the technical sales force. It would treat all its products as “functional,” choosing to compete on price alone. It would operate as a “no frills” company (quadrant B in the product position grid), delivering little more than plain vanilla product. And several competitors did just that.

The flexible production and customer service themes (2 and 3) require major changes in the way Acme manages its capital resources and schedules its operations. These changes reflect focused strategies aimed at newly defined mar-

ket segments. For Acme, this could mean three strategies:

1. a Boeing-specific strategy
2. a strategy for other aircraft makers
3. a distributor strategy

Each segment has different needs. For example, distributors want fast delivery of a variety of products. Price is secondary. Boeing wants long production runs and low cost.

With the complexity introduced by this strategy comes the need for better accounting. Therefore, pursuit of *contribution* is a theme. Note this is not *contribution margin*. The goal of increased contribution allows for both high and low margin business. To qualify, a low margin business with high volume would be desirable.

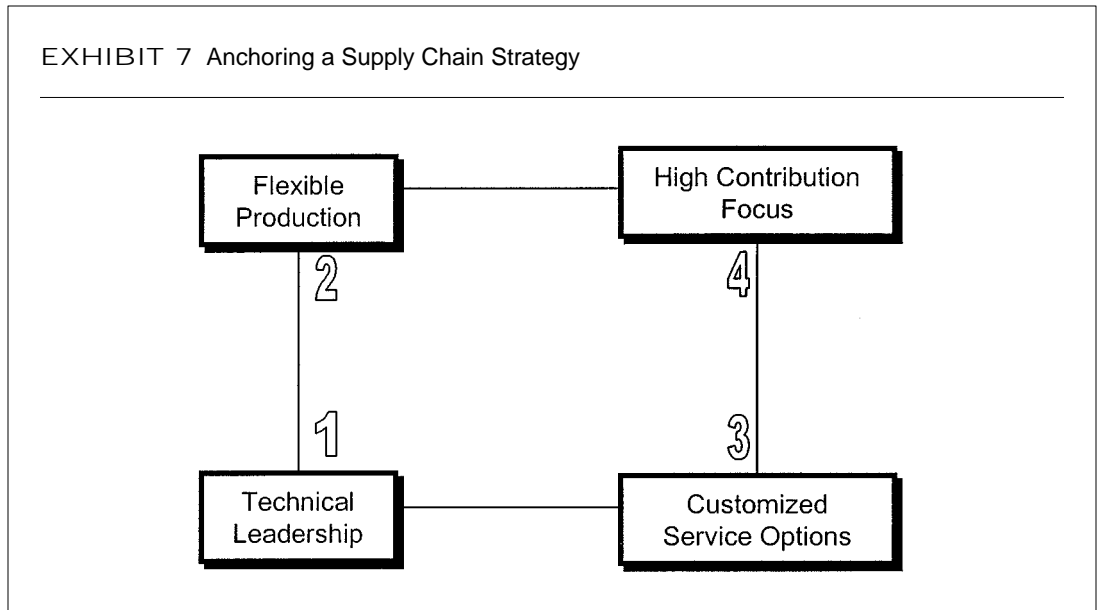
Define Unique Activities to Support These Streams

With strategic themes in place, Acme must develop supporting activities that uniquely implement those themes. Exhibit 8 shows some of the activities Acme might pursue to implement the strategic themes.

EXHIBIT 6 Acme's Possible Choices

Theme	Strategic Choice
Technical leadership	Maintain technical leadership position. Find ways to more fully exploit the advantage from laboratories and engineering department.
Service customization	Develop different levels of service for different customer segments.
Production flexibility	Deploy production capability to match service levels.
Contribution margins	Price products and services to meet profitability goals.

