

## **Information Technology and Supply Chain Management Practices in Global Business Organizations –A Study**

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### **ABSTRACT**

Today the four Cs – Customers, Competition, Change and Cost, are driving companies to embrace IT, the related technologies of e – commerce and EDI including SCM and BPR for sheer survival. These 4 Cs are together creating a new world for business. Companies have to dynamically respond to these forces and adjust to the new parameters through the judicious use of Information Technology. I.T is being leveraged to provide competitive edge in products and services at lower costs. By streamlining their supply chain, organizations can maximize revenues, reduce cost and expand their business. Organizations can now efficiently manage huge supply chain spanning many countries across the globe.

21st century is the century of information technology (IT) and globalization. Information technology is playing its significant role in the betterment of the organizations. This paper explores role of IT in managing supply chain management. The paper employs the archival method of reviewing related literature (theoretical, applied and empirical) and organizing and presenting the propositions for future empirical research.

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**Key words:** Information Technology, Supply chain management, Radio Frequency, Identification, ERP.

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### **Introduction**

No matter what business you are in, the days of managing your supply chain from the back-office are over. Today's successful companies understand that a lean, efficient supply chain maximizes revenue and helps stimulate growth and the top executives at these companies aren't afraid to wield their supply chains like competitive weapons in the boardroom.

For as long as anyone can remember, manufacturers, distributors and retailers have battled to make the phrase 'out-of-stock' a thing of the past. With the advent of the Internet, and the subsequent e-commerce revolution, supply chain solutions were finally capable of doing what so many companies had long dreamed about: Managing their inventories in real time the result? Streamlined interactions with partners and suppliers, faster transactions and reduced

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inventory and delays. In just a few short years it became common for companies to manage vast supply chains that stretched across the globe and were capable of handling orders, inventory, shipments, forecasts, production and service fulfilment.

Not surprisingly, Information Technology (IT) sits at the heart of these and most other supply chain advances. Specific technologies may vary from company to company, but the underlying principles remain the same: To create a seamless pipeline where product is handled minimally but moves at maximum velocity. The result is a supply chain that can be managed according to a 'lean' philosophy – an approach that takes the customer order as a starting point and works down the rest of the chain, eliminating waste and trimming processes that don't add value along on the way. Existing back-end systems, like accounting. If your company currently uses Enterprise Resource Planning (ERP), the chances are good that there are cost reductions and other benefits hidden in your system right now, waiting to be discovered. This is especially true if you own an extended ERP system that comes with an integrated solution, like Business Intelligence (BI), Customer Relationship Management (CRM) or e-commerce, because most ERP solution providers are eager to assist customers in developing new – and nuanced- supply chain efficiencies based around their business.

Supply chain is the entire process of accepting a customer order through to the delivery of the product to the customer inclusive of supply procurement and production of the product. A supply chain is a collection of inter-dependent steps, when thoroughly followed gives raise to a certain objective as meeting customer requirements. SCM is a generic term, encompassing. The coordination of order generation, Order taking, Offer fulfilment/distribution of products, services or information.

Supply Chain Management is integrating management practices and information technology to optimize information and production flows among the processes and business partners within a supply chain. SCM is a management concept that integrates the management of supply chain process.

### **IT and Supply Chain Management**

In today's highly competitive and global environment, companies need to improve effectiveness and efficiency.

SCM, as a major part of business operations, plays an important role for organizations to achieve competitive advantage Good supply chain management can help a company to meet market demand. A good supply chain is that which is able to move product to market faster and cut the cost of moving goods from the source to the customer. The wide applications of IT make it possible for organizations to improve the overall business operations. Supply

chain managers increasingly want to automate all of the supply chain, from forecasting to distribution and to every element of the chain. Today, companies want an integrated solution to enable them to see the entire supply chain at once. For instance, they want to know that if they drill down to forecast, they can see demand history, which is a combination of data which comes from sales order processing, inventory management and the warehousing system. Less human intervention and the flow of parts and products along the supply chain can help dramatically in cutting logistics costs and boosting customer satisfaction.

“To survive, let alone win, a company must be part of world class performance”. Hence companies need to work together and optimize the complete pipeline by establishing a seamless supply chain (“think and act on”) to maximize their market share.

The global industry of today demands logistics managements to plan and execute customer-led, profit driven tactics, where an array of alternative production and procurement methods is deployed simultaneously. SCM is the philosophy that underpins the logistics business in the Royal Air Force . RAF is developing a new IT system, LITS (Logistics Information Technology Strategy) to support SCM. Table1 provides examples of corporations that provide IT tools/services and corporations that have successfully implemented IT related software packages in SCM. The strategy in SCM is to optimize product and information flow from the purchase of raw material to the delivery of finished product, with the aim of achieving ever higher levels of productivity, quality, innovation and alliance between the company and its vendors and customers. Companies exploiting IT and related technologies are successfully implementing this strategy. For example, Benetton, of Italy, is often cited as one of Europe’s success stories. It does not have its own manufacturing facilities or retailing outlets and serves as a merchandiser and distributor, who contracts manufacturing and sell through franchised outlets. Using its excellent IT system Benetton responds to the pull of the marketplace to schedule manufacturing and directs to correct products to its customers.

**Table 1:** Corporations that provide IT tools.

Allied-Corp.	Global company integrating SCM services to industrial clients worldwide
CAPS logistics Inc.	Specializing in decision optimization software for supply-chain modeling Chesapeake Decision Sciences, Inc. Provides software and services for developing supply-chain and scheduling solutions
CyberSystem Technologies	Inc. Offers fully-automated, supply-chain management systems, called intraMalls
Global Information Solutions	Provides logistics/supply-chain software products and custom programs
i2 Technologies	Provides clients/server based eBPO software products for

	SCM and related business
InterTrans Logistics Solutions	Provides enterprise-wide, integrated client/server SCM software applications
LogicTools,	Inc. Develops SCM tools for intelligent strategic, operational and tactical decision
Lyte Group	Inc. Offers integrated SCM and planning software solutions
Supply Chain@ Solutions	Developer of application software to manage the supply-chain environments of manufacturers, wholesalers, etc.

**Table 2:** Corporations that have Direct benefits from IT implementation in SCM

Cardinal Logistics	Inc. Increased customer service; reduced customers' inventory levels; IT related software packages reduced customers' transportation costs
Compaq	Increased on-time delivery to 95 percent; decreased inventory; decreased order-to-receipt cycle time to five days
Cumberland Packaging	Decreased inventory by 10 to 15 percent, or approximately by \$2 million; reduced production costs substantially
Data Card	Reduced engineering change process time from two weeks to two hours
Kobe Copper Products	Increased the information sharing across the company dramatically. Approximate saving of \$270,000 per year on account of this information sharing
Pair Gain	Saved millions of dollars by strengthening corporation among employees and outside business partners; cut change cycle time by nine weeks
Philips Semiconductors	Increased forecasting accuracy; decreased inventory levels; integrated logistics and marketing functions
Thompson Consumer Electronics	Reduced planning cycle time from four to five weeks to one week; reduced raw materials, work-in-process and finished goods inventory substantially
Xircom	Increased the speed of engineering change order cycle by five times; permitted instant broadcast of product data worldwide

Note: Adapted from <http://emeraldinsight.com/10.1108/09576050010378540>

Following propositions are made on the basis of the above discussion:

Proposition 1: IT is positively correlated with business operations of the company.

Proposition 2: IT is positively correlated with global supply chain management system.

**Emerging technologies that will affect the supply chain:**

The most notable is Radio Frequency Identification (RFID). RFID tags are essentially bar-codes on steroids. Whereas bar-codes only identify the product, RFID tags can tell what the product is, where it has been, when it expires – or whatever information someone wishes to program into the bar-code. RFID technology is going to generate mountains of data about the location of pallets, cases, cartons, totes and individual products in the supply chain. It's going to produce oceans of information about when and where merchandise is manufactured,

picked, packed and shipped. Its going to create rivers of numbers telling retailers about the expiration dates of their perishable items – numbers that will have to be stored, transmitted in real – time and shared with warehouse management, inventory management, financial and other enterprise systems. In other words, it is going to have a tremendous impact.

Another benefit of RFIDs is that, unlike bar- codes, RFID tags can be read automatically by electronic readers. Imagine a truck carrying a container full of widgets entering a shipping terminal in China. If the container is equipped with an RFID tag, and the terminal has an RFID sensor network, that container's whereabouts can be automatically sent to a customer without the truck ever slowing down. It has the potential to inject a substantial amount of visibility into the extended supply chain.

Right now the two biggest hurdles to widespread RFID adoption are the cost of building the infrastructure and the lack of agreed – upon industry standards.

### **Conclusion**

An effective supply chain is an intricate network of suppliers, distributors and customers who share carefully managed information about demand, decision and performance, and who recognize that success for one part of supply chain means success for all. In other words supply chain management is a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses and stores so that merchandise is produced and distributed at the right quantities, to that right location, and at the right time, in order to minimize system wide costs, while satisfying service level requirements.

The world has now become a global village. Borders and barriers are going to be vanished. In order to operate effectively in an environment of borderless markets, global multinational corporations have to manage their philosophy in order to sustain in this environment of globalization and information technology. Information technology is a great truth of this century and it has a great impact on globalization.

This paper discusses the role of information technology for SCM. Multinational companies which are implementing IT and related technologies are enjoying competitive advantage over the companies which don't do the same.

In this paper, several areas of SCM are taken and discussed how IT has already helped or can help in these particular areas. Previous literature has been taken in this study. One of the limitations of this study is that it is based on secondary data. In future, primary data could be used to support the argument that IT has a direct relationship with SCM.

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