HOW DELL, INC. ENHANCES ELECTRONIC SUPPLY CHAIN MANAGEMENT AND E-COMMERCE MARKETING FOR SUCCESS

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Abstract

Information technology is an important aspect of the electronic Supply Chain Management (e-SCM) and e-Commerce (EC). Advances in information technology, particularly in the Internet, enables companies to share information within and inter-organizations. The Internet and its three important types of networks: Intranet, Extranet, and Web allow organization to transfer digital data instantly and with high fidelity at nearly zero marginal cost. Information sharing is a vital aspect of coordination amongst parties in a supply chain. Information sharing can increase supply chain efficiency by reducing inventories and smoothing production. And e-commerce can enhance selling online and help better understand customers. IT-enabled Supply chain efficiency is highly important as today's competition is no longer between companies, but between supply chains. This paper discusses the trend in e-SCM or IT-enabled SCM and e-Commerce by examining how IT, the Internet in particular: intranet, extranet, and Web transform and streamline Dell's SCM and e-commerce for success.

Keyword: information sharing, ICT, Web, SCM, e-commerce

INTRODUCTION

Information technology has increasingly become a necessary component of business strategy and a strong catalyst for economic development. The strategic integration of information and communication technology (ICT) in business has revolutionized relationships within organizations and those between and among organizations and individuals. Specifically, the use of ICT in business has enhanced productivity effectively: smoothly information sharing, encouraged greater customer participation, and enabled mass customization, besides reducing costs as depicted in Figure 1.

Firms are effectively using new IT and wireless telecommunications to improve service and delivery processes. Through secure Intranet systems and business-to-business (B2B) e-commerce platforms, the focus is on improving information management: integrating internal systems with external partners—like Dell's practice of giving customers the ability to match supply and demand because its customers order computer

configurations over the phone or online through Web site or Internet. These computer configurations are built up from components that are available.

IT, particularly the Internet and Web technology, creates a new environment for exchanging information and conducting business transactions. More than ever possible before, the Internet increases the quantity and expands the richness of information in real-time to a much wider set of participants and thereby raises dramatically the value of information in supply chain management (see Figure 1).New information technologies and e-commerce solutions have transformed supply chain operations from mass production to mass customization as conducted by Dell, Inc.

Dell, Inc. is known throughout the world as a leader in supply chain management (SCM) and just-in-time (JIT) manufacturing. Relying heavily on a vendor managed inventory (VMI) model, Dell

has nearly eliminated inventory cost while maintaining a JIT manufacturing strategy. Key to supporting this strategy is the ever changing and increasing number of suppliers needed to manage inventory for Dell.

The power of SCM and e-commerce are well exemplified by Dell, Inc. Dell's two-level marketing channel or direct-sales model is well known to the business community. Dell's PCs are made by electronic order and are delivered directly to its customers. By adopting two-level of marketing channel and distribution, Dell has eliminated the middleman within their supply chain and has also exemplified an innovative business model through its effective supply chain management. Dell Computers continues to enhance and broaden its competitive advantage by integrating the Internet into its entire business process, including online marketing &sales, procurement, customer support and CRM.

This paper first discusses information technology, particularly the Internet affects Dell's electronic SCM and e-Commerce, and how the electronic SCM or IT-enabled SCM transforms and streamlines supply chain management and e-commerce. Then the impacts of the Internet and Web technology on supply chain management and e-commerce are discussed. Next, Dell's successful electronic supply chain management and e-commerce implementation are illustrated and discussed.