EXHIBIT 7 Anchoring a Supply Chain Strategy

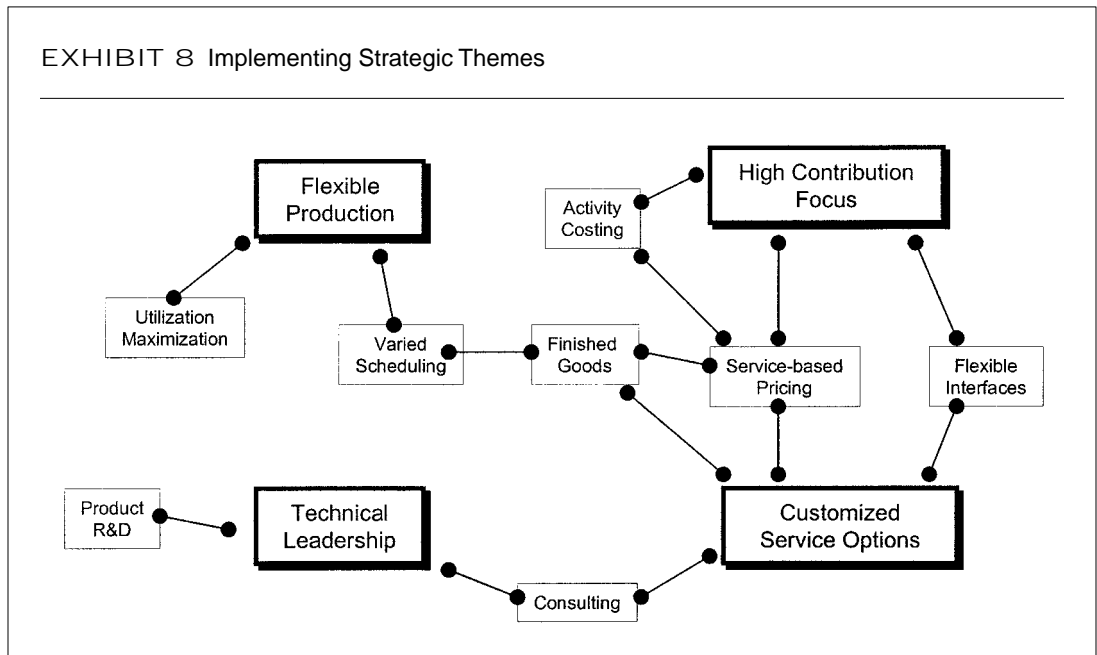


A renewed investment in product research and development (R&D) supports the theme of technical leadership. Also, Product R&D and Consulting support the technical leadership theme. Acme assumed its technical position was unique in the industry. That capability would have value to customers needing new solutions and advice on the use of the product, although it should “pay its way” instead of being given away for free. Acme faced the choice of many software firms. This choice was to support the paying customers through the

product “break in” period and then charge for services thereafter.

Because demand had increased dramatically, Acme needed to use the plant and equipment capacity available. The Utilization Maximization activity supports this goal. It includes a number of measures like improved maintenance, reduced set-up, and cellular manufacturing to get more from scarce machine and personnel capacities. This activity was also important to enable Acme to get ahead of its backlog.

EXHIBIT 8 Implementing Strategic Themes



I ***t is fit
that provides
sustainable
competitive
advantage.***

Varied Scheduling and Finished Goods support the Flexible Production and Customized Service Options themes. Acme had a policy not to carry finished goods inventory. This caused long lead times for all products. By selecting products for inventory, Acme can quickly satisfy at least a portion of its customers' requirements. Introducing Varied Scheduling would add predictability to production schedules and enable better management of production priorities.

In an environment of scarcity, offering different levels of availability is a strategic application of supply chain thinking. It recognizes that immediate availability has a value over delivery in six months. A supply chain providing product today at a higher price would solve some customers' needs. Other customers could choose to wait for their turns in the queue. Of course, the premium for short-term response will vary with the ebb and flow of market demand. At peaks in demand, the availability brings a premium price. At troughs, it is an edge in a more competitive marketplace.

Flexible Interfaces between Acme and its customers broadened the range of contracting and transaction options available to customer segments. Online ordering and production tracking are examples. The existing Acme customer interface system formed over time when end users placed direct orders. These options would especially accommodate the needs of the growing distributor base. Each distributor had a unique customer base with varying needs. Acme could "tune" its production system with more options.

Activity Costing would help Acme understand what business is profitable. Acme served many customers with a wide product range. But Acme had little left in the way of profit, despite a resurgent demand. Activity Costs would point the way to the profitable and unprofitable businesses. Activity Costs also supported Service-based Pricing. Service-based Pricing meant more services should cost more. It maintained that nonproduct supply chain services had value. A customer with customized interfaces drawing heavily on readily available finished goods inventory and technical support, for example, would pay more.

Make Sure the Activities Fit Together

According to Porter, sustainable advantage comes from "fit" between these activities. Fit has three flavors:

1. First order: fit between the activity and strategic theme. In the activity map, activity costing fits the notion of measuring contribution on different pieces of the business. Its application is as an internal control to evaluate product and customer profitability. Product R&D is another example of first order fit. That activity supports the Technical Leadership theme alone.
2. Second order: reinforcing activities. This type of fit is between activities where one activity supports another. For example, Activity Costing also reinforces another activity, Service-based Pricing. Activity costs provide the data needed to set pricing. Changing the way scheduling is done (Varied Scheduling activity) will enable maintenance of finished goods inventory (Finished Goods activity).
3. Third order: optimization of effort across the activities and with suppliers and distribution channels. Third order fit is supply chain integration. Flexible Production and Finished Goods provide options for distributor customers competing with just-in-time contracts. Flexible Interfaces increases the ability to link up with the supply chains of Acme's customers — notably distributors.

It is fit that provides sustainable competitive advantage. Competitors can usually imitate individual activities of successful companies. But they ignore the impact of second and third order fit — the greatest contributors to competitive position. To dislodge their successful adversary they must copy not just one, but multiple, activities and link them effectively. This is many times more difficult than imitating a single activity.

CONCLUSION

Thinking in terms of supply chains instead of individual operations or departments leads to more competitive strategies. These strategies, in turn, have fallout throughout the operation. In the case of Acme, the addition of new linked activities will bring the new need for new thinking, a shifting of organization roles, and new information systems.

The strategy is a vital first step to improvement. The implementation phase shifts from a "right brain" to a "left brain" exercise. There is an unprecedented need for cross-functional cooperation. Implementing Acme's new activ-

ity system will draw on skills from marketing, engineering, production, and finance. The devil lies in the details. Competent execution of the remaining four management tasks is mandatory. ▲

Notes

1. Fisher, Marshall L., "What is the Right Supply Chain for Your Product?" *Harvard Business Review*, March–April, 1997.
2. Porter, Michael E., "What is Strategy," *Harvard Business Review*, November–December, 1996.