THE SEVEN PRINCIPLES OF SUPPLY CHAIN MANAGEMENT

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Abstract

There are seven principles which taken together can structure an organisation's supply chain strategy and tactics. These principles are: segment customers based on their service needs; drive operations from demand; differentiate products closer to the customer; source strategically; develop supply chain technology strategy; and use supply chain spanning performance measures. However, these are not exact universal recipes for success, but need careful thought about their applicability to each firm. Many examples are given of the principles in action.

บทคัดย่อ

มีหลักการ 7 ประการที่รวมกันเป็นโครงสร้างทางยุทธศาสตร์และยุทธวิธีในการจัดการห่วงโซ่อุปทาน หลักการเหล่านั้นคือ แบ่งประเภทลูกค้าโดยวัดจากความต้องการในการบริหารและให้ความสำคัญกับความต้องการในการบริการกับกลุ่มลูกค้า วางแผนจากการฟังสัญญาณความต้องการของตลาด ทำให้เห็นความแตกต่างของสินค้าที่ใกล้ชิดกับลูกค้า จัดการแหล่งที่มาของวัตถุดิบอย่างมีกลยุทธ์ พัฒนากลยุทธ์เทคโนโลยีห่วงโซ่อุปทาน และนำวิธีการประเมินการปฏิบัติงานการใช้ห่วงโซ่อุปทานมาใช้อย่างมีประสิทธิภาพ อย่างไรก็ตามสิ่งเหล่านี้ไม่ได้เป็นสูตรสำเร็จที่แน่นอนที่เป็นตัวบ่งชี้วัดความสำเร็จ แต่ต้องขึ้นอยู่กับการบังคับใช้ของแต่ละบริษัท ดังจะเห็นได้จากตัวอย่างการดำเนินการจำนวนมาก

INTRODUCTION

One of the distinctive things about Supply Chain Management is that there are so many different views about definitions, scope, approaches and so on. One perspective that we have liked over the years is one which comprises the Seven Principles of Supply Chain Management.

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We think that these principles provide a good structure by which you could form your Supply Chain Strategy. Just as an aside, we have often wondered if, in fact, the term "Supply Chain Strategy" is actually an oxymoron. By the time that you start thinking about Supply Chain issues, shouldn't you actually have your Business Strategy straightened out already? So, aren't we actually already down to the tactical level?

In any case, we wish to help you think through how you could and should tackle the job of improving management of your supply chain. There are seven principles; their applicability to your situation is what you need to consider. We will first do a quick overview and then really dig into each in more detail:

- **Segment Customers based on their service needs:** Not all customers are the same, either in terms of the services that they need and those that they are willing to pay for. Furthermore, you also need to take into account their value and profitability to you and your business. Are you sure that you make money on each sale? By being more thoughtful, analytical and "strategic", you may be able to identify several (not too many!) distinct groups and adapt the supply chain to serve these segments profitably.
  We did this a few years ago with a manufacturer of packaging materials, identifying how different the supply chain requirements were to supply to a beer company as compared to someone who wanted to buy just a few materials for their small business. But, the packaging supplier had been trying to deal with both extremes in the same way.
- **Customise your logistics network:** Once you know what your customer segments are, you will wish to customise the logistics network to the service requirements and profitability of each of them. In this case, we are using the term "logistics" to refer to the order fulfillment process, from time of query from a customer through to collection of payment for a purchase.
  We remember the case of a beer company where it was quite easily determined how it made sense to consolidate customers' deliveries more on type rather than geographic areas. For example, big retailers versus small volume restaurants.
- **Drive Operations from demand:** Listen to market signals and align demand planning to ensure optimal resource allocation. Whether you manufacture or procure a product or manage a services business, you have resources to optimize, and the closer that you can align your supply to demand, the better your bottom line will look.
  We worked with a manufacturer of household cleaning products who set up a so-called Run Strategy, which set the optimal sequence for products to be made. This sequence was followed on a regular cycle but the volumes to be produced were based on shorter term market demands.
- **Differentiate Product closer to the customer:** Differentiate product and services closer to the customer to speed conversion across the supply chain. The later that you can make the final decision to allocate / tailor your products and services, the longer in the supply chain you can keep your inventory (products or service resources) pooled for the most optimal allocation.