THEORETICAL FRAMEWORK

Information Technology - the Internet Technology: Intranet, Extranet, and Web

Information Technology is the collection of the computing systems in an organization, or organization's collection of information systems, their users, and the management that oversees them [5,27]. Information Technology, in its narrow definition, refers to the technological side or the technology component of an information system. In practice, ICT refers to the technology component of information system (IS) which emphasis on the "communication multimedia or equipment." [39] An IS as one that collects, processes, stores, analyzes, and disseminates information for a specific purpose [31,29,37]

Basically, the Internet consists of computers with data, users who send and receive the data files, and a technology infrastructure to move, create, and

view or listen to the content [2,8]. An Intranet is a network that funs internally in a corporation using Internet standards. An Extranet is an Intranet to which value chain partners are admitted for strategic reasons [7,13]. The Web-based system is the part of the Internet that supports a graphical user interface for hypertext navigation with a browser [38]. The roles and positions of Internet, intranet, and extranet in a firm's activities are clearly delineated in Figure 1 and 2.

Table-1 Similarities and Differences between the Internet, Intranet, and Extranet

Descriptions	The Internet	Intranet	Extranet
Access	Open/ Public	Private	By Agreement Only
Information	Fragmented	Proprietary	Selective - Shared by Business Partners
Users	Public / Everybody	Organization Members	Business Partners

Table 1 clearly delineates the comparison among the Internet, intranet, and extranet. And the general applications of extranet by major factors are shown in Table 2, and the Internet versus intranet is shown in Table 3.

Table-2 General Applications of the Extranets by Major Sectors

Sector	Application
Government	Electronic filing of SEC documents and fax documents
Manufacturing	Order status, and online order placement by customers
Pharmaceutical	Gathering test data from different sources for drug testing conducted by researchers throughout the world
Service Industry	Providing access to corporate databases, account information and for transfer of funds to their customers
Transportation	Allowing customers to check into the availability schedules for their truck, rail and air fleets
Utilities	Allowing customers to access account and utilization status

How Does Internet Affect Supply Chain Management?

The relationship between information technology and the supply chain can be explained as: IT is responsible for integrating the supply to achieve greater capabilities and profits [10]. The primary role when it comes to supply chain management is

creating the integration of processes and information within a firm such as marketing, finance, sales, manufacturing and distribution as depicted in Figure 1 and figure 2.

It is also responsible for the integration between firms which brings about smooth flow of information and products between customers, suppliers and the transportation through 3PL (third party logistics) as delineated in Figure 1 and Figure 2. IT integrates the decision making process, business operating processes and information sharing for business performance management. Thus the relationship that exists between IT and the supply chain is one in which IT improves the supply chain through integration. IT has made it possible bring the notion of an integrated supply chain to life [32].

The most direct effect of the Internet is to create new opportunities to improve the efficiency and effectiveness of the operation of the supply chain and exchange processes through e-commerce [28,36]. This is because of the cost-effective capacity to generate visibility across all aspects of the supply chain, including point-of-sale information, manufacturing schedules, vendor stocks, customer inventories, demand patterns, marketing& sales initiatives, and carrier schedules [35].

Impacts of the Internet in SCM

The Internet changes the way companies do business [33]. The changes are permanent in the transition from the industrial economy to the network economy. SCM has been enabled by convergence, which refers to the integration of computer and communication technology [40]. The Internet-strengthened power of convergence can be depicted in two aspects:

- Ubiquitous and low-cost connectivity makes it possible for small and mid-sized companies to take advantage of SCM techniques.

- Speedy network transmission helps businesses realize seamless and real-time communications and transactions.

The Internet and Web technology's contribution to SCM and e-Commerce

The Internet and Web technologies can support the entire supply chain's operations. Internet-based supply chain operations are fast and inexpensive. Customers can instantly check the status of their orders by simply clicking their computer mouse. Corporate executives and managers can conduct real-time access to firm's inventory level, and so do their suppliers and distributors as depicted in Figure 1 and Figure 2. The Internet and Web technology made the following contributions to SCM:

- Developing e-commerce applications: E-commerce consists of buy-side e-commerce (e-Commerce procurement) and sell-side e-commerce (e-Commerce Marketing) as shown in Figure 1 and 2. EC Marketing plays an important role in SCM because it supplies the critical data of customers and sales information to the whole partners that engaged in SCM. Customers' data could be from individuals or organizations - such as B2C, B2B, B2G e-Commerce marketing that are needed by all supply chain partners in terms of meeting customer satisfaction. Web technology offers a variety of supports for online communications and transactions. A supply chain management serves as the back-end application by linking suppliers, manufacturers, assembling manufacturers, distributors, and retailers in a cohesive production and distribution network while e-Commerce marketing serves as the front-end application by linking a firm with its customers.

