Massachusetts Institute of Technology
October 2006 // Volume 2 // Number 9

supply chain strategy

A newsletter from the MIT Center for Transportation & Logistics

What Drives Supply Chain Collaboration? Self-Interest

BY PATRICK BYRNE AND KEN COTTRILL

SUPPLY CHAINS ARE NOT REGIMENTED ENTITIES where business transactions proceed in an orderly, step-by-step fashion. The reality is much messier. Trading partners on multiple levels constantly jostle for the best competitive positions. Relationships change frequently and may be combative, loosely aligned, cooperative or collaborative.

Such turmoil creates inefficiencies. Companies hedge their bets by building up too much inventory or sacrifice quality in the single-minded pursuit of higher prices. Supply chain collaboration was supposed to bring order to this unruliness, but in large part it has only succeeded in persuading trading partners to share data. True collaboration — the kind that redefines supply chain strategy and takes operational efficiency to new levels — has proved elusive.

But companies can create these high-order collaborative networks by tapping into the power of enlightened self-interest. It is the business equivalent of the collective spirit that motivates individuals to pull together during disasters such as Hurricane Katrina. (See "A Game Plan for Disaster Recovery," *Supply Chain Strategy,* June 2006). To unlock this power you need to think of supply chains as business ecosystems whose participants will join forces if they can see a clear payback. In this case the payback is both a negative and positive: the likelihood of commercial disaster without change and the potential for huge competitive gains in a collaborative environment.

The approach, developed by consultancy firm Best Results, based in Homebush Bay, NSW, Australia, has been used to transform the country's $6 billion fresh fruit and vegetable industry. The result: the removal of more than $1 billion in annual costs, and a radical shift in culture that is built around shared risks and rewards. The same fundamental approach can be applied to any supply chain where end-to-end processes are subject to frequent change, or in any industry that is undergoing structural or functional change.

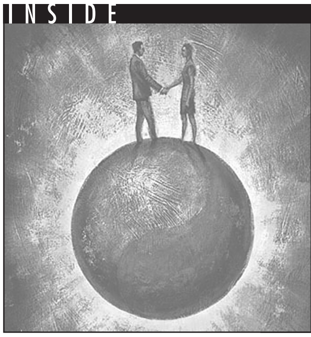
A question of balance

Viewing supply chains as business ecosystems, rather than collections of serial transactions, gives you a clearer understanding of the dynamics that drive these entities. And with a more accurate picture of how supply chains work, you are better able to develop strategies for raising efficiency levels.

In a business ecosystem each enterprise or group of enterprises produces, transforms and consumes value. They do this by transacting business with each other, but instead of thinking about these relationships in a tradi-

continued on page 2

INSIDE



tionally linear way, they imagine them as points of balance. At each point a dynamic equilibrium has been established since the participants have agreed to do business according to certain prearranged rules and conditions.

These points of balance are constantly shifting in response to market changes. A sudden peak in demand might prompt a supplier to renegotiate a contract manufacturing agreement, for example. Also, the value each enterprise extracts from individual interactions is variable. It depends on where each participant is positioned within the ecosystem, the nature of the work being performed and the direction and type of relationship and workflow. These factors are in a state of flux. For example, a group of transportation companies competing for the same contract will compete fiercely, but the successful bid will also engender a degree of cooperation and collaboration between the winning bidders. Where extra capacity or more capabilities are required, the deal may also promote collaboration between the bid winners and those that were not successful.

Given the dynamic nature of this dense web of interactions, it is difficult at an organizational level to discern how sustainable any new point of balance might be. Such uncertainty promotes adversarial relationships and mistrust as each entity strives to extract a greater share of the "value created" from its upstream or downstream partners.

This condition displays all the features of a biological ecosystem. Entities grow, prosper and die as a part of the normal variations in an ecosystem. And with each transaction and iteration, a new point of balance can be created.

While the points of balance will always be dynamic — this is the nature of business — they need not be so conflicted that they blind each trading entity to wider opportunities for collective growth and profit opportunities. This is what often happens in traditionally structured supply chains. Trading partners can be jolted out of this mode of behavior by a compelling event that clearly demonstrates how they can profit from serving the interests of the end-to-end supply chain, not just their part of it. Having gone through this cultural shift and established collaborative relationships, the profit motive provides the momentum needed to sustain this end-to-end network.

[Key Takeaways]

- » The community spirit that emerges in crisis situations can be mimicked and harnessed to drive the development of collaborative networks built on enlightened self-interest.
- » To sustain high-level collaboration, you need to view the supply chain as an ecosystem where all the participants gain from the creation of collective value.
- » To bring these networks into existence, you must gain a deep understanding of the relationships that make up the end-to-end supply chain, identify the dislocations, and develop a strategy for change that involves dramatic negative and positive outcomes. This approach has transformed the fruit and vegetable industry in Australia.

Ripe for change

The approach was put to the test in an industry characterized by all of the uncertainty, risk and variability found in a diverse range of vertical markets: the Australian fresh fruit and vegetable industry. Relationships across this fragmented supply chain were often adversarial, resulting in little to no collaboration in product planning, pricing, costs or promotions. There was no collective understanding of the end-to-end process, limited visibility of product flows, and scant coordination of packaging development and multiple orders requirements.

