

**Retail Council of Canada**

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A Retailer's Guide to

# Supply Chain Management





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## Executive Summary

During the past few decades, retailers have been facing increasing competitive pressures from a number of sources. In a bid to improve profitability and efficiency, retailers are seeking ways to reduce costs, improve efficiency and enhance customer service through efficient supply chain management. However, to manage the supply chain most effectively, retailers must understand exactly what the supply chain encompasses, its key concepts, and common issues and challenges they may face as they implement a workable strategy.

With prevalent issues such as high inventory levels and low service levels, Canadian retailers are embarking on numerous initiatives to improve their supply chains. These initiatives are wide-ranging. On one end of the spectrum, retailers are still struggling with the basics – manual processes, data inaccuracies, and disparate systems. On the other end, retailers are investigating the use of emerging practices and technologies aimed at delivering substantial improvements in performance.

Many retailers are turning to technology to improve their supply chain. Technology alone will not drive optimization; however, it can be a performance enabler. Typically, retailers have implemented best-of-breed solutions or have custom-developed their own applications. Supply chain planning, event management and procurement tools are some of the many popular “off the shelf” software tools available for retail enablement. Understanding what these tools offer and how they can enable retail processes is the first step in choosing the right software for their business. However, initiatives in these areas must have strong business sponsorship and an associated business case.

Even with the right tools in place, a retailer will have to implement a variety of strategies to obtain a competitive supply chain. Some of these strategies include developing an innovative supply chain vision, focusing on differentiating competencies, utilizing dynamic global sourcing and implementing demand synchronization. With the appropriate roadmap in place, supply chain excellence can be a key competitive differentiator for any retailer.

With these factors in mind, this paper provides an overview of supply chain management in a retail setting, trends and business issues that surround it, current initiatives, available tools, and strategies for successful implementation as retailers move forward.

# A Retailer's Guide to Supply Chain Management

## Introduction: What is Supply Chain Management and why is it important for retailers?

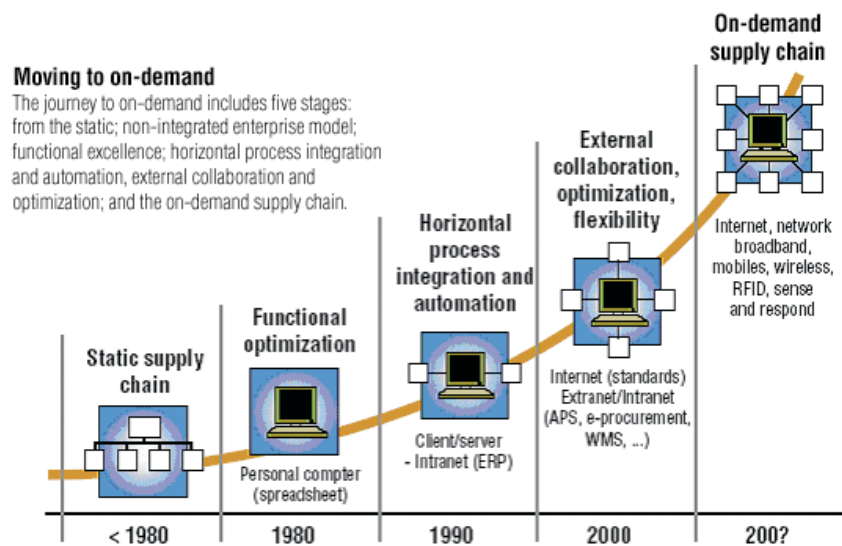
Supply chain management is a well-known term that has been highly publicized throughout the business community during the past decade. In its most generic sense, it is a term that refers to the flow of products and services from suppliers to manufacturers and retailers through to the ultimate destination – the consumer. It also refers to the flow of information backwards and forward through the supply chain between the consumer, retailers, manufacturers and suppliers, enabling the rapid replenishment of existing products or the development of new products to meet changing market demands. But how is supply chain management defined for retailers?

Supply chain management functions within a retail environment include the planning, execution, optimization and measurement of the following: sourcing/procurement, Collaborative Planning Forecasting and Replenishment (CPFR), demand forecasting (as it pertains to product quantities and time requirements), inventory replenishment, inbound and outbound transportation, store logistics and warehouse management. While each of these functions are processes unto themselves, they are all related and should, in effect, be integrated and considered holistically rather than in isolation. Further, supply chain management should be tightly integrated with merchandising, assortment planning, marketing (new product introduction), information technology, finance, and human resource management.