The nicest example of this that we've seen was the maker of canned soup. They made many private label products but the only difference was the label; the contents were identical. Rather than keeping lots of stock of all of them, they reduced their stock of semi-finished product and just labeled to order.

- **Source Strategically:** Manage sources of supply strategically to reduce the total cost of acquiring and owning materials and services. Amazing results have been achieved time and time again when organizations have simply taken a fresh, "strategic" look at how they source goods and services. This involves nothing more than getting back to basics and doing things in a common-sense manner.
  We have done a lot of this work over the years. It's amazing how, time and time again, total cost of ownership can so easily be reduced by 15 to 20%. The biggest and easiest category saving that we experienced, through just a bit of ingenuity, was just shy of 50%!
- **Develop a supply chain wide technology strategy:** Support multiple levels of decision-making and give a clear view of the flow of products, services and information. Also, this technology strategy incorporates all forms of technology, not just IT.
  Only once you've got your people (their understanding and behaviours) and processes right, turn to technology for optimal efficiencies and quality.
- **Use supply chain spanning performance measures:** Gauge collective (that is, together with your trading partners) success in reaching the end-user effectively and efficiently.
  What gets measured gets done. People behave based on how they are measured. Use measures to drive the appropriate improvements. All those clichés are valid. Expand the measures beyond functional lines to achieve the collaboration that you need across yours supply chain.

We have used these principles in several situations to put together a Supply Chain "Strategy". As a template, it works well. However, typically the major initiatives that make up the improvement program end up being some combination or variation on these themes because they must be interpreted and adapted to suit each particular – and sometimes peculiar – environment.

There are significant benefits to be accrued overall from taking this approach and each of the principles effect improvements in their own right. As with all well executed business improvements, the benefits ultimately show up as increased revenue, improved asset utilization, and reduced cost. Obviously, the magnitude of potential benefit will depend on your starting position, but claims are common that you can achieve 15 to 30% reduction in warehousing and distribution costs, anywhere up to 30% reduction in inventory levels (even beyond that), and a 10% increase in sales, directly attributable to these efforts (simply due to increased availability and service levels).

While the theory is that you mix and match these principles to create a customized system that

is simultaneously implemented, transforming your supply chain into the slickest, most efficient thing that the world has ever seen, the reality is that there are likely not enough resources within any organisation to take such a broad stroke at one time. Therefore, the question is - which step to take first?

1. Segment Customers based on their service needs

Strangely enough, it is the guys in Marketing that hold the answer. Marketing and Sales types think differently from delivery and logistics people. Rather than being concerned with the nitty-gritty practicality of service and delivery, their world is often viewed as revolving around fluffy "ideas" and "concept" kinds of things. Behind this, however, marketing people are driven by a single objective: how to best reach the market, knowing full well that they cannot approach every customer in the same way.

So, let us begin with what is the logical first step: look at your market and figure out how to best serve your customers. From there, you could subsequently work back to configure your operations accordingly.

There are three questions that marketers ask: Who are your customers? What do they really want? What are they willing to pay for?

That final question is the key one. What are they willing to pay you to do or to provide? Most companies have customers across the entire spectrum of service requirements, ranging from the high order quantity / high delivery frequency end to the "Mom and Pops" that only order a little at a time, once in a while. Some clients only need the basic product from you, with no frills service, while others are looking for you to act as a one-stop shop and are willing to pay for the core product or service plus many value-adding services. The marketing and sales folks tailor their efforts around understanding and satisfying the demands of a clientele that that they view as coming in a wide range of shapes, sizes and every colour of the rainbow.

Many (maybe even most?) organisations view their supply chain in monotone, offering a product or service that they simply push out to the market. Over time, the basic proposition has been supplemented with extras, again either a product or service, and the assumption is often made that all customers want and value it, that they are willing to pay for it.