- XML-based information exchange and sharing: EDI plays an important role in the evolution of SCM. Trading partners used EDI for information exchange, such as sending requisitions and receiving purchasing orders. The XML (Extensible Markup Language) based Internet system allows organizations to exchange data on a transaction-by-transaction basis. As XML documents and XML schema are text-based, they can be transmitted through HTTP protocol.

- Applications integration: Applications integration is one of the most important IT strategies since it can create or modify the interactions among related applications and to encompass canned software, legacy applications and Web services.

- Comprehensive integration of various technologies: IT in various forms and combinations ranging from Internet, Web-based Technology, HTML and XML to different applications and systems including ERP, CRM, SCM, and enterprise application integration

(EAI), are enabling business processes and creating new business contexts for companies to operate effectively and efficiently in real-time.

- Partners' collaboration: Collaboration among trading partners helps SCM participants gain great benefits from providing end customers with high quality, low cost products through flexible and efficient distribution. Web technology boosts the supply chain visibility by providing more real-time data from all links of the supply chain, resulting in greater collaborations among trading partners.

The Concepts and Definitions of Supply Chain Management

While SCM is as old as trade itself, new ICTs have revolutionized today's supply chains, making them extraordinarily better, faster, and cheaper. Dell's suppliers play a key real-time role in keeping production, distribution, and information flowing smoothly. Better supply chain models do not just help manufacturers of physical goods, but also service businesses such 3PL or a third party-logistics, including those that require great creativity, imagination, and specialized knowledge.

A supply chain is a concept describing the flow of materials, information, money, and services from raw material suppliers through factories and warehouses to the end customers. A supply chain also includes the organizations and processes that create and deliver these products, information, and services to the end customers [37]. Supply chain can be broken down into three major parts:

- The upstream supply chain: This includes the activities of a company, with its first-tier suppliers and their connection to their suppliers (referred to as second-tier). The supplier relationship can be extended several tiers, all the way to the origin of the material. In the upstream supply chain, the major activity is e-procurement or e-Commerce procurement.

- The internal supply chain: This includes all of the in-house processes used in transforming the inputs received from the suppliers into the organization's outputs. It extends from the time the inputs enter an organization to the time that the products go to distribution outside of the organization.

- The downstream supply chain: This includes all of the activities involved in delivering the products to the final customers. The

downstream supply chain is directed at distribution, warehousing, transportation, and after-sale services as depicted in Figure 1 and 2. A company's supply chain involves an array of business processes that not only effectively transform raw items to finished goods or services, but also make those goods or services attractive to customers. Downstream supply chain plays an important role in marketing functions to attract and retain customers. Both upstream and downstream supply chain are also known as "external supply chain" as depicted in Figure 1.
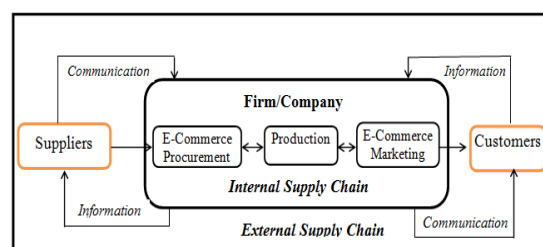

Figure-1 Real-Time Information Sharing Within and Inter-Organization

According to [24], the SCM concept is an integrating philosophy for coordinating the total flow of a supply channel from supplier to ultimate user. Initially, the concept of a supply chain refers to the flow of materials from their sources (suppliers) to the company, and then inside the company to places where they are needed.
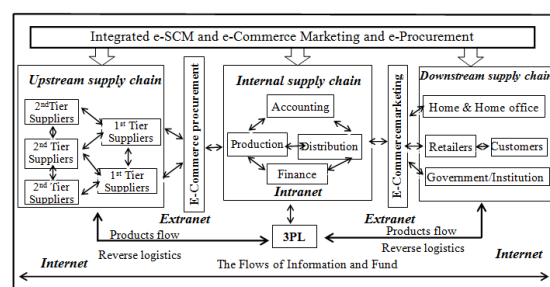