Supply chain management's importance has been gaining momentum and focus from retailers. There are numerous reasons for this. During the past two decades, major changes in supply chain management have been driven across a variety of industries by some common trends:

- Consumers have become increasingly demanding in terms of their expectations of price, selection, availability and quality of both products and services. They are seeking higher degrees of product and service customization. Empowered customers expect on-time delivery, self-service with real-time order configuration and status information, and optimally priced product/service bundles.
- Product lifecycles have shrunk dramatically, and as a result, speed-to-market and product innovation have become critical to corporate success.
- The development of new technology solutions and the increasing utilization of the Web have enabled optimization and connectivity between trading partners. This is evidenced by collaborative hubs, e-procurement solutions, optimization algorithms and event management solutions.
- Supply chains have become increasingly global and complex, presenting greater challenges in managing supply and demand. New customer and distribution channels are being developed, then enhanced by technological innovations and geographical expansion. Existing channels are under pressure and require constant change to retain market position.

Figure 1. On-demand Maturity Model



Source: IBM Institute for Business Value, 2008.

- Companies have dramatically increased their use of global sourcing partners for cost and capability reasons, extending the number of players involved in delivering value to a customer.
- Cost reduction continues to be a major corporate agenda item, and the costs inherent in the supply chain management functions tend to be significant in terms of overall corporate spend. Current margin pressures are severe, and supply chain performance is focused increasingly on the overall business impact and shareholder value.

These trends have moved industries from the static and functional view of the 1980s through to the horizontal process view and eventually the external collaboration view of the early 2000s. The future of supply chain management will be one of on-demand – an environment where communities of suppliers, manufacturers and retailers are linked by a supply chain Web – communicating in a real-time, sense-and-respond environment. This will be enabled by technologies such as Radio Frequency Identification (RFID), wireless, and mobility infrastructures. We will discuss the outlook for supply chain management in later sections.

The retail industry has faced tremendous change and challenge when it comes to supply chain management. In fact, there are some unique characteristics of retailing that increase the complexity of the retail supply chain:

- **Retail is a highly variable business.** Whether it is the time of year, the weather outside, the relative confidence of consumers or product promotions, retail demand for products and services fluctuates throughout the year. This fluctuation has a tremendous impact – not only for retailers who must ensure that products arrive on their shelves in the most cost-effective manner, but for all members of the supply chain who deal with the complexities of product lead times and production dependencies.
- **Retail complexity is high.** Retailers typically carry tens of thousands of stock keeping units (SKUs), further proliferated in complexity by the number of permutations and combinations associated with store-specific assortments. Canada's vast geographical area, which forces retailers to deal with the requirements of both rural and urban locations, also adds to the complexity.

- **Retailers are the last node prior to the consumer in the supply chain.** Why does this matter and why does this create added complexity for the retailer? Most suppliers and manufacturers will ship in pallet quantities. The retailer must take these pallet quantities and break them down into store-required quantities of cases and units. While a manufacturer will typically ship a relatively small number of SKUs to the retailer, the retailer must receive a high number of SKUs and sort these SKUs into store shipments. Depending on the type of retailer, the store shipments could include vastly different products – soaps, shoes, bottles, electronics, glassware and shirts – all requiring different types of handling. The in-store logistics process must then take these box/unit shipments and place the units on the shelves before they are purchased by the consumer.
- **Retail is multi-channel.** Consumers purchase product from retail stores, Web sites, kiosks, mail order and catalogues. Some product is picked off the shelf directly. Some product is shipped to consumer households. Some product is ordered via the Web and then picked up at the retail outlet. The variety of logistical scenarios must be carefully planned and executed so that product is shipped with optimal service to the consumer and minimal cost to the retail organization.

In this context, effective supply chain management becomes important for retailers as it can help them balance supply and demand. It can assist retailers by ensuring the right product is available for consumers, thereby reducing out-of-stock merchandise and providing optimal service levels. It can provide a mechanism for establishing stronger relationships with suppliers and business partners. Finally, the supply chain functions in a retail environment tend to account for a high percentage of the costs and assets associated with operating a retail environment. Therefore, retailers who have connected their supply chain processes, implemented enabling technologies, and streamlined their asset base will likely be higher performers than retailers who have loosely implemented disparate systems.

### What are the typical Supply Chain issues faced by Canadian retailers?

As Canadian retailers continue to look at their operations to identify opportunities for improvement, many are dealing with issues in their supply chain, including:

- **High inventory levels.** As discussed earlier, inventory reduction is viewed as a key opportunity for Canadian retailers. In fact, retail inventory is seen, globally, as the single most important lever for retailers to control costs, particularly during weak economic times. In the *IBM/Executive Technology Retail CIO Outlook* published in April 2003, the inventory management category was identified by 35 per cent of global CIOs as the greatest opportunity to cut costs through investment in technology.
- **Low service levels to retail stores.** In some cases, retailers struggle to ensure that the right product is available in the right quantities at store level. Some retailers have targeted specific growth categories, but have been unable to translate their growth plans into improved category performance, largely due to operational inefficiencies. Others suffered as a result of consumer feedback, an indication that the retail outlets seemed to have frequent out-of-stocks, affecting consumer brand image for the retailer and increasing lost sales due to out-of-stocks. Out-of-stocks could represent 2 per cent to 3 per cent of additional sales, rather than lost sales.
- **High transportation and logistics costs.** Delivering to hundreds of locations across Canada can represent a high cost for many Canadian retailers. Further, managing in-bound product that arrives from all over the world adds to the complexity (such as lengthy lead times) and cost. Retail logistics costs, including distribution centre operations and transportation costs, can typically range from 3.5 per cent to 4.5 per cent of sales.
- **Complexities associated with global sourcing.** Offering an assortment of products to the consumer that is competitive and of value often means retailers must search the globe for the best possible product at the lowest cost. This means sourcing from around the world, which carries the added complexity of lengthy product lead-times and supplier labour management. Supplier product costs could be as high as 70 per cent of revenues, depending on the product category.

- **Outdated and/or non-integrated technologies.** Retail is an industry populated by a wide variety of solutions areas such as point-of-sale (POS), merchandising and assortment management, business intelligence, financial management, and labour scheduling. In most cases, retailers are running legacy applications or a myriad packaged software applications that need to be interfaced. Retailers typically spend less than 2 per cent of revenues on information technology.
- **Innovation is diffused throughout the industry.** The retail industry will benefit from accelerating the spread and implementation of innovative technology and business practices. Many of the innovations will bring limited benefits – even for companies implementing them – unless the innovations are widely and quickly adopted within the industry. (Source: Retail Supply Chain Industry Innovation Panel Report, Retail Council of Canada, October 2002.)

While many retailers do not fully understand their true supply chain process costs, estimates range from 11 per cent to 15 per cent of sales, representing a very significant cost base for any retailer operating in today's difficult environment. At the root of all these issues is data. For many Canadian retailers, data management continues to be a major thrust – whether it is product, inventory level or price accuracy. For this reason and many others already discussed, supply chain management has been a key priority for Canadian retailers.

It is expected that supply chain management will continue to be a key priority for Canadian retailers as a result of the following:

- Wal-Mart continues to define operational excellence in the area of supply chain management and retailers are taking lessons from the world's largest retailer. Canadian retailers also acknowledge that to become a player of world-class status and to compete in the global retail economy, they must come equipped with world-class supply chain operations and know-how.
- With the ongoing global instability, uncertainty over the direction of interest rates and fluctuating oil prices, Canadian retailers have dealt with a level of consumer confidence and spending which in the past 12 months amounted to slow (or in some retail segments negative) same-store sales growth. This slow growth left many retailers with more inventory in their stores and distribution centres than there was demand for, thereby forcing retailers to look at cost reduction opportunities as a means to improve corporate profitability.

- The proliferation of technological advancement and communication standards such as RFID, Global Trade Item Number (GTIN), ECCnet and others are forcing retailers to understand these global/local initiatives and how they can potentially apply them to optimize the supply chain in their own environments. For instance, the Uniform Code Council, Inc. (UCC) has announced the 2005 Sunrise date initiative. This initiative requires U.S. and Canadian retailers to have the capability to scan and process EAN-8 and EAN-13 symbols, in addition to 12-digit UPC symbols, at the POS by January 1, 2005.

### What are some of the current Supply Chain initiatives retailers are working on?

Companies today are placing more emphasis on the supply chain to transform their business model. They are radically changing the way an organization senses, thinks, interprets and reacts. More and more, successful companies are organizing their supply chains horizontally (as opposed to the traditional vertical functional silos) and orchestrating end-to-end extended supply chains, or value chain networks. They are extending the “four walls” inside their enterprises by integrating more with the “outside” – through sharing knowledge and innovation with suppliers.

Retailers are reviewing their supply chain practices and defining visions for the future; but at the same time, they are fixing the basics – cleansing data, defining improved metrics, standardizing business processes and practices, training staff, and integrating technology – all in hopes of developing a low-cost supply chain that competitively positions the organization for the future.

Let us examine what Canadian retailers are currently doing to improve their supply chain, focusing on current initiatives. (Future initiatives and trends will be explored in a later section.)

**Collaborative Planning, Forecasting and Replenishment (CPFR).** Retailers are interested in finding ways to reduce inventories and improve their ability to both anticipate and fulfill consumer demand. They are improving their forecasting and merchandise planning activities and finding ways to work with manufacturers and suppliers to reduce cycle times and inventories throughout the entire supply chain. They are also looking at ways to replenish inventory rapidly through auto-replenishment tools and ways to improve working capital such as Scan-Based Trading.