So, if the traditional approach of "Treat All Customers the Same" isn't the best, can we go to the other extreme, "Treat All Customers Individually?" That is, set up a dedicated Supply Chain to service each? Of course not.

How can you satisfactorily, profitably, service all of these types of customers with a single approach? By looking at it from a different angle. This approach is very familiar to people in

Marketing and Sales but less so in customer service delivery and Supply Chain Management. You need to determine groups of customers (Segments) with common characteristics and then serve them similarly.

The key, with respect to improving your bottom line, is to assess which customers are most valuable to you, with respect to either profit or some other factor. Are you making money on every customer, every order? Do you have the means to measure that and to know the answer?

This approach has been taken by manufacturers and distributors around the world. Typically, they set up a project team and conduct a great deal of analysis of their customer base, looking to understand the Customer Needs and the Value of each Customer to their company. Looking at the results and findings from the analyses, they then determine the best Customer Segments for their situation.

After this, they then proceed to do three things:

- Tailor the value propositions
- Align the Supply Chain to each segment
- Develop and implement the appropriate supporting processes, people / organisation elements, and systems

The results are invariably outstanding. They improve Customer Service; it is easier to define and achieve clear order-winning and customer-satisfying service objectives. They lower the Cost to Serve, achieving cost reductions usually equal to roughly 5% of revenue. The management teams are always confident that they increase their top line but, of course, it is difficult to quantify how much of their increased sales are attributable to the new approach.

One of the most significant things that they are able to identify and quantify is proven to be a key element to the future of their business. Over time this new, market oriented approach to logistics issues leads to a shift in the client mix to the higher value customers.

2. Customise your logistics network

So, the next challenge is to use this new-found information to create an efficient and complete fulfillment process, starting from the time of a client's query and continuing through to the final collection of payment for a purchase.

It seems to us that the most obvious place to concentrate is on configuring your logistics network for the segments that you have identified.

The range of possibilities is as varied as the types of businesses that exist, as shown by the

following examples of three very different segments:

- Sophisticated organization with high-volume, high frequency of order and delivery, reasonably few products, and little in the way of value added services required; Example: the packaging purchases by bottlers of soft drinks
- Smaller organisations, low-volume, low frequency of order and delivery, probably a wide range of products, and these customers may find value added services (like Vendor Managed Inventory) appealing; Example: pharmaceutical purchases by a small clinic
- Firms who run very, very large but infrequent major events; Example: brewers who supply to clients in the sports or entertainment industry

It becomes quite obvious that these three kinds of customers need to be serviced in very different ways, for both their benefit and yours. Since it is quite likely that you cannot afford to set up whole, independent supply chains for each of them, how can your same facilities, procedures, people, and systems deal really effectively and efficiently with such extremes?

The options for creating effective fulfillment are often a continuation of the working relationship you have with the customer, where dialogue helps create a win-win situation. Here are the key foundations that would lead your organization to excel in the fulfillment process:

- Manufacturing: Manufacturing is driven by time, efficiency, and customer needs. Small production volumes can be produced at low cost, provided that manufacturing options are understood and kept opened and flexible with in-house or outsourcing. Continuous monitoring of the marketplace allows you to select the best option that suits your environment the most.
- Inventory: Implementation of a joint manufacturer/customer policy for inventory such as Just In Time (JIT) or Vendor managed Inventory (VMI) is encouraged. Inventory should be managed in real time and known at all times.
- Warehousing: The warehousing network is fully aligned to meeting customer needs at the lowest delivered cost and customers can select their own delivery options on each order.
- Transportation: Proactive management of mixed-mode transportation (air, ship, road) with tradeoffs in inventory, freight costs and customer service should be fully understood. Transportation costs are optimised across the entire supply chain. Delivery across suppliers, manufacturers and distributors are coordinated and leveraged. Customer orders from different divisions are merged efficiently. Warehouse cross-docks are used. Use of the third party logistics providers allows full truckload economics comparing with less-than-truckload (LTL) from an individual manufacturer.
- Performance monitoring: Perfect order metrics are used and monitored. Delivery/order accuracy are recorded and used proactively by customer service personnel. Orders are generated centrally by the manufacturer and reviewed by the customer as part of the Vendor Managed Inventory.