Figure-2 Integrated e-SCM and e-Commerce Marketing and e-Procurement

When a supply chain is managed electronically, usually with Web-based software, it is referred to as an e-supply chain. It should be noted that as the Internet becomes more pervasive and ubiquitous, the distinction between IT-enabled supply chains and e-supply chains is rapidly diminishing. Most supply chains now involve a mix of Web-based, Internet, Extranet, Intranet, and other information systems to ensure efficiency and uninterrupted

flows of goods and services in a timely manner. The improvements in supply chains frequently involve an attempt to convert them to e-supply chains, namely, to automate the information and financial flows in the chain. Information sharing can increase supply chain efficiency by reducing inventories and smoothing production. IT-enabled Supply chain efficiency is highly important as today's competition is no longer between companies, but between supply chains.

The firm applies effective SCM processes that include (1) integrated computer systems that provide production schedules and demand forecasts to all supply chain members, and (2) collaborative programs-management tools that allow manufacturers and suppliers to synchronize activities and respond to events in real time. According to [33], the critical processes involved in SCM include (1) Customer Relationship Management – CRM (2) Suppliers Relationship Management – SRM (3) Customer Service Management – CSM (4) Demand Management (5) Order Fulfillment (6) Manufacturing Flow Management (7) Product Development and Commercialization (8) Return Management.

The key elements of SCM and highlights the important integration that must take place among a variety of business functions and across several different organizations in the supply chain. Supply chains should be managed in an integrated manner. Integrated SCM focuses on managing relationships, information, and material flow across organizational borders to cut costs and enhance flow. Firms following the SCM approach look for ways to integrate their logistics, procurement, operations, and marketing functions with other supply chain members so that materials, information, component parts, and finished product flow seamlessly from point of origin to final user at low unit cost and at high levels of service as depicted in Figure 1. Leading supply chain–oriented firms focus intensely on monitoring actual user demand, instead of forcing into markets product that may or may not sell quickly. In so doing, they minimize the flow of raw materials, finished product, and packaging materials, thereby reducing inventory costs across the entire supply chain [24].

Partnerships are the Critical Ingredient, in recent times, many companies have redesigned their supply chains to outsource some part of their supply chain activities, often with the help of sophisticated, Web-based EC and IT support

packages. To integrate activities across the supply chain, close working relationships are required. SCM may require that all firms in the supply chain share sensitive and proprietary information about customers, actual demand, point-of-sale transactions, and corporate strategic plans. SCM involves significant joint planning and communication; firms often create teams of personnel that cut across functional and firm boundaries to coordinate the movement of product to market.

CASE STUDY: CASE BACKGROUND

Dell Computer Corp., known as Dell, Inc. was founded by Michael Dell in 1984. By 1993, Dell, Inc. had become one of the top five computer makers worldwide, threatening Compaq, which started a price war. At that time, Dell Inc. was taking orders by fax and snail mail and losing money. Losses reached over $ 100 million by 1994. The company was in trouble [15].

Furthermore, although Dell, Inc. was the largest PC vendor in the world, but its chief advantages – direct marketing and power over suppliers – were losing their punch. The percentage of 2005 PC sales via the phone and Internet fell in the U.S. as the sales through U.S. retail stores rose – a channel in which Dell was absent. By 2006, the once torrid growth in PC sales had slowed to about 5 percent a year. The research questions are:

- How does Dell, Inc. survive from its losses?

- How should Dell, Inc. adjust to its changing environment?