**Radio Frequency Identification (RFID) assessment.** Canadian retailers are assessing – and in some cases piloting – RFID technology. They are closely watching Wal-Mart and other key

retailers, including Metro AG, to determine the readiness of the technology and the success of rollout efforts. More importantly, they are developing their own business cases to link the use of RFID technology to business benefits and implementation costs. Metro AG's “Future Store Initiative” has delivered very strong results to date – results that will increase the visibility and popularity of retail technologies such as RFID. Concerns, while minor, are mostly associated with privacy issues – for example, the extent to which retailers have knowledge about the products consumers have in their homes.

**Buying optimization.** Retail organizations are performing strategic sourcing reviews, streamlining their buying practices and policies and investigating the potential for e-procurement technologies, particularly for non-merchandise spend. These projects tend to be low-risk but are associated with high returns: reduction in uncontrolled, unapproved spending from 5 per cent to 30 per cent; bulk discount savings of up to 20 per cent; and, significant reduction in administrative costs. They are also continuing to review their merchandise buying practices and looking for ways to reduce costs, improve inventory levels and better manage their base of suppliers. This is particularly important for Canadian retailers who are sourcing products from around the globe.

**Data synchronization.** Retailers are also looking at ways to synchronize their data with that of their trading partners. It has been shown that inaccuracies in the supply chain contribute to approximately 10 to 15 per cent of total out-of-stocks. In addition, standards in data synchronization such as UCCnet and ECCnet have created a common way for retailers and manufacturers to define product and pricing information. Data synchronization enables rapid purchase order and invoice reconciliation, eliminates data re-entry and reduces catalogue errors. For example, the Hardlines E-Collaborative Commerce Committees in the U.S. and Canada are bringing together buyers and sellers to implement e-commerce solutions that improve consumer value in the overall hardlines supply chain.

**Reviewing supply chain network infrastructure.** Revisiting the supply chain network is no small feat. Few retailers are interested in reviewing the cost-effectiveness and service levels supplied by distribution centres to retailers across Canada. This process normally involves utilization of sophisticated algorithms that take large amounts of data and determine costs and benefits of alternative network designs. There are other retailers who are constructing new distribution centres to support their growth and productivity objectives.

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**Outsourcing non-core functions.** At a macro level, the retail industry has not yet, unlike other industries, outsourced core business processes such as human resources. However, retailers have outsourced supply chain functions and continue to outsource application management services (not complete outsourcing of information technology, but rather outsourcing of selected application support functions, such as help desk).

**Legacy application replacement.** Some Canadian retailers are running portions of their supply chain with custom-developed applications, but more and more of these custom applications are being replaced with packaged software applications. For example, a number of Canadian retailers are replacing their legacy warehouse management solutions with off-the-shelf packaged software. These projects tend not to focus on the technology alone but involve changes to business processes, people, the organization, and metrics in order to improve service levels from the distribution centre and/or lower service costs.

**Supply chain visibility / information flow.** Canadian retailers are looking for ways to improve supply chain visibility across the entire pipeline. Supply chain event management tools have provided the capability to view end-to-end processes across the supply chain. This end-to-end view can help identify bottlenecks for both product and information flow, allowing appropriate resolutions to take place.

**Supply chain processes automation.** Many supply chain automation applications now exist in retail. Automated data collection is a common application, due to the increased use of data collection devices and the high penetration of data warehouses. Also, many technologies in the logistics space – such as robotics – have improved productivity dramatically, justifying their initial capital expenditure.

While some of these initiatives involve the implementation of technology, retailers are developing business cases to support changes to their supply chain environment. The technology initiatives are usually preceded by a business process improvement initiative and subsequent business case linking the identified process and organizational changes with the technology implementation.

## What tools are available to enable improvements in Supply Chain Management?

There are a number of tools available to enable effective retail supply chain management. These tools span a variety of purposes – some are used to manage planning; some are used for transaction-level processing; some are used as optimization algorithms; others are integration tools that link suppliers to manufacturers to retailers.

The retail industry is characterized by a plethora of different systems. In fact, most retailers have taken a best-of-breed approach to their information technology architecture, as opposed to implementing Enterprise Resource Planning (ERP), (which is more widespread in the consumer packaged goods industry).

Listed below are examples of off-the-shelf software systems that impact and enable supply chain management in a retail environment. This is not meant to be an exhaustive list of tools, nor is it meant to represent a rating of available products. It is simply representative of the potential tools available in each category.