Fresh fruit and vegetables is a perishable commodity

supply chain strategy

Editor: Ken Cottrill
Associate Editor: Anne Saita
Publisher: Jennifer O'Grady
Advisers: Yossi Sheffi, Professor of Engineering Systems and of Civil and Environmental Engineering at MIT, and CTL research staff

LARSTAN BUSINESS REPORTS

Editorial
Chief Executive Officer: Larry Genkin
Editorial Director: Anne Saita
Circulation & Fulfillment Manager: Stan Genkin
Art Director: Rob Hudgins
www.larstan.com
Larstan Business Reports is an independent news agency headquartered in Washington, DC. Larstan's editorial services include: newsletters, book publishing, white papers, market research and media syndication.

Articles in this journal draw on a variety of sources, including published reports, interviews with practicing managers and consultants, and research by management scholars, some but not all of whom are affiliated with Larstan Business Reports, MIT and the Center for Transportation and Logistics. Articles reflect the views of the author.

MIT Center for Transportation & Logistics

The MIT Center for Transportation & Logistics (CTL) is a world leader in supply chain management education and research, ranking consistently as number one. CTL contributes to the academic knowledge in the field and helps companies gain competitive advantage from its cutting edge research. The Center's graduates occupy senior supply chain management positions in almost every industry and continue to use the Center's resources to update their knowledge and skills. Web: http://ctl.mit.edu. Tel: 617-253-5320.

Subscription Information
Subscription price is U.S. $295 (10 issues); single copy: U.S. $37.50. To subscribe to Supply Chain Strategy, call 800-890-6263 for US and 914-962-6292 for outside the US.
Web: www.MITsupplychainstrategy.com

Letters and Reader Feedback
Letters, editorials, ideas for articles, and other contributions may be submitted to Ken Cottrill, editor, at SupplyChainEditor@larstan.net.

Services, Permissions, and Back Issues
Supply Chain Strategy is published 10 times a year by Larstan Business Reports at 209 Canterbury Court, Blue Bell, PA 19422. POSTMASTER: Send address changes to Supply Chain Strategy, PO Box 23, Shrub Oak, NY 10588. To resolve subscription service problems, please call **800-890-6263 for US and 914-962-6292 for outside the US.**

that is both seasonal and cyclical, and, in Australia, subject to climatic extremes. There are wide variances in quality, consistency and availability. Yet the ever-increasing importance placed on food safety and security has imposed more stringent quality standards. Products come in bulk, single-item or mass-packed units and are transported over vast distances across multiple handling and distribution points.

Traditionally the industry has suffered from too much waste, inventory and capacity excesses, and overlong lead times. Retailers bought fruit and vegetables from wholesalers on a spot-market basis. Whichever wholesaler/agent had the lowest price and available stock got the deal on that day. This led to fluctuations in price and quality across the industry, hampering category sales growth and triggering the cycle of uncertainty all over again.

Wholesalers bought from a large number of growers — usually family-owned businesses — on a casual and price-contingent arrangement, and had no idea week-to-week what the demand from the retailers would be on their organizations. They would take extra product from growers to ensure stock availability, and then stop buying when there was a glut. Growers responded by reducing planting programs and causing a scarcity of produce that pushed up prices again, encouraging them to step up planting, which eventually created overcapacity again.

In summary, the retailers, wholesalers and growers were making poor decisions based on flawed, speculative information. As a consequence, there was poor execution of product delivery that facilitated large inventory buffers, prolonged lead times and capacity surpluses.

Retailers, wholesalers and growers were making poor decisions based on flawed, speculative information.

Collaboration needed

Transforming this riven industry into an ecosystem driven by enlightened self-interest was a stiff challenge. The approach taken, called "One Touch," offers a collaborative process blueprint for any industry that faces similar challenges. Here are the main steps taken.

1. Study the market thoroughly

The first step is to observe the structure and purpose of the end-to-end supply chain to gain a deep understanding of the functions and relationships that underpin the market. Also, delve into how value is created in the ecosystem. The Best Results end-to-end process team spent 12 months with growers, wholesalers, retailers, packaging and carriers, looking at all of the component stages that make up the end-to-end process and collective value proposition. Of particular interest are the competing roles that component organizations perform, as well as their relationships and the rules that govern such interactions.

2. Identify areas of opportunity

Pinpoint the areas where the creation of value is imbalanced, causing dislocations in the end-to-end supply chain. Based on these observations, develop an initial strategy for bridging these gaps.

The points of imbalance in each component stage of the supply chain can be identified according to the three problem states that exist in any process: a missing link; a weak link; and a bottleneck. For example, in this case the missing link was the lack of understanding of what comprises sustainable collective value creation amongst the trading partners. The weak link was the transactional procurement tactics of the retailers. The bottleneck was the terminal markets' role in creating gluts and scarcity of product through flawed planning and distribution strategies.

3. Recruit and prime the participants

To a great extent the participants are self-selecting. As in any new venture, you generally find that there are early adopters who immediately see the possible benefits and want to get involved. There also tend to be laggards who prefer to stay on the sidelines until they can see definite advantages, and critics who reject the idea outright.

However, simply selecting the early adopters is only half the task. You also need to present the first compelling argument for change, the negative one that engenders a sense of urgency. In this case there were clear signs that if the industry did not reform it could expect some very painful adjustments at the hands of regulators and more efficient competitors.

In Australia two retailers dominate the supermarket fruit and vegetable business: Coles Group and Woolworths. Together these enterprises account for about 86 percent of the grocery market. When the project began in 2002, these companies were no match for international retailers such as Tesco and Wal-Mart. If these players had decided to target the Australian market, their state-of-the-art supply chains would have forced a radical restructuring of the industry. It was a powerful argument for preemptive change.

