THE APPLICATION OF E-COMMERCE IN SHIPPING AND WAREHOUSING INDUSTRY

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ABSTRACT

The implementation of e-business and e-commerce provide the value of virtual computer-based interactions and transactions. It causes the traditional value chain that revealed the sequentially flowed business process shifts to the customer-oriented value chain that are not sequential anymore. This paper will discuss about how the integration of e-commerce or e-business changes the way business work within its organization itself and between its trading partners and customers in the shipping and warehousing industry. It will be done in accordance to the strategy that is used by the company. Also, it will discuss the competitions in this industry at a glance. Since new business models are necessary to integrate e-commerce initiatives with overall business goals and strategy, then, this paper will take a closer look at the use of such technology to conduct business in order to be a leader in their industry and to leverage the business competitive advantages. How Fedex, as a leader in shipping and warehousing industry, build its e-commerce will be presented in detail to drive the readers understanding to this topic. Finally, this paper will discuss about its implication to the accounting profession.

Keywords: e-commerce, logistic, value chain, shipping and warehousing industry, accounting profession

1. INTRODUCTION

The Internet phenomenon has become one of the most fascinating technological shifts that effect the businesses in many aspects, such as customer asset management, supply chain management, manufacturing, banking and financing, retailing as well as marketing. Electronic business (e-business) and electronic commerce (e-commerce) are two of the emerging concepts that have become popular terms nowadays.

E-commerce can be defined as the use of electronic mediums (telecommunications) to engage in the exchange, including buying and selling, of products and services requiring transportation, either physically or digitally, from location to location (Kalakota and Whinston, 1997). The way businesses interact with each other is fundamentally changing since transaction can be done by electronic medium such as filling order entry from the Internet. The products themselves can be delivered by traditional physical shipping channel or downloaded them from the Internet.

E-commerce can also be viewed as a set of electronic, networked transactions, including those pretransaction and posttransaction activities performed by buyers and sellers. It also can be described as an evolving utility of packaged software applications that link multiple enterprises and customers, for the purpose of conducting e-business, before and after sales as well as during execution of the sales itself. E-commerce requires business strategies that is focused on optimizing the relationships between businesses as well as between businesses and consumers, making sure each is capable of using information technologies. A firm that does e-commerce with other businesses as customers is called business-to-business e-commerce (B2B E-Commerce). Otherwise, if it ties the firm with customers or end users, it will be called business-to-consumer e-commerce (B2C E-Commerce).

On the other hand, the term of e-business has a broader sense, not only just cover the activities of selling and buying, but it also encompasses other activities instead of 'commerce' itself. Those activities include production, transportation, distribution and other business activities.

2. ANALYSIS

Being inevitably for its dramatic impacts on businesses, there is an effort to formulate e-commerce in a business' strategic objectives. Such formulation is depicted by the following figure.

Figure 1.
Business and E-commerce goal congruence