- **Merchandise and assortment planning systems.** While some would argue that merchandising and assortment planning functions are not supply chain functions, they do have an impact on a retailer's supply chain as they impact store service levels and inventory levels. Tools from GERS, JDA, Retek, SAP and STS can be used to assist in the merchandising and assortment planning process. More broadly, these tools offer additional capabilities in supply chain management from both a planning and execution perspective.
- **Supply chain planning and optimization.** In terms of CPFR and/or any other type of retailer/supplier collaboration, there is a variety of tools available to retailers. Some of the aforementioned tools (from JDA, Retek and SAP, plus tools offered by PeopleSoft and Oracle) offer Web-based collaboration functionality. There are also other specialized tools from i2, Manugistics and Synchra Systems. In addition to CPFR and Web-based collaboration, both i2 and Manugistics offer transportation optimization functionality as well as supply chain network optimization tools. They utilize alert-type functionality and exception-based management to highlight issues in the supply chain that require management attention.

- **Warehouse Management Systems (WMS).** There are a wide variety of WMS products in the marketplace to support the needs of the retail industry, such as Catalyst, EXE and Manhattan. WMS products tend to focus on optimizing the flow of goods within the four walls of the distribution centre, but also offer some functionality aimed at inbound and outbound transportation planning and execution.
- **Event management.** There are a number of products, including some listed above, which offer event management functionality. These products enable detailed tracking of supply chain events such as product movement or equipment breakdown (i.e., supplier downtime) and provide mechanisms to identify alternatives. Products include i2, Manugistics, Red Prairie, SAP and Viewlocity.
- **Marketplaces and exchanges.** There are a number of marketplaces that can be utilized to improve supply chain management performance. Transportation organizations such as the National Transportation Exchange (NTE) and Freightwise provide a mechanism for retailers and manufacturers to buy and auction transportation space. Simple auction marketplaces such as eBay are being used to sell close-out or defective but saleable inventory and supplies no longer required by retailers. The World Wide Retail Exchange (WWRE) offers members functionality such as collaboration, data synchronization, negotiations and auctions, demand aggregation, and order management.
- **Procurement tools.** While some of the broader off-the-shelf products from JDA, Retek and SAP offer procurement functionality and Web tools to assist in the procurement process, other more specialized e-procurement tools exist (e.g., Ariba, which is being used by STAPLES Business Depot, Target and Hallmark).

- **Data synchronization.** As is the case with other areas, some of the broader application solutions such as SAP, JDA, Synchra and i2 offer solutions for data synchronization. ECCnet offers Canadian retailers a standardized online forum for data, images and bar code communication. Other marketplace tools are offered by Trigo, Lansa and IBM (Websphere Business Integrator and Crossworlds).

- **RFID.** Radio Frequency Identification is a highly popular topic for supply chain professionals. The concept of tagging pallets, cases and items with a radio frequency-enabled tag that can be read immediately and enable real-time tracking of product throughout the supply chain is a concept that is expected to transform supply chain management as we know it today.

Third-party logistics is not a tool in terms of application software but is worth mentioning because it can enable improvements in supply chain. A number of retailers have already outsourced a portion of their supply chain to a third-party logistics organization. An outsourcing relationship, if properly managed, can benefit a retailer in terms of improving service levels while reducing overall costs.



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## Where is Supply Chain Management heading in the future?

A number of retailers are taking the necessary steps to simplify their supply chain, reduce overall costs, reduce stock-out occurrences and reduce inventory levels. They are looking at the implications of technologies such as wireless and RFID on the supply chain. But how would one describe the characteristics of the future supply chain?

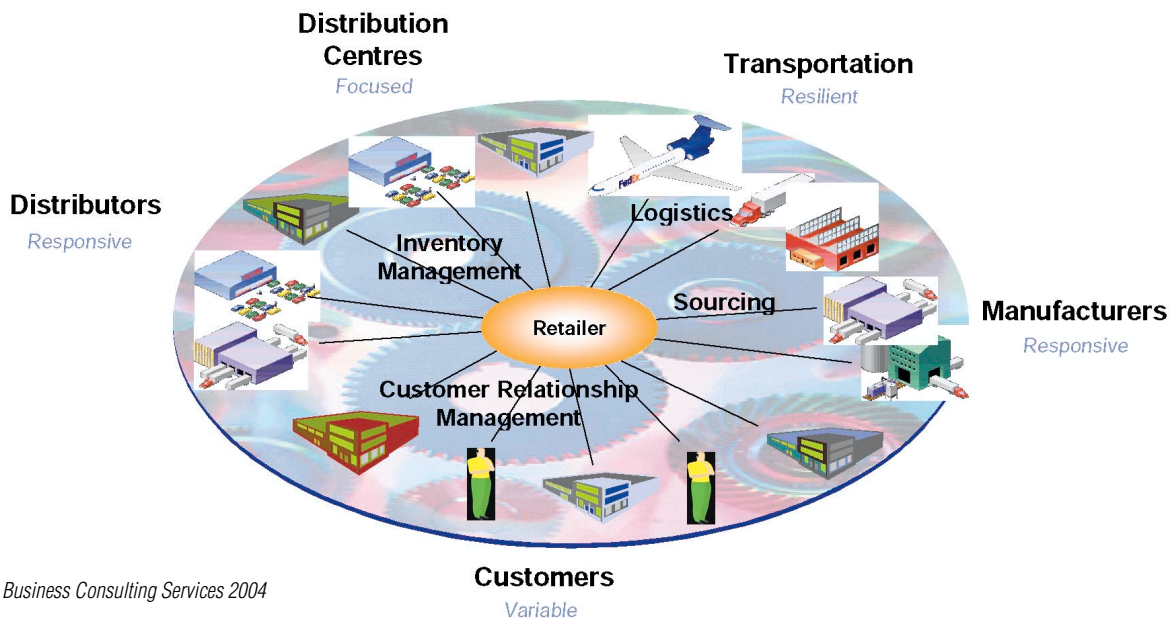
Based on knowledge of what supply chain leaders in various industries are planning and doing – both within and outside of the retail industry – we have identified the strategies that successfully competitive supply chains are utilizing. They include:

- Innovative supply chain vision
- A focus on differentiating competencies
- Dynamic global sourcing and demand synchronization
- Use of emerging technologies

**Innovative supply chain vision.** The winners in today's competitive landscape will deploy smart supply chain models that deliver game-changing standards of service at competitive cost. They will connect the end-to-end value chain and differentiate supply chain approaches based on product/customer segments. Successful innovation is the key driver for revenue growth, competitive margins and, in some cases, even survival. Increasingly, this innovation has to be delivered through a virtual network of partners working together in a collaborative environment to bring product and services to market faster, smarter and cheaper. Retailers such as Wal-Mart and Zara have developed game-changing supply chains that provide their organizations with a competitive advantage.

**Focus on differentiating competencies.** The trend toward global sourcing and increasing use of partners for supply chain activity is set to continue, fueling the growth of networked value chains. Retailers are already sourcing global products and increasing their use of partners for areas such as logistics, transportation and distribution. Driving this trend is the imperative to not only seek unit cost advantage and secure best market capabilities, but also to share risks with partners and create a pay-as-you-use variable supply chain model. Operations excellence in managing all supply chain functions remains a foundation for any world-class supply chain. However, a new perspective on operations excellence is required, not only in what a company does but also in what a company's supply chain partners do and how a business orchestrates them.

Figure 2. Integrated Retail Supply Chain Model



Source: IBM Business Consulting Services 2004

### **Dynamic global sourcing and demand synchronization.**

Global sourcing patterns will continue to shift dynamically in search of lower-cost sources. In addition, retailers will continue to rationalize and harmonize their own global value chain resources in search of more efficient and effective means of satisfying global customer demands. Fast, flexible, efficient and transparent response to changing customer demands and supply shocks remains the goal for supply chain management and will be essential to compete in this new world.

**Use of emerging technologies.** Innovative new technologies (such as RFID) continue to emerge that enhance and transform supply chain capabilities and afford new ways to deliver and finance technology infrastructure on a pay-as-you-use basis. This type of model will be a critical enabler that delivers new capabilities, enhances ROI and supports fast, modular implementation of supply chain concepts across multiple value chain partners. For example, a major retailer created a supply chain that is driven by customer demand and supply chain events. The first to implement supplier electronic collaboration, which was extended to Vendor Managed Inventory (VMI), this company is now using RFID tags and scanners for inventory management, auto-replenishment and loss prevention.

## **What steps should retailers be taking now to improve their Supply Chain?**

### **1. Assess where you are now**

Transformation of the retail supply chain is a journey and requires a roadmap, or structured approach, on how to get there. The journey should begin with a diagnostic assessment of your company's current supply chain performance, and comparing it to a future end state. The assessment should also analyze how your company is positioned relative to leading practices of other companies both within and outside of the retail industry.

As a company matures through the various stages of a static enterprise model – functional optimization, horizontal process integration, external collaboration, on-demand supply chain – certain characteristics are evident. A diagnostic assessment will help you determine where you are on the maturity model and help you prioritize initiatives that will have the greatest impact on shareholder value and ROI. Based on this assessment of your supply chain maturity in terms of processes, organizational aptitude and enabling technologies, you can begin to formulate a supply chain vision and strategy.

### **2. Develop a strategy for making change**

Your strategy should include the following key steps:

- Identify the company's core supply chain differentiators and capabilities, and assess current performance.
- Determine which functions could be better performed by a partner, and begin to identify these partners.
- Define the supply chain process components and needs for organizational reconstruction.
- Define the measurement framework, which is aligned with business objectives and goals. Set targets and thresholds for the key supply chain performance indicators.
- Evaluate the financial and operational value to be achieved in terms of financial performance and operational performance characteristics such as cycle time, quality and service level attainment. Use modeling tools to simulate end-state financial statements and operational performance criteria.
- Define the real-time information and connectivity vision, including an open and services-based technology architecture, required to support the vision.
- Prioritize which initiatives will have the greatest impact on growth, operational excellence, ROI and shareholder value.