DISCUSSION AND RESULT

Discussion: The analysis and solution

The commercialization of the Internet in the early 1990s and the introduction of the World Wide Web in 1993 provided Dell with an opportunity to expand rapidly. Dell implemented aggressive online order-taking and opened subsidiaries in Europe and Asia. Dell also started to offer additional products on its Web site. This enabled Dell to batter Compaq, and in 2000 Dell became number one in worldwide PC shipments. At that time, Internet sales topped $50 million per day (about $18 billion per year). Dell sells about $62 billion a year in computer-related products online, from network switches to printers, employing over 88,000 people. Dell survived from its losses of over

US$ 100 million through a best-practice leader at seamlessly integrating e-marketing and SCM to enhance all processes across and an extended supply chain and e-Commerce. Dell sells its product lines to the following groups:

– Individuals& Households: homes and home offices

– For Businesses / Institutions / Government / Health-care organizations / Partners:

  • Small and Medium-sized Enterprises (SMEs with up to 200 employees)
  • Large Corporations(over 200 employees)
  • Institutions/education, Government, and health-care organizations
  • Partners

1) Business-to-Consumer E-Commerce Marketing (B2C EC Marketing)

Sales to the first group are classified as B2C e-commerce. Consumers shop at dell.com using an electronic catalog. The sales are completed using mechanisms of e-commerce platform. Business-to-customer (B2C) sales are facilitated by standard shopping aids (e.g., catalogs, shopping carts, credit card payments. Dell matches supply and demand because its customers order computer configurations over the phone or online (Internet). These computer configurations are built up from components that are available. Dell's strategy is to provide customized, low cost, and quality computers that are delivered on time. Dell successfully implemented this strategy through its efficient manufacturing operations, better supply chain management and direct sales model. Dell's product lines and its markets as shown in Figure 3:
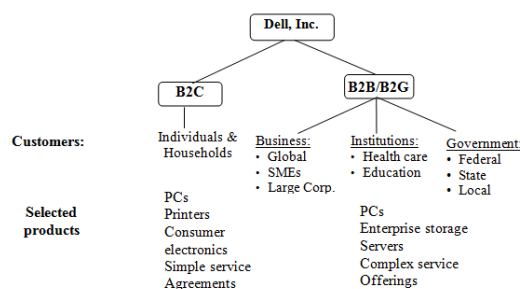

Figure-3 Dell's e-Commerce Marketing & Product Lines

2) Business-to-Business E-Marketing Commerce (B2B EC Marketing)

Sales to the other four groups are classified as B2B e-commerce. Most of Dell's sales are to businesses that cover SMEs, Large enterprise Institution/educational, Government, and health-care organizations. B2B customers obtain additional help from Dell where Dell provides each of its nearly 100,000 business customers with Premier Dell service as shown in Figure 3.

British Airways as an example considers Dell to be a strategic supplier. Dell provides notebooks and desktops to 25,000 British Airways users. Dell offers two e-procurement services to British Airways purchasing agents. The more basic service, Premier Dell, allows British Airways and other businesses to browse, buy, and track orders on a Dell Web site customized for the user's requirements. The site enables authorized users to select preconfigured PCs for their business unit or department. A more advanced version, Premier B2B, supports e-procurement systems. This provides automatic requisition and order fulfillment once an authorized user has chosen to buy a PC from Dell. British Airways has placed the e-procurement tools on its E-Working intranet. This allows authorized staff to purchase PCs through a portal that connects directly into Dell's systems.

3) Dell's IT-enabled SCM

Dell demonstrates effective IT-enabled SCM in conducting business. Dell adjusts to its changing environment by deploying a comprehensive integration of IT-enabled SCM and e-Commerce.IT-enabled SCM enables to communicate and collaborate (e-collaborate) with its many business partners with whom it needs. Dell uses shippers, such as UPS and FedEx, to deliver its computers to individuals. It also uses third-party logistics companies to collect, maintain, and deliver components from its suppliers, and it has many other partners. Dell is using Web Services, an e-commerce technology, to facilitate communication and reduce inventories. Web Services facilitate B2B integration. Integration efforts began in 2000 with other technologies when Dell encouraged its customers to buy online. The B2B integration offer combines Dell Power Edge servers based on Intel architecture and Web Methods B2B integration software to link customers' existing ERP (enterprise resource planning) or procurement systems directly with

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Dell and other trading partners. In addition, Dell can provide-procurement applications and consulting services. Dell also educates customers in its technologies and offers suggestions on how to use them. This is particularly true for emerging technologies such as wireless. Dell has a superb communication system with its over 15,000 service providers around the globe.