Importantly, these arguments were not only put to line managers; strategic thinkers also were engaged. Without the support of senior executives, any large-scale transformation effort soon would lose momentum. This was a tough challenge. In a number of organizations the CEOs did not regard themselves as "process people" and failed to appreciate the significance of the proposed changes. Yet the CEO is the one individual in a company who is responsible for the total order-to-cash cycle. This argument was forcefully made, and eventually all the CEOs gave their support to the project.

4. An honest broker must drive the program initially

When work began with suppliers it was striking how willing these enterprises were to respond to any initiative based on enlightened self-interest — provided there was a neutral party driving the effort. Entering into a position that resulted in collective value creation was acceptable as long as it was done within existing commercial relationships and within a brokered environment, rather than unassisted or under coercion from upstream or downstream partners.

5. Choose and execute a compelling positive event and outcome

Based on your industry analysis, develop an event or strategy change that will achieve a striking and positive improvement that yields short-term, measurable benefits. Allow sufficient time to get the right strategy; in this project it took two years to go from basic concept to rollout. The gains could be a dramatic reduction in inventory levels or a boost in profitability. It is crucially important that the actions taken have considerable "shock value" for the participants.

The event chosen was to revamp a store in a week. The store was underperforming and was one of the more inefficient in the retailer network. Multiple changes were made. For example, product presentations were reconfigured to reduce waste and cut setup/handling times, and more food preparation work was outsourced to suppliers. The changes rippled back through the supply chain. An example is the returnable plastic containers with a larger pallet footprint that replaced traditional cardboard cartons. Growers benefited, because the plastic containers were cheaper to procure and handle, and, thus, enhanced productivity. The industry will use 100 million less cardboard cartons this year. By tagging, labelling, packing, presenting and packaging on the farm, wholesalers and retailers reduced waste and increased inventory velocity.

The end results at the store were dramatic:

- In-store waste reduced from 10 .5 percent to 1.25 percent
- Inventory turns increased from .75 to 1.25 days
- Casual labor hours reduced from 270 to 140 hours per week
- Revenues increased by an average 16.9 percent
- Increased customer participation in fresh produce from 49 percent to 70 percent

The positive event led to better communications and information sharing with suppliers, and more collaborative planning across the end-to-end process. Relationships between trading partners went from 30 percent strategic to 70 percent strategic. And this translated into lower inventories, reduced labor costs, improved demand management and reduced packaging costs.

Maintaining the momentum

To date, one retailer has rolled out the One Touch system to all its stores nationally, and another has converted about half of its network. The program has fundamentally altered the industry, and the collaborative approach continues to evolve. This is crucial to the industry's long-term future. In addition to changes in specific practices, such as packaging standards and order multiples, the program has brought about a cultural shift and a platform for ongoing innovation.

The new approach will continue to remove risk, increase inventory velocity and reduce the time taken for the ecosystem to respond to market demand. The potential is for a complete move away from the push-pull distribution model to one where the ecosystem collaboratively responds automatically to any retail movement. It also provides a transparent view of demand and supply conditions over the short and long term. It becomes, in effect, the "fresh fruit and vegetable instrument panel" that connects the entire industry to consumer demand. ◆

Patrick Byrne is the former CEO of Samsung Australia and current chairman of Best Results (Aust) Pty. He can be reached at patb@bestresults.com.au

Ken Cottrill is the editor of Supply Chain Strategy. He can be reached at SupplyChainEditor@larstan.net

Reprint #P0610A

Make Promises that Turn Customers into Loyal Allies

Aligning the value propositions in your supply chain gives you that special market identity that keeps customers coming back for more

BY VERONICA MARTINEZ

YOUR COMPANY'S VALUE PROPOSITION is its promise to customers that it will deliver a particular set of values. This is no empty promise. Customers have become more discerning and expect the enterprises they do business with to be uniquely appealing. Companies that fail to meet these expectations alienate buyers and risk declining profits.

Crucial to achieving this is a supply chain that is aligned with your core value proposition. Your trading partners should support a supply chain that delivers the value proposition that defines you in the marketplace.

Such a supply chain can be created by mixing and matching the value propositions of suppliers to establish the combination that best serves your business objectives. To do this you must have an intimate knowledge of the promises your suppliers make to their customers — including you. Armed with this information, you can map your supply chain according to the set of value propositions upon which it is based, and the one you ultimately want to present to your customers.

Finer choices

Choosing the right value proposition is not just about buyers' perceptions. The selection implicitly affects your strategies and operations, from the choice of markets and financial priorities, to the selection of logistics and outsourcing strategies, internal processes, product development, services delivery and customer relationships.

Given its importance to your market identity and strategy, you need to be able to generate a detailed profile of your value proposition. The profile can then be used to build a value matrix, a practical tool used to:

» Identify and focus the proposition of value that organizations make to their customers
» Provide general guidelines on how an organization could align, direct and manage its resources and competencies with the value proposition that the organization wants to create value
» Detect misalignments and incongruence of resources, and suggest some general alternatives for value creation
» Provide direction to business strategies

The descriptors often used by companies to construct a value proposition profile such as "product leader," "operational excellence" and "customer intimacy" are not granular enough and oversimplify the strategic options available. Here are six new value dimensions that create a value matrix that companies can use to build a value proposition.

The value matrix

Original Value Propositions	New Value Dimensions: Hard	New Value Dimensions: Soft
Product Leadership	Innovators	Brand Managers
Operational Excellence	Price Minimizers	Simplifiers
Customer Intimacy	Technological Integrators	Socializors

1. Innovators (I)

Typical innovators focus on building strong design skills, work within short product lifecycles and make their own products obsolete. Their strategic objective is to provide continuous breakthroughs through new designs and product generations within a technological field. Their customers get new products with unique and special characteristics. The classic examples are 3M, Nokia and Sony.

2. Brand Managers (BM)

Brand managers propose a mix of physical attributes of the product, brand, service and even price — because sometimes the price is considered as an attribute of the product.

[Key Takeaways]

» Strategic members of the supply chain are those that hold the core competencies of the supply chain. The value propositions of these strategic members dictate the value proposition of the overall supply chain.

» The value propositions of strategic members of the supply chain should be aligned to enhance the value creation process — particularly, to deliver more integrated value offers with unique service delivery experiences for end customers.

» Other non-strategic members of the supply chain can have different value propositions, but they should support the value proposition of the overall supply chain. And that common value proposition should match that of the company that faces the end customer.

Their strategic objective is to expand the market, reinforcing the solid brand image of the product and/or company. Their customers gain status through the product acquisition to feed some individual identity need, such as superiority, ego and social acceptance. Typical examples are Prada, Morgan Motor Co. and Harley-Davidson.

3. Price Minimizers (PM)

Price minimizers focus on the development of strong capabilities to reduce lead times, costs and waste and to optimize process performance. Their strategic objective is focused on making their core processes efficient and driving down operational costs. Their customers get good quality, reliable and relatively low price products. Classic price minimizers include Toyota, Wal-Mart and Casio.

4. Simplifiers (Si)

Simplifiers have a strong focus on, and automation of, both order generation and order fulfillment processes to remove the hassle for customers. Their strategic objective is focused on building streamlined processes to make life simple and uncomplicated for customers in a creative, novel and profitable way. Their customers get easy availability and convenient reach to products. Typical examples are Amazon, eBay and Dell.

5. Technological Integrators (TI)

Technological integrators focus on identifying and providing new and tailored solutions to their customers. Hence, personalized attention, such as product delivery, pre- and post-purchasing service, installation and maintenance, are some of the attributes of their product/service offering. Their strategic objective is to customize specific and continuous solutions for carefully selected customers on the basis of long-term relationships. Their customers get total solutions. Typical examples are IBM Global Services and ICI Explosives.

6. Socializors (So)

Socializors focus on building capabilities of strong service delivery and long relationships with customers. Their strategic objective is focused on building confidence and trust through the service provided. Their products and, especially, their customer service delivery experience build a feeling of confidence and comfort in dealing with them. Their customers get flexible and reliable services. An example is Home Depot.

By assigning these dimensions to each of your suppliers, you can construct a value proposition map of your supply chain. Such mapping will help you to define the relationships you have with these trading partners, and determine the extent to which the combination is aligned behind your value proposition.

The Daks example

For example, British apparel company Daks has a distinctive market identity that is a function of the collaborative network of enterprises that supply the company. It designs, manufactures and sells apparel under the Daks label. Daks' products, which are linked to a classic and elegant British heritage, are tailored and produced to high specifications in limited quantities. Usually a men's suit may sell at $700 to $1,100 in one of Daks' stores or through one of their retailers such as Harrods in the U.K. and Nordstrom in the U.S. These products compete with prestigious designers' houses such as Chanel, Armani and Prada.

Daks' supply chain is characterized by its high product variety and low production volumes. Its design flexibility is high; every six months Daks launches a complete new collection. For this reason, it has frequent changes to its operational schedules. Its outsourcing strategy is limited to accessories and a few standard materials.

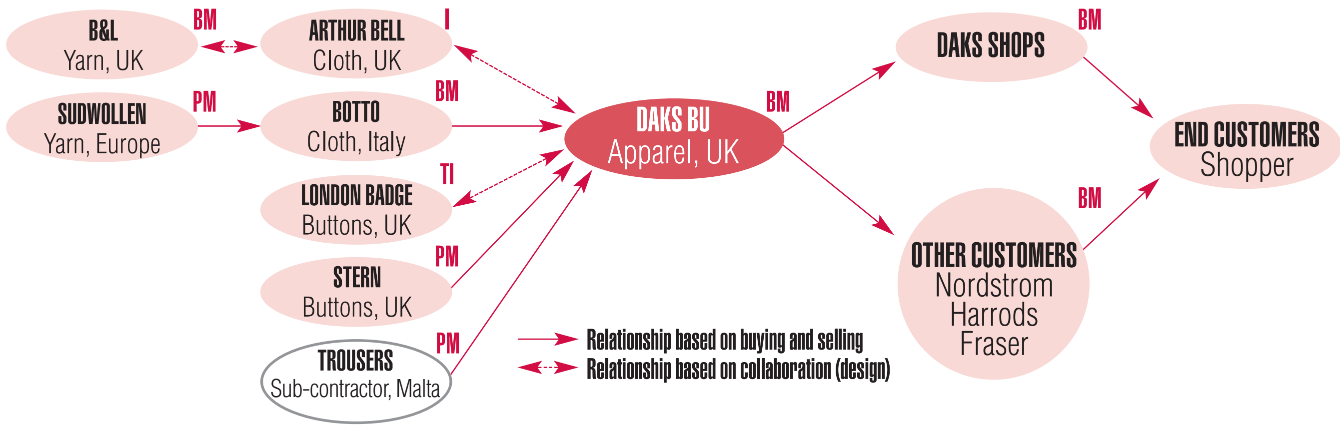
Daks has close communication and coordination with some suppliers, such as Arthur Bell, B&L and London Badges, on the design of new materials (cloths, buttons and yarns). The development of a new material takes up to four months before it is accepted, and so the material costs are generally high. In contrast, Daks' relationship with other suppliers that provide standard materials (such as Botto) is limited to a simple buying and selling transaction.