### **3. Create a roadmap to achieve transformation**

Transformation requires a roadmap that establishes the steps required to achieve the vision. Each supply chain component has associated performance criteria – both financial (e.g., costs, revenue influence) and operational (e.g., cycle time, quality, service level attainment). The initiatives with the greatest business impact, both financially and operationally, can be prioritized and implemented with speed to bring value to the organization. A transformation portfolio should be created which focuses on these prioritized initiatives.

### **4. Achieve the benefits of a new approach**

A new mindset is required for implementing the strategy. The old model of fixed strategy and long implementation times is dead. In its place, companies are demanding either rapid ROI or an ROI that is self-funding, with a modular approach to implementation, often involving pilots followed by a scale-up.

More scrutiny is now being placed on the delivery and tracking of benefits, helping to ensure that benefits flow through to the bottom line and that multiple supply chain initiatives do not “double account” for benefits and overstate the business case, especially in inventory and process cost reductions. On-demand implementation approaches (e.g., gain sharing, pay-as-you-use) can provide the impetus to kick-start major transformation programs and generate the change momentum required to build a longer-term vision.

### GLOSSARY OF TERMS

**3PL** (Third Party Logistics): The use of an outside party to perform some part of the logistics function, typically trucking or warehousing. It is appropriate if there are economies of scale in logistics function.

**ABC** (Activity Based Costing): An accounting method that attempts to closely associate costs, particularly indirect costs, with the activities that generate the costs.

**ASN** (Advance Shipping Notice): An electronic message from the shipper (or supplier or sender) to the customer that the product has been shipped and is expected to arrive during a specified time interval.

**ASP** (Application Service Provider): A firm that provides both computing power and business software to businesses via the Web. A business that uses an ASP can be billed per transaction, so that a small firm might be able to use a powerful piece of software without having to pay a high fixed license fee for it.

**APS** (Advanced Planning & Scheduling): A computerized system that extracts real-time information from the supply chain, with which to calculate a feasible schedule, resulting in a fast, reliable response to the customer. APS utilizes planning and scheduling techniques that consider a wide range of constraints to produce an optimized plan.

**Assortment Planning:** A process to define a retailer's selection of merchandise. Includes both the depth and breadth of products carried.

**Best of Breed:** Systems or functions that exhibit the highest level of performance in their class. Tradeoffs occur in multiple-function systems when the costs of integrating several systems offset the benefits of having the best system in each individual area.

**CPFR** (Collaborative Planning, Forecasting and Replenishment): A set of guidelines for how participants in a supply chain share information, mainly forecasts and plans for promotions. See <http://www.cpfr.org>

**Client/Server ERP:** A networked information processing architecture in which information and the ERP program are stored on both servers and clients, and processed cooperatively as the client processor interacts with the server. Tasks may be local, shared, or centralized.

**Collaborative Hubs:** An information technology solution that transparently handles the transfer of information between trading partners.

**Cross Docking:** A system for operating a distribution centre in which product from inbound vehicles move almost immediately to outbound vehicles without being put into storage. The supplier of the inbound product may be a completely different firm from the receiver of the outbound product. The major purpose of a cross-docking distribution centre may be to "break bulk" at some level (e.g. down to the skid level).

**Demand Forecasting:** The process of calculating and predicting future demand events usually based on extrapolation from past experience, and with varying degrees of uncertainty.

**Demand Synchronization:** The timely and accurate updating of any item (i.e., product) information within and across enterprises to ensure a consistent match of data between the owner/originator of the product data and all users of the data.

**ECCnet:** Canada's online, standardized product registry for synchronized data exchange. Product listing through the ECCnet registry is already a standard term and condition of trade in the Canadian grocery, pharmacy and foodservice sectors.

**E-Procurement Solutions:** Software solutions that allow the purchase and sale of supplies and services over electronic networks such as the Internet.

**ERP** (Enterprise Resource Planning): A comprehensive software system that has coordinated modules to perform all the standard business data processing functions such as: general ledger, accounts receivable, accounts payable, asset management, HR/payroll, forecasting, purchasing, inventory, materials requirements planning (MRP), production planning, warehouse management, sales, order management, and distribution.

**Event Management Solutions:** Information technology that allows extraction and analysis of real-time information from the supply chain. These solutions can monitor the status and promote the execution of events throughout the production and distribution process — from sourcing to ordering to delivery.

**GTIN (Global Trade Item Number):** A code, similar to UPC, for identifying products or SKUs.

**Lost Sales:** An analysis of actual/potential unsatisfied demand due to lack of inventory.

**Marketplaces and Exchanges:** Virtual medium that allows common groups of entities to undertake business transactions. They can focus on either indirect or specific direct goods and services, and may be built around vertical (industry specific) or horizontal (cross industry) lines.