Flexibility and responsiveness to the specific needs of the client of your manufacturing system,

inventory management, and logistics network are the key drivers of the efficient fulfillment process. With these indispensable factors, you can have "virtual" separate supply chains for your customers in all different segments.

3. Drive Operations from demand

Next is to determine how you might more efficiently allocate your resources by driving your operations from demand, listening to market signals, and then aligning your demand planning accordingly.

The obvious question is "what do we mean by driving operation by demand – isn't that what everybody normally does? What else could be used to plan the whole business if not needs from the customers?"

While most companies think that they are planning and driving their business from customer demand, it is more likely that it is actually the demand 'forecast' that is being used; and there is one thing about the demand forecast that holds steady – it is always wrong, either by a few degrees or by leaps and bounds.

So, how well could we operate the business or allocate our resources if we use the demand forecast figure, the always-wrong figure, instead of using the real demand?

How would you know if you currently plan your operation based on the forecast? Following are a few key things that you may have experienced; these are NOT good things:

- There is a supply chain for each business unit. Supply chain units within the company plan and forecast independently.
- Sales forecasting is based on historical customer sales and spreadsheet analysis. Many forecasts are developed by the different groups in the supply chain – there is no one common forecast that drives all supply chain functions.
- Salespeople are responsible for developing the sales forecasts but they are rewarded on their ability to exceed the forecast.
- Understanding of customer markets is predominantly based on sales history and general macro-economic measures.
- Production overstretches to respond to every order. Emergency orders become normal practice. A 'big-brain' planner uses experience to plan manually. In times of shortage, customer orders are allocated on a 'first come, first served' basis with some prioritisation of key accounts.

All of us know that, if we could, we should respond immediately to customer demand and use that information to trigger our planning process, sourcing process, and resource allocation, back along our supply chain. Here is what we would need to successfully achieve this idea.

- Full scope: The supply chain spans suppliers' suppliers and customers' customers both within and outside the company. Demand planning systems would be fully integrated throughout the supply chain both inside and outside the company.
- Integrated forecasting: For the majority of lines, no forecasts are needed as replenishment is set up such that it responds immediately. Where used, sales forecasting is an integrated process for customers, manufacturers and suppliers who share information and databases for more broad planning purposes; the Forecasting technique chosen depends on characteristics of product demand. Customers' generated forecasts become standard inputs and are integrated with internal forecasting systems; forecast errors by account are noted and input into specific account replenishment models. Reactive demand (risky and uncertain) is separated from non-reactive demand (stable and predictable) and the supply chain is configured accordingly. Variability in individual forecasts are captured and used to characterise demand. Customer focus groups are used to improve forecasting.
- Customer input: Detailed understanding of customer markets and drivers of demand is developed with customer input; implications of changing customer market conditions for the manufacturer are understood and captured in the planning systems that span the complete supply chain.
- Resource prioritisation: Production or delivery is prioritised according to customer segmentation priority measures and order or account profitability to produce selective rapid deployment. Production planning systems are fully integrated throughout the supply chain. When there are shortages, product is allocated to customers on the basis of past sales records not orders placed.

We remember a favourite quote of a P&G executive when he said, many years ago, "We want to get to the point where the consumer opening a bottle of juice will trigger us to pick another apple?" Now, in our on-going discussion, we are getting to the core of that objective. Heh, heh...

4. Differentiate Product closer to the customer

The next principle is about Differentiating Product Closer to the Customer. Some use the term Postponement. Some, in life, may use the term Procrastination.

In the case of Supply Chain Management, though, there is no question about right or wrong – it is definitely better to wait as long in the process as you can before tailoring your end product or service in order to satisfy a specific customer demand.

While psychology and the analysis of personality types are a bit removed from the nuts-and-bolts of warehousing, trucking and the like, one observation has always been of particular interest: some people are in more of a hurry to make decisions than others. These people prefer not to hesitate, in the belief that once you've got the basic facts together, it's better make

a choice or decision right away, get on with it, and move on.