Dell demonstrates e-CRM effectively. Dell uses a number of different tools to provide superb customer service around the clock. To leverage customer relationship management (CRM)—a customer service or e-customer service approach that is customer centered for lasting relationships—Dell provides a virtual help desk for self-diagnosis and service as well as direct access to technical support data. In addition, a phone-based help desk is open 12 hours a day and seven days a week (24/7). Customers can also arrange for a live chat with a customer care agent. Product support includes troubleshooting, user guides, upgrades, downloads, news and press releases, FAQs, order status information, a "my account" page, a community forum (to exchange ideas, information, and experiences), bulletin boards and other customer-to-customer interaction features, training books(at a discount), and much more. Dell also offers educational programs at learndell.com. Dell keeps a large customer database. Using data mining tools, it learns a great deal about its customers and attempts to make them happy. The database is used to improve marketing as well.

Dell demonstrates successful Intra-business e-commerce.IT-enabled SCM fully supports Dell for mass-customization. To support its build-to-order capabilities, significantly improve its demand-planning and factory execution accuracy, reduce order-to-delivery time, and enhance customer service, Dell partnered with Accenture to create a new, high-performance supply chain planning solution. Now in place in Dell's plants around the world, the program, which paid for itself five times over during the first 12 months of operation, enables Dell to adapt more quickly to rapidly changing technologies and the business environment, maintaining its position as a high-performance business. Dell also has automated its factory scheduling, demand-planning capabilities, and inventory management using information technology and e-supply chain models.

Dell adopts effective e-marketing strategy. Dell's promotional programs links to a variety of Websites by which Dell provides affiliate partners the opportunity to link from their Websites to dell.com. Dell pays 2 to 4 percent on any qualified sale made from clicking on Dell's link at the partners' Websites. In addition, Dell auctions refurbished Dell computers and other products atdellauction.com. Online auctions are an important sales channel. In 2006, Dell opened physical stores, mainly in reaction to customer demands. IT-enabled SCM also helps Dell manage its reverse products or reverse logistics as delineated in Figure 2.

The Result

Dell succeeded in achieving competitive advantages through the deployment of IT-enabled SCM and effective e-commerce by which attributed to its direct-sales model in mass customization; build-to-order and sell direct to customers. This made Dell excel over its competitors through effective IT-enabled SCM and e-commerce, and survived from losses of over US$100 million in 1994.Dell has been one of Fortune's top five "Most Admired" companies since 1999, and it continuously advances in the rankings of the Fortune 500 and the Fortune Global 500.

Despite the slow PCs market forced Dell's revenue to drop, its core competency in strong IT-enabled SCM and e-commerce helped Dell manage 15 percent increase in product shipments as industry volume dropped 5 percent in 2001. As a result, Dell surpassed Compaq to become the No. 1 PC maker in the world in 2001.

Since the percentage of 2005 PC sales via the phone and Internet fell in the U.S. as the sales through U.S. retail stores rose - a channel in which Dell was absent. Dell responded this changing business conditions by restructuring its operations where all sales to businesses are now managed centrally, rather than from three regional headquarters around the globe. At the same year, Dell opened physical stores to match its competitors and customer demands. Dell's major competitor, HP, regained its "top PC maker" position in 2006, leaving Dell in second place, and stayed in the lead through 2008.

In 2008 the company cut its workforce by 8,000. It also launched a blog called Direct2Dell

(direct2dell.com). Dell also is expanding its business not only in the computer industry but also in consumer electronics. Despite these challenges, Dell is clearly an example of e-business, e-marketing, and e-commerce success firm. Dell has over 100 country-oriented Websites, and profits are nearing $3 billion a year.

CONCLUSION AND MANAGERIAL IMPLICATION

Conclusion

Dell matches supply and demand because its customers order computer configurations over the phone or online. This allows Dell to know what he must be able to supply in real time and then very quickly and precisely meet that demand while maintaining low inventory. These computer configurations are built up from component that are available. Dell's strategy is to provide customized, low cost, faster, and quality computers that are delivered on time. Dell successfully implemented this strategy through its efficient manufacturing operations, better supply chain management and direct sales model. Dell also saves time on processing orders that other companies normally incur in their sales and distribution system. In addition, by directly dealing with the customer Dell gets a clearer indication of market trends. This helps Dell to plan for future besides better managing its supply chain.

Dell has succeeded in exploiting the advantage of the Internet to improve performance, and establish a unique e-commerce model by embracing the Internet in its supply chain. Dell brings products to market faster than its competitors: Dell uses direct sales via Internet, whereas traditional PC manufacturers previously assemble PCs ready for purchase at retail stores. PCs have life cycles of only a few months. Thus, Dell enjoys early-to-market advantage.

As shown in Figure 3, how Dell attracts large business customers is o facilitate B2B sales, the Dell site offers each customer an individualized interface called "Premier page" where purchasing managers log on and order using an interface customized for their company's needs while Dell's consumer sales are highly visible, its business sales are much bigger revenue source: "About 15% of our total revenue is consumer business and the rest is B2B" says Bob Kaufman, Media Relations manager of Dell.

Dell computers are a good example of a successful supply chain management system which has led to a successful business. Dell incorporates a highly efficient built- to-order business model or mass customization which enables it to deliver customized products to its users. Buyers can click through Dell and assemble a computer system piece by piece based on their budgets and needs. Dell employs supply chain tools to provide global views of forecasted product demand and materials requirements as well as improved factory scheduling and inventory management.

Entering this 21st century, Dell listens to customers and delivers innovative technology and services they trust and value. Uniquely enabled by its direct business model, Dell sells more systems globally than any computer company, placing it No. 34 on the Fortune 500. Dell's climb to market leadership is the result of a persistent focus on delivering the best possible customer experience by directly selling standards-based computing products and services. Revenue for the last four quarters totaled $58.2 billion and the company employs approximately90, 400 team members around the globe.

Managerial Implication

IT, The Internet in particular is just one component of Dell overall strategy: It simply extends the firm's reach, and it must be integrated into the overarching strategy the firm uses to reach and interact with its customers. Even at Dell, where the firm operates at the phase-four level of e-commerce - full transaction capability – the Internet is just one approach to the marketplace. According to Chairman Michael Dell, "We work with customers face-to-face, on the telephone, or over the Internet. Depending on the customer, some or all of those techniques will be used; they are all intertwined, "(Financial Times Guide to Digital Business,1999).

Although Dell, Inc. has successfully integrated new IT and human knowledge for success, but due to super competitive markets, Dell should need to continuously design and develop new and innovative products, product development and enlargement, and technology innovation to meet customer satisfaction.

Dell recently deployed i2TradeMatrix supply chain tools, further enhancing the company's global supply chain management and demand fulfillment processes. The deployment team completed extensive testing before selecting a platform based

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on Dell servers running Windows NT. This means Dell has made the selection process and the architecture designed to run the i2 tools.

The challenge for Dell, Inc. is that Dell's commitment to green environment or "The Green Supply Chain Management."We believe in the future, most countries or people prefer friendly environmental products and technologies. Many experts predict that we will see a major expansion in "green" supply chain initiative whereby companies are committing to design, source, manufacture, and manage the end-of-life stage for all of their products in an environmentally and socially responsible manner. Other initiatives include developing green packaging and refurbishing products to avoid or minimize landfill waste. One study showed that for many manufacturers, between 40 and 60 percent of a company's carbon footprint resides upstream in its supply chain- from raw materials, transport, and packaging to the energy consumed in manufacturing processes [24].

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