**Maverick Spending:** Refers to purchases made with non-preferred or non-contracted service providers and may mean higher prices are paid for goods and services, service level agreements with contracted service providers are not honoured and potential probity issues.

**Merchandise and Assortment Planning Systems:** Information systems that allow an organization to effectively advertise, promote, and organize the sales of a particular product. Generally involves both in-store and outside store activities that promote a product, including pricing, assortment, product placement, signage, displays, etc.

**Merchandising:** The activities associated with selling products, such as identification of the market, advertising at the right time in the right media, and creating attractive packaging and displays.

**Optimization Algorithms:** An unambiguous formula or set of rules for solving a problem in a finite number of steps resulting in an optimal solution.

**Outsourcing:** The hiring by firm X of an outside firm Y to perform some activity Z that might otherwise be performed by X.

**POS (Point-of-Sale):** Data typically accumulated by retail scanners. Users of these data have up to the minute information on how much of what product was sold when and at which outlet.

**Postponement:** A modification to a production and distribution process, so that some operation on the product is done later in time and closer to the final customer. Typically, there are two motivations: a) less inventory needs to be carried earlier in the process because of risk pooling, and b) transportation costs may be reduced because the not-quite-complete product is easier to transport.

**Procurement:** The process of acquiring supplies or services from external sources, beginning with the determination of a need for supplies of services and ending with contract completion or closeout.

**RFID (Radio Frequency Identification):** A type of label or badge that is read electronically rather than optically. The reader need not touch the label in order to read it. Typical storage content is 126 bits of information.

**SKU (Stock Keeping Unit):** A distinguishable product. e.g., mushroom soup/10oz, mushroom soup/20oz constitute two different SKUs.

**Supply Chain Planning & Optimization:** The set of supply chain activities that focus on evaluating demand for material and capacity and formulate plans and schedules based on meeting that demand and company goals. System functions often involved in the planning cycle include Master Production Schedule (MPS), Materials Requirements Planning (MRP), Rough Cut Capacity, Capacity Requirements Planning (CRP), Distribution Requirements/Resource Planning (DRP) and Advanced Planning and Scheduling (APS).

**UCC (Uniform Commercial Code):** A standard set of laws governing commercial transactions (bills of lading, letters of credit, bank deposits, etc.) adopted by all states in the U.S. except Louisiana (it uses a variant of the Napoleonic code).

## A Retailer's Guide to Supply Chain Management

**UCC** (Uniform Code Council): An industry group to promote multi-industry standards for product identification or bar codes. See <http://www.uc-council.org>

**UPC** (Universal Product Code): A 10 to 12-digit machine-readable numeric product code that originated in the food industry. The first several digits represent the manufacturer, the remaining digits the product.

**VMI** (Vendor Managed Inventory): An inventory management policy whereby the supplier decides when to restock product at his customer's site based on up-to-the minute usage information from the customer. These agreements typically include a penalty to be paid by the supplier if there is a stock out, and an upper limit on how much inventory can be carried at the customer. The payment arrangement may allow the customer to pay for product only when the customer uses it. The customer must provide the supplier with up-to-date information on stock level and perhaps even forecasts of future usage.

**WMS** (Warehouse Management System): A software system for tracking where product is stored in a warehouse, generating pick lists, and prompting the proper outbound shipments.

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## ONLINE RESOURCES

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### RETAIL COUNCIL OF CANADA

Founded in 1963, Retail Council of Canada is the Voice of Retail. It is a not-for-profit association whose more than 9,000 members represent all retail formats, including national and regional department stores, mass merchants, specialty chains, independent stores and online merchants. [www.retailcouncil.org](http://www.retailcouncil.org)

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### ECCnet - Canada's National Product Registry

Provides retailers and distributors with clean, standardized data. [www.eccnet.org](http://www.eccnet.org)

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### Global Commerce Initiative

A voluntary body created to improve the performance of the international supply chain for consumer goods through the collaborative development and endorsement of recommended standards and key business processes. [www.gci-net.org](http://www.gci-net.org)

## ABOUT THE AUTHOR

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Lino Casalino leads the retail industry practice in Canada for IBM Business Consulting Services. With more than 15 years of consulting experience, Lino specializes in helping companies solve complex business problems through the application of both business and technology solutions. Lino has assisted more than 40 leading consumer packaged goods and retail companies over the course of his consulting services career. Designated a Certified Management Consultant (CMC) and Professional Engineer of Ontario (PEO), Lino holds a Bachelor of Applied Science and Engineering from the University of Toronto, and a Master of Business Administration from the University of Georgia. Lino can be reached at:

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