Others prefer to delay the decision until it MUST be made, expecting that there will be more information available by the decision point that will enable them to make a better quality decision. It is not laziness or that they are necessarily afraid to make a decision; it is just a preference in the process. Of course, this leads the quick-start types to suggest that those who bide their time are great procrastinators.

Being more comfortable moving things than picking brains, we figure that in logistics – as in life in general – this is probably one of those things where neither approach is necessarily right or wrong. Flexibility and the willingness to adopt different approaches to suit different situations is the key.

Let's get right to the point with a simple example. We once did some work with a major food processor in Canada which produced an extensive range of canned products, most of which were sold under their own recognized brand and were labeled as such. However, they also did a lot of private label work and at the time, the contents of the private label products were almost all the same – just the labels wrapped around the cans were different. For a variety of reasons, they had a great deal of trouble predicting demand for the private label product and this led them to carry a lot of finished goods safety stock in order to meet demand on short notice.

You can probably guess where this story is going: in order to dramatically reduce finished goods stock and still provide great customer service, it was decided that they would keep stock of the unlabelled cans (called "Bright Stock"... was that because the cans were shiny or because of the idea?) and label them to order.

How obvious was that? Like we always say, Supply Chain Management is not "Rocket Science". But, it does take some fresh, clean sheet thinking. Everybody's favourite example in this regard is a certain supplier of personal computers...

If you ever experienced ordering a customized PC from their website, you know that there are thousands of permutations and combinations in the configurations that you could choose. In fact, those configurations are based on a few different options of each PC part. Say, you have 3 options for monitor, 2 sizes of storage, 4 types of graphic card, and so on. These parts are pretty standard. The supplier has these parts ready but does not start assembling them until the customers place the orders via Internet or telephone. Purchase orders from customers function as triggers for them to pick the right parts and then start assembling those parts together, according to the requirement of each individual customer.

So, how can you apply these ideas to your situation? Do you think that Procrastination

Management might have something to offer?

5. Source Strategically

Sourcing Strategically is such a critical element in your company's bottom line.

In justifying this view, let's start with the understanding that organisations typically spend anywhere from 50% to 80% of their revenue on acquired goods and services, making a company's approach to its buying process just as important as its approach to the process of marketing and selling. Managing the upstream part of your supply chain is just as essential as looking downstream toward your customers.

Gone are the days when one operation, one link in the Supply Chain, can just "buy" something from another. If you want to be successful in the long run, you have to realize that you and your suppliers are in business together; partners of sorts.

Let's have a look at the people in the company who spend that money. Buyer. Purchasing Agent. Procurement Officer. Sourcing Professional. Do these job titles confuse you? Do they mean that the personnel do different things?

They certainly do. And what's more, one can use them to convey the sense of the maturing process that many companies in particular and industry in general has undergone in the last few decades.

Consider the following three definitions:

- Purchasing: The transactional functions of buying products and services at the lowest possible price or with the most expediency
- Procurement: Involves the materials management aspects of goods and services purchased in addition to the transaction based activities
- Strategic Sourcing: The process of understanding categories, their intended use and supply markets based on rigorous analysis, in order to identify the leverage points and develop the appropriate sourcing strategy which reduces the total cost to the company

It's sort of Supply Chain Darwinism – the companies that evolve from simple purchasing to Sourcing Strategically manage their growth and remain profitable along the way. Those that don't fall by the wayside as increased needs from external supply put strains on cash flow and performance requirements.

Purchasing has been used in the past to "beat up" suppliers, especially in times of low profitability, to improve the customer's bottom-line at the expense of the supplier's bottom line. The result has always been adversarial relationships which were exploited by both customers and

suppliers from time to time based on their relative bargaining power.

In the 1980's many buyers took the approach that developing multiple sources of supply was the way to avoid the exploitation by suppliers. Over time it became apparent that fragmenting the supply base did not provide economic leverage in the supply market but only provided a moderate degree of protection against supplier manipulation, though at an increased administrative cost.