An analysis of value creation in the Daks supply chain shows how the value propositions within the value matrix can be applied to understand and identify the value proposition of each trading partner and the impact on the overall supply chain. The value propositions are shown on the right hand side of each supply chain member (see "Daks supply chain," page 7).

The value creation process of Daks' supply chain is complex. For example, the cloth supply chain follows two different strategies:

1. The B&L-Arthur Bell-Daks chain is focused on the design of new cloths, which are generally patented. B&L operates in a Brand Manager strategy; it spins and dyes yarns following Arthur Bell's instructions. Thus, Arthur Bell, which is an Innovator, works in close collaboration with Daks in the design of new cloths, combining yarns to produce innovative cloths (with exclusive colors, styles, textures and finishes). A new cloth design process takes up to four months and its cost is generally high. Then, Daks, following a Brand Manager strategy,

Daks' supply chain



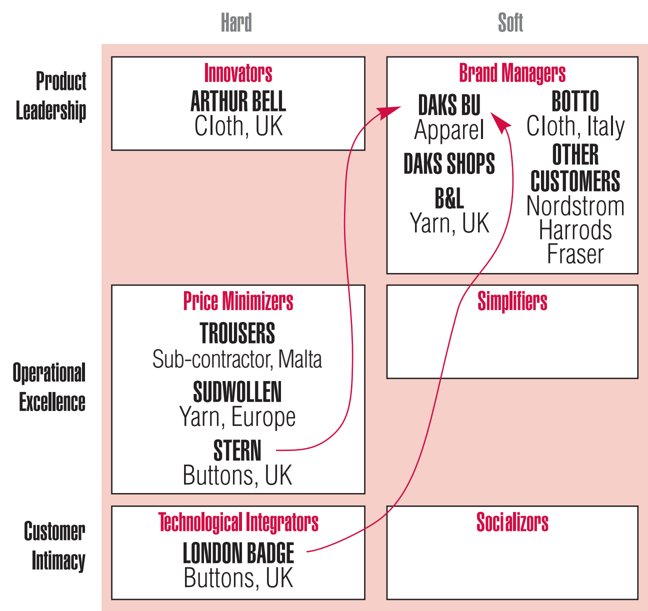
designs and manufactures a high variety of apparel on a low-volume basis. Once the garments are finished, they are distributed to exclusive retailers, which also operate as Brand Managers.

2. The Sudwollen-Botto-Daks chain is focused on the acquisition of high standard cloths. Daks' supply chain speeds up its design and operations processes by buying predesigned cloths from Botto, which is an Italian Brand Manager.

The buttons supply chain runs similarly to the cloth one. London Badge, which follows a Technological Integrator's strategy, customizes buttons for Daks' exclusive apparel. The designs of these buttons are developed by Daks with the support and expertise of London Badge. These expensive buttons are used for the external part of the garments. Meanwhile another button supplier, Stern, which follows a Price Minimizer's strategy, provides simple and cheap buttons. These buttons are used for the internal part of the garments. In contrast to London Badge, Stern is not a strategic member of Daks' supply chain because it does not hold core capabilities or core products within the supply chain.

The overall value proposition of Daks' supply chain is Brand Manager. It focuses on the design and development of exclusive products and on the exploitation of its brand name. This supply chain provides an interesting process of value creation because its members follow different value strategies. The core competencies of Daks' supply chain are held by key strategic suppliers, which each share the same value proposition of Brand Managers as Daks. Other capabilities are acquired from other non-core members of the supply chain, which have different value propositions. They support the overall supply chain value proposition by optimizing costs, delivery times and reducing risks on uncomplicated components.

The value propositions of Daks' supply chain members



The combinations of value propositions, strategic competencies and capabilities from different members of its supply chain create a unique value creation process for Daks. Many organizations would benefit from such a strategic analysis of the components of their supply chains using the value matrix. ◆

Dr. Veronica Martinez is a research fellow at the Centre for Business Performance within Cranfield School of Management, U.K. Her research interests revolve around the fields of measuring and managing business performance, supply chain management and value creation in strategy management. She can be reached at v.martinez@cranfield.ac.uk.

Reprint #P0610B

Choose the Channel that Matches Your Product

As products mature, their market profiles change — and so should your route to customers

BY SUNIL CHOPRA

OVER THE LAST YEAR DELL'S STOCK PRICE HAS FALLEN by more than 30 percent while its rival, Hewlett-Packard (HP), has enjoyed a much healthier market performance. Does this mean that the direct sales model made famous by Dell is in decline?

The answer is yes and no. Dell still derives significant competitive advantage from customizing products and selling direct to buyers. On the other hand, this market is shrinking and the beneficiaries are companies like HP that sell through third-party channels such as retail chains.

This shift has occurred because customer needs and associated supply chain costs — elements that are aligned in a successful go-to-market strategy — have changed in the mature PC business. A hybrid model that embraces both direct and reseller channels now looks to be a better option for Dell. For all companies, generally the lesson is that your choice of sales channel should depend on the type of product you are selling and its level of maturity.

Channel trade-offs

Retail stores are effective at responding quickly to customer needs since product that is in stock is instantly available and backed up with sales support. However, retailers find it much more difficult to carry a wide variety of products in inventory because of the high costs involved. Stores have high facility and inventory costs but usually lower transportation costs because deliveries to outlets can be aggregated.

In contrast, the direct channel, with its more centralized storage of inventories, has different strengths and weaknesses. For example, Amazon.com cannot provide a book as quickly as a neighborhood Borders store, but it offers access to a richer selection of books. Centralized storage allows Amazon to have much lower facility and inventory costs than Borders (Amazon turns its inventories about 12-14 times per year, whereas Borders turns its inventory around twice a year) but Amazon also incurs much higher transportation costs.

Clearly, the direct online channel is most appropriate when facility and inventory costs are important and the customer values variety. Stores excel when the customer wants responsiveness, and inventory costs are less significant than transportation costs.

The key point is that both customer needs and supply chain costs are influenced by the type of product being sold and its position along its life cycle. Thus, companies cannot select one channel and expect it to always be successful. Success only follows if the strengths of the channel and the product and market characteristics are appropriately aligned.

PC market dynamics

Applying the above logic to the PC and consumer electronics industry in the context of Dell sheds light on the computer maker's current market predicament.

Moore's law, based on an empirical observation made by Gordon Moore, a cofounder of Intel, states that the "complexity of integrated circuits, with respect to minimum component cost, doubles every 24 months." This prediction has become a self-fulfilling prophecy, and industry roadmaps (as of 2001) have predicted that Moore's law will remain valid for several generations of semiconductors.

What has changed during the last five to 10 years is the relative value that customers derive from this steady increase in computing speed. Here, it is important to think in terms of the Pareto principle, which implies that 80 percent of the benefits from Moore's law result from the first 20 percent of the development. From a user's perspective, this certainly seems to be true in the electronics industry. Ten years ago a doubling of chip speed allowed a typical user to significantly enhance the applications he or she could use, but today's PCs allow most users to handle all common applications. In fact, it can be argued that most everyday business applications such as Microsoft Office do not require the latest model PC and can be run quite adequately on a 3-year-old machine.

The above trend has fundamentally changed the relative importance of variety and inventory in hardware configuration. In the past, the ability to customize was highly prized by customers, and any surplus inventory quickly

[Key Takeaways]

- » Recent falls in Dell's stock price reflect a market shift that supports a hybrid go-to-market strategy involving direct and reseller sales channels, and puts the company at a crossroads.
- » The experience of Dell and other computer makers underlines the importance of product type and lifecycle when deciding which sales channel to use.

lost value as newer components became available. This created a business model based on the centralized storage of inventory that was assembled to order much more effectively than a model where pre-configured PCs were sold through retail stores. Clearly, Dell's direct approach was ideally suited to such a scenario and enjoyed a significant cost advantage over HP and Compaq.

Today, however, most customers are happy to choose from a few standardized, off-the-shelf PC models. Demand is no longer splintered by multiple computer configurations, but instead is concentrated around a much smaller group of standardized offerings. Also, a few years ago demand was typically low for each product variant; now each standardized model enjoys relatively high demand. Finally, the price of PCs has dropped significantly. As a result, inventory of standardized models now moves fast and is less of a factor in the profitability of the PC business.

This shift in emphasis changes the viability of the centralized direct channel relative to selling PCs through stores. The power of the direct channel to deliver customization is less relevant in today's more standardized market. This is why Dell's competitive edge is being eroded by players such as HP that sell through retail stores.

Moreover, Dell's problems are exacerbated by the company's expansion into consumer electronics. LCD televisions, for instance, have moved from the initial product life cycle stage to a more mature phase. Given the unstable demand in the early days, Dell's centralized model was well suited because it lowered inventory costs. As these products mature, however, demand is increasing and retail stores are becoming a more effective channel. Also, these products are not amenable to customization.

The inevitable conclusion is that Dell will be forced to consider the retail channel as it moves forward. The success of Apple reinforces this view. Even though Apple is considered to be on the cutting edge of design and innovation, its success has come with relatively little product variety. Excluding accessories, an Apple store probably sells less than 25 SKUs, with each SKU having high demand.

Two-tone model

That is not to say that the centralized channel has no role to play. A hybrid business model that combines the complementary strengths of the two channels will likely be the most effective in this evolving business. Eighty percent of the market that is satisfied with standard models is best served through retail stores. The other 20 percent that values customization is better served through the centralized channel.

Further evidence for the emergence of such a hybrid approach comes from the mistakes of another direct-sell PC manufacturer: Gateway. When the company first opened Gateway Country Stores in 1996, it targeted customers who were less tech-savvy and valued the sales support that these outlets offered. Buyers could try out display models of Gateway computers at the stores, but could not make a purchase since the machines had to be ordered for home delivery later on. The problem was that although Gateway harnessed the channel's support strength, the company did not exploit the supply chain capability to deliver fast-moving products like standardized PCs. Most Gateway store customers were satisfied with one of the standardized models, but were disappointed that they could not leave a store with their chosen PC. Gateway would have been better served by stocking the standardized models with high demand at its stores, while supplying customized configurations through its centralized model. This way it could have combined the strengths of respective channels. By having two channels but only one mode of delivery, the company missed this opportunity.

In-store customization

Another possible structure when customers place a high premium on customization is for stores to complete the final product configuration. This is done in India, where stores assemble PCs to customers' orders. Such an approach decreases inventory costs because inventories are kept in component form, but increases the cost of assembly capacity, which is now decentralized. Such a structure makes sense when the cost of capacity is low relative to the cost of inventory. This is the case in India, where technicians are relatively cheap to employ. The structure is also appropriate for high-end electronics components where inventory is expensive and customers want it customized to their specifications.

The bottom line is that channel choice must be related to customer needs and product characteristics. This leaves Dell, in particular, at a crossroads. The company's products and markets have evolved to a point where certain fast-moving units may be better sold through retail stores. Going forward, a hybrid model that augments the strengths of the centralized channel for high variety with the strengths of the retail channel for fast movers is a better option for Dell. Do not be surprised if you see the familiar Dell logo in Costco outlets or in your neighborhood computer store. ◆

Sunil Chopra is Senior Associate Dean for Curriculum and Teaching, IBM Distinguished Professor of Operations Management, Kellogg School of Management, Northwestern University. He can be contacted at s-chopra@kellogg.northwestern.edu

Reprint #P0610C

Lessons from the New Lean

You can learn a thing or two from lean's expanding horizons

BY KEN COTTRILL

The Toyota Production System (TPS) put the "lean" in manufacturing, but TPS has developed beyond its roots with a growing number of applications in non-manufacturing industries. As well as reaffirming the value of lean principles, these applications provide fresh insights into how organizations can use TPS to capture value and raise the supply chain efficiency bar.

Take the adoption of lean in the healthcare industry. An operating room has little in common with an auto production line, but these facilities share similar scheduling and inventory management challenges that can be tackled using TPS methods. Still, hospitals can't simply mimic the advances made by car makers — they have to extend the TPS envelope by adapting it to the unique needs of the medical industry. The result is a range of applications from which supply chain managers can learn.

Healthy interest in lean

"There is definitely momentum building right now for lean in healthcare," said Sabu Varghese, principal of Ben-Mar Group, LLC, a consulting firm founded in 1998 in Louisville, Ky. The firm is engaged in process consulting and implementation of enterprise resource planning systems such as PeopleSoft and Oracle systems. The majority of its clients are hospitals, and Varghese said that his supply chain experience in manufacturing and in implementing systems have helped tremendously in the healthcare arena.

He described a just-in-time inventory system he helped to establish in a California hospital, where nursing locations were experiencing some 250 stock-outs per 24-hour period. There was no system for accurately measuring inventory usage levels, and thus "par" levels for triggering the replenishment of stock were based on flawed or anecdotal information about demand levels. After analyzing the root causes of the problem using lean systems, stock-outs were brought down to just 15 to 20 out of thousands of materials transactions taking place everyday at the point of care.

Case examples like these are becoming more common, but the industry has only scratched the surface of the potential for lean. For example, even though elective surgery procedures are usually booked months in advance, schedules are often given to suppliers in hard copy form just several days before operations. "There is no demand forecasting at all," Varghese said, and there are numerous opportunities missed to streamline inventory management and cut costs. In manufacturing, such demand data and schedules would be communicated in advance to suppliers via ERP systems.

Mark Graban, senior consultant for ValuMetrix Services, agreed that "there is quite a bit of pull on lean" in healthcare. Headquartered in Raritan, N.J., ValuMetrix is part of Ortho-Clinical Diagnostics, a Johnson & Johnson company, and started providing consultancy services to the healthcare industry in 2001. Graban's previous work experience includes periods at General Motors and Dell Corp.

Cutting costs is an important driver, but so is improving service levels. As an example, he pointed to hospital laboratories where a common goal is reducing turnaround times so that test results can be delivered faster to physicians. That can mean reconfiguring workflows or changing ingrained practices such as moving from the processing of medical test samples in batches to flowing the work in line with the available resources. Familiar techniques such as value stream mapping are used to solve these problems, and to break down organizational silos. "Rather than silos between purchasing and product development, say, you've got them between emergency rooms and laboratories," he said.

Maximizing uptime is more critical than in a factory, since a service interruption can threaten the well-being of patients. Kanban systems are used to streamline inventory management "so that staff can see they are running low on a part instead of waiting until someone realizes they've run out."

Applications like these also are opening up fresh perspectives on lean. Here are some examples.

Shed the negative baggage

In manufacturing, lean methods are often seen as a way to drive layoffs. In healthcare, however, this is not the case,

[Key Takeaways]

- » Lean methods have transformed manufacturing, but the increasing number of non-manufacturing case studies offers some fresh perspectives on the application of lean.
- » Work forces often equate lean with layoffs, and countering this negative image may require you to present the methodology in a new way.
- » Take care not to allow one lean method to obscure the broader view of your organization's performance. And don't underestimate the importance of senior-level commitment or the power of lean to unlock creativity.

owing to staff shortages and regulations covering minimal staffing levels, explained Varghese. Reducing head count may become less important for more industries as demographic trends create wider labor shortages.

Similarly, much of the negativity associated with lean in manufacturing — that it results in a harsher working regime — is less visible in the medical industry. "In my experience, although many manufacturing companies in the U.S. adopt lean with good intentions, workers tend to rebel due to the emotional implications involved in the lean learning cycle," Varghese said. The medical industry has not reached that stage yet.

Even so, "you have to walk in with the expectation that lean might have a bad reputation," said Graban. The "lean and mean" label can weigh heavy on programs. "It's a phrase that causes natural misgivings that are ill-founded, and you've got to address this with communication and training," he advised.

The prospect of radical change also has negative connotations for individuals who are naturally suspicious of unfamiliar job descriptions and working practices. Varghese recalled a meeting he walked into in a hospital where there were 35 nurse managers "who were already stressed with a staff turnover rate of about 35 percent and understaffing." As he noted, "the last thing they wanted was a new system."

The answer: drop the "lean" label and introduce the methodology as new thinking aimed at relieving the burden on staff and making the organization more efficient. Also "you have to be in their shoes and listen to and understand their problems," he suggested. Another option is to put financial incentives on the table. In one project staff members were offered incentives such as funds for new equipment or additional staff if they could cut the cost of orthopedic implants through the introduction of lean work practices, said Varghese.

Look beyond single tools

Don't allow success with one lean method to stop you from looking for other improvements — a common pitfall in manufacturing, Graban believes. For example, a team creates an excellent 5S program (a five-point program that comprises sort, set in order, shine, standardize and sustainment) but fails to look at other important areas such as cycle time improvements or employee involvement. Achieving great results with just one method "does not mean a thing if the business is not doing better," he pointed out. The use of a single tool, such as Kanban or 5S, does not equate to a true lean approach.

Kaizen events (the two- to five-day process that teaches teams to identify and eliminate wasteful activities) should not crowd out other lean methods. "The risk of just focusing on Kaizen events is that you tend to pick problems that are easily solvable; you don't tackle the complex stuff," said Graban. The more complicated issues may take longer than the allotted week and therefore are put on the back burner, even though they may have more impact on the overall business. Conversely, you can fall into the trap of ignoring problems that are too small for the Kaizen format.

Lean as a new way of thinking

Lean is not just a way to eliminate waste — it also unlocks the creative potential of your workforce. Graban pointed to laboratory technicians who discover that they can improve workflows by changing practices and work configurations that have long been accepted as immutable. "The team realizes they really have control over a lot of things and attitudes start changing," he said.

Another way to unleash creativity: encourage staff to review activities outside their specialty area and come up with constructive suggestions for improvements. This approach has proved highly effective in healthcare.

Also keep in mind that in an environment that's relatively new to lean principles, innovative ideas can have significant "shock" value that motivates staff to go further. Varghese recalled such a Eureka! moment when operating room staff saw a supplier sales rep scan the bar-coded information on implants into a laptop. The hospital had been capturing this information manually onto paper for years.

Senior commitment sees holistic benefits

Working closely with senior management, and committing staff to work on lean full time for a set period, drives change and enables you to look holistically at performance.

In one hospital the lean initiative involved a project steering committee that included the CEO and CFO, chief pathologist and a number of departmental vice presidents that met weekly, Graban said. With that kind of managerial horsepower, "we can look at the trade-offs and what is best for the organization as a whole." Also, the team included representatives from key parts of the organization who were committed full time for 16 weeks to the project. "I've never had that luxury in manufacturing," he said.

Hospitals "are generally doing a better job of thinking of lean as a business system rather than just a cost-cutting tool for the shop floor, and seeing how the pieces work together," Graban said. This may be a function of size, in that hospitals are relatively small organizations.

Ken Cottrill is the editor of Supply Chain Strategy. He can be reached at SupplyChainEditor@larstan.net

Reprint #P0610D

[BACK PAGE] By Ken Cottrill

Is Your Company Set Up for Segmentation?

THE CUSTOMER IS ALWAYS RIGHT, but some are more right than others. By matching service level and type to each customer's position on the rightness scale, you can allocate your resources more efficiently and maximize profitability. But making such a judgment requires excellent market intelligence and keen supply chain visibility.

It's called customer segmentation, and many companies are doing it. In a survey of *Supply Chain Strategy* subscribers carried out this June/July, more than three-quarters of the 165 respondents confirmed that they segment their customer base for the purpose of providing specialized, tailored services. The top criteria used was relative importance (e.g., strategic versus casual customers). The most popular service offering provided was delivery cycle times (see survey at www.larstan.net/DMroundtable.htm).

The survey was put under a microscope at the "Demand Management: Matching Supply & Demand in Real Time Executive Roundtable," held this August in Chicago. The event launched a major demand management research project headed by the MIT Center for Transportation & Logistics.

Blurred vision

Flawed business information and a limited view of the end-to-end supply chain emerged as major hurdles to creating and effectively managing customer segmentation programs. In order to set and maintain service levels according to the relative importance of each customer, all the managers involved should share a common view of the customer base. And there needs to be a consensus on what the company's strategic priorities are in relation to that base. In reality, these perspectives are often fractured by internal divisions and inadequate customer information.

There is a yawning gap between sales & marketing and the supply chain managers that administer — and should help to create — segmentation programs. Traditionally sales & marketing departments have driven the segmentation process. Although this is changing as organizational silos are broken down, their continued dominance still stymies the free flow of customer information internally. For instance, important changes such as new pricing structures may not get passed on to other managers in a timely manner. Demand managers may only have scant information on what service levels the company is committed to or how customers are differentiated.

The traditional corporate hierarchy also breeds mistrust that deters frank communication. One roundtable delegate recalled a program to align an organization that took three years before the marketing department was convinced that it could trust supply chain to fully support the promotional programs it wanted to run. At a leading consumer electronics company, distribution and sales personnel have co-located to promote better interaction between the disciplines.

Also distorting the supply chain manager's view of the customer population are products that are no longer in demand. This happens when companies do not cut the deadwood out of their product portfolios, or fail to communicate the low performers to all departments.

The lack of market insight can also be caused by inadequate analytical tools. Employees who are uncomfortable with better, but also more sophisticated, information management tools may resist implementation or underutilize the new technology. But interpreting accurate, up-to-date information on how customers are behaving underpins segmentation programs. This problem will get worse as companies are flooded with data from more advanced market sensors such as RFID systems.

Efforts are underway to lighten the analytical load and present managers with more pertinent information. An example is the development of supply chain dashboards that use visual cues to flag important changes and service parameters. Such presentations are easier to interpret than complex spreadsheets, especially when it comes to spotting anomalies, and can be conveniently reset to reflect changes in service level tolerances.

Meanwhile, crucial customer information is often scattered across multiple Excel spreadsheets. As a roundtable executive put it: "We still see a lot of companies really operating blind in this particular area." ◆

Ken Cottrill is the editor of Supply Chain Strategy. He can be reached at SupplyChainEditor@larstan.net

Reprint # P0610E

Product # P06080