Then came a new approach to supplier relationships based on the Japanese "partnership" model. The concept was applied to many direct goods and services used in the business operations without due consideration to the actual suitability of the partnership model, not to mention the best means of managing such arrangements. While, initially, the partnerships appeared to have many advantages, over time the power base often again surreptitiously shifted to the suppliers, who were shielded from competitive forces.

In the meantime, trade barriers were coming down and a new global economy was developing. This changed the competitor map for many organisations which now had to find new approaches to remain competitive.

Globalization and deregulation in many industries, while creating pressures on competitiveness, are also creating some new opportunities, like the following:

- Globalization of the world economies has opened new low cost supply markets. One can argue that these markets always existed; however, they were not aggressively pursued because of the high risks of foreign exchange variation and the uncertainty of reliable supplies. These risks have diminished as companies have learnt to hedge imports against their exports and, with significant structural changes in the shipping and distribution industries, the ability now exists to plan the delivery of imports with greater certainty.
- The traditional procurement approach focused mainly on the price of the goods and services. With organisations reengineering their supply chains, there has been a passing of risk down the chain. For example, responsibility for maintenance is now being passed on to the supplier of the equipment. There is also greater emphasis on life cycle costs as opposed to initial costs as the basis for evaluation and selection.
- The impact of these structural changes and other market forces has made many organisations reevaluate their approach to procurement to identify the levers that can be employed to build sustainable competitive advantage. Since the forces are significant in the face of global competition, not only is the traditional area of spend - direct materials and services – targeted, but the scope has been expanded to include indirect spend. Organisations are able to realize significant benefits, without much effort, by adopting the Strategic Sourcing approach.

Let us now focus on the fundamental approach that we are promoting; it is based on the the

following mantra: In Strategic Sourcing we are acquiring categories of goods and services, not single items. This simple phrase is the jewel in the crown of Strategic Sourcing -- a kind of Rosetta Stone for Supply Chain Management to make sense of what we are doing and changing the whole mindset towards opening up real opportunities up and down the entire Supply Chain.

Using this mantra as a backbone makes the definition of Strategic Sourcing quite straightforward: The process of understanding categories, their intended use, and supply markets based on rigorous analysis.

The approach is based on analyzing the supply markets, the usage specifications or customer requirements to develop an appropriate sourcing strategy. Key aspects of the sourcing strategy include the type of procurement focus, key performance criteria, nature and time horizon of sourcing arrangements, level of decision authority required and the preferred characteristics and number of suppliers.

The results of this analysis allow you to identify key leverage points and develop an appropriate sourcing strategy, thereby reducing the total cost to the company. It aligns the procurement activities with the aim of focusing greater attention on purchases that can support the strategic intent of the organisation based on advantages in cost leadership, reduced lead times or improved quality.

There are many different versions of the fundamental rich methodology of Strategic Sourcing but the basic steps are as follow:

- Collect and Analyse Data - this is probably the first of three or four major differences in the process, as compared to the traditional approach: there is a detailed, long process of analyzing the supplier market, the industry as a whole, and the customer / internal requirements themselves. In a number of projects, we have found this to be the big challenge to the cross-functional teams in the client organisations; the people keep asking "when will we go shopping?"!
- Develop Sourcing Strategy - Based on what has been learned in the analyses, looking every which way, the team must determine what the strategy will be: do we take a fresh approach with our existing supplier(s), how many suppliers should there be, do we go to tender or just select one or more candidates and work with them, what are the really key selection criteria?
- Source - Executing the sourcing strategy may take you directly to one or more suppliers, armed with the great understanding of the requirements and alternatives gained in the analysis step, or perhaps to a reasonably traditional approach via tendering. Even in tendering, though, you are able to prepare a much more useful RFP and evaluate the responses more effectively than in the past.
- Negotiate and Implement - Another of the key improvements to be found in Strategic

Sourcing is "Fact Based Negotiation". Again, making use of the information from the first step, the approach to negotiation is very objective, very fact-based, moving away from the games and relationship-base of traditional negotiations.

An example of how effective the adherence to this strategy can be came from a major passenger train tender in Australia. The seating was one of the most important inputs from the customer satisfaction point of view (obviously!) as well as financial exposure criteria because it constituted almost 8% of the total material cost. The requirements were quite unique and primarily manufactured by one supplier within Australia.

The traditional approach would have been to squeeze the best price from the existing supplier, knowing that the other train manufacturers would also be dependent on them, and unlikely to have any competitive advantage.

However, an analysis was undertaken to thoroughly research the supply market for seating. He searched out manufacturers who produced seating for other transport applications such as ferries, and non transport applications such as entertainment and sporting venues. He found one such local and reputable supplier that was keen to expand into other segments and was ready and willing to design and develop seating suited for the train application. The design was quite radical and very cost effective, thus providing the company with a competitive advantage.

In summary, Strategic Sourcing is all encompassing in its scope and applies to both direct and indirect areas of an organization's spend. The spend analysis, which kicks off any approach to Strategic Sourcing, is the source of direction for ensuing efforts, often leading to the indirect spend area first, surprisingly only because of lack of awareness of the importance. Two major areas of indirect spend in most organisations are advertising and travel expenses, yet how often do we find that these contracts are negotiated by adopting the appropriate procurement processes to ensure a cost effective and service oriented solution? Not very often in our experience.

6. Develop a supply chain wide technology strategy

Imagine the suave and ever-elegant James Bond in his Saville Row tux at a function full of foreign diplomats, elegant ladies, and evil spies blithering on about how Q's gadget research is the key to his series of bold and daring escapes. It's about as likely as supply-chain management becoming the hot topic of conversation at corporate dinner-parties. Nonetheless it is an issue that has started to take on a certain cachet within the business world in recent years, particularly as the barons of enterprise seek new ways to protect profits in a global economy. Quite a few people have wondered why the whole supply chain concept has only become more popular recently. Given the supply chain is a must-have part for every organization since

day one, shouldn't this 'supply chain' terminology have been around a long time ago? Shouldn't the things that we have recently discussed here – like the concept of customer segmentation or the practice of driving operations from demand – have been considered and implemented virtually since cavemen first started trading rocks?

The answer is that while the supply chain 'concept' has been around for a long, long time, it had been almost impossible to implement in practice until recent years.

Remember those two flows in a supply chain, one up and one down the chain, the product flow and the information flow? It has been the rapid advancement of information technology that has both allowed and empowered firms to process the mass of information, manipulate the data, and transfer it promptly along the chain.

Think about what the supply chain would look like without a clean, steady and dependable flow of information. In the dark days of the past, there was data chaos – technology wasn't able to fully support the supply chain and information was shared only within the supply chain segment which owned the data. Sharing the information with outsiders, such as the customers or the suppliers, was too hard. Only a few things could be captured and managed with use of rudimentary databases that were periodically and manually updated. Technology mainly supported the automation of accounting processes. Systems that did exist were different across business units or even different within the same business unit. Information was available but not structured, not ready to be used. Sales representatives needed to check with the organization on product availability instead of knowing it from the system. The technology limitation placed huge constraints on supply chain management.

However, leading organizations have learned how to harness the new-found power of information technology to completely turn around the way those organizations both approach and manage their supply chains.

Learning to share information through real time data integration between supplier and customer systems has provided tremendous advantages, beginning twenty or so years ago with Electronic Data Interchange (EDI). EDI reduced the cost of ordering, enabling an increase in ordering frequency without any punitive cost implications. This increase of ordering frequency results in smaller optimal order quantities, which results in reduced inventories and, therefore, investment.

Point of Sales (POS) data tracking enables continuous replenishment. This POS data tracking is just a small part of the fully integrated databases that are automatically updated in real time. End-to-end supply chain is enhanced by the integrated system of demand planning, transportation, production and materials requirements with scenario building, optimization, and control of daily and weekly processes.

These activities account for only a small portion of how technology can improve supply chain management. Sound too good to be true? We don't think so. A large number of companies have successfully utilized this technology the way we describe.

Wal-Mart, the world's largest retailer is definitely one of those companies and the key to their success is a commitment to maximize the advantage of the information technology across its entire supply chain, oriented to enable the preceding five principles.

One of several key elements is that Wal-Mart gains leverage from its RetailLink system by allowing suppliers access to their forecasts and their actual sales from POS. RetailLink is Wal-Mart's Internet-based resource, updating suppliers about everything from invoice status, product sales per store, to the effects of markdowns and returns on inventory. With the same system, suppliers can also download the purchase orders, upload invoices, and fill out a variety of forms using secure EDI technology.

7. Use supply chain spanning performance measures

When we started out as engineers, we viewed Star Trek's Mr. Spock as a demigod, eschewing our own view that the world could be an orderly place where people behaved in the most efficient and logical manner. We thought that the technical side of things was most interesting as well as the most challenging. But, there came a point where we realized that finding the right answer, technically, was the easy part. Getting people to want to do it the right way was the hard part, more like trying to "herd cats".

The principles of supply chain management that we've been talking about offer managers a very obvious roadmap but it is hard to get people to do the right thing. We've observed over the years as different supply chain movements have come and gone - like the current ECR efforts - that the answers are clear but to get people within functions and organisations to behave the way that you need them to is the missing link.

We've understood that an efficient supply chain is built on collaboration, so why don't people and organisations collaborate more? Like training cats, the only way to overcome this behavior in people is often to offer them two types of incentives to do otherwise – financial and non-financial.

Both are driven by placing values on certain behaviors and performances and we would like to think that our company's performance measures would drive behaviors toward the results that we are seeking.

Unfortunately fur often defeats logic, because managers in the past would entrench their own biases and focuses into their definition of "performance". They never started from scratch and

determined what would make the business perform best, particularly not in broad Supply Chain Management terms. It is often the case that the organisational structure makes a company difficult to manage because the firm's organization chart defines boundaries, spans of control, and responsibilities.

An example is the universal target of minimizing inventory levels. Which inventory is it that we are seeking to minimize? It should be the total system inventory, across the whole supply chain. But, typically, organisation structures and business unit boundaries get in the way and we don't even know what the total inventory is, let alone have the means to manage it.

As we have talked through the principles of Supply Chain Management we have used the metaphor that Performance Measurement was the icing on the cake. Actually, it is more like the mortar that binds the building blocks. Without doing something to hold them together and to unite the efforts, you won't get very close to the optimal solution.

Let us give you some specifics about the so-called "World Class" supply chains:

- Performance measures span the internal and external supply chain, are operationally as well as strategically focused, and linked to customer needs satisfaction; they are developed from the customers' viewpoints and reflect cash collection, not product delivery, as the end point. Total supply chain performance is optimized and monitored continuously. Completed order fill rates (not just average line item fill rates) and total order cycle or response time are measured.
- There is a full range of hard financial and soft performance measures to ensure that customer needs are fully met. Delivery to customer requested delivery dates is measured as well as order ageing for back/late orders. Performance measures focus more on rewards or improvement opportunities within the supply chain and for customers.
- Joint goal setting between suppliers and customers is continuously reviewed for performance improvement opportunities. Customer needs are translated into integrated targets and goals across all units of the supply chain, reward systems are aligned to customer need satisfaction, cross-functional performance to achieve total process effectiveness is measured, and lost sales due to stock-outs or poor service are measured and reviewed.
- Supply chain contribution to customers' financial performance is fully monitored and understood. EVA is measured across the supply chain and from the perspective of the customer.
- Continuously updated and available performance reports in flexible formats are designed for full integrated supply chain analysis, company-wide bottom line impact is measured, performance reports enable real time, integrated adjustment of operations throughout the whole supply chain, and processes are benchmarked against global, cross-industry best in class.

Implementing leading edge Supply Chain Management is challenging but rewarding for your

bottom line. It requires a clear, logical battle plan that incorporates and integrates complex concepts such as Customer Segmentation, Performance Measurement and the enabler that is IT. However, along the way, provision must be made to "herd the cats" so that your company may live long and prosper.

All seven principles are summarized in the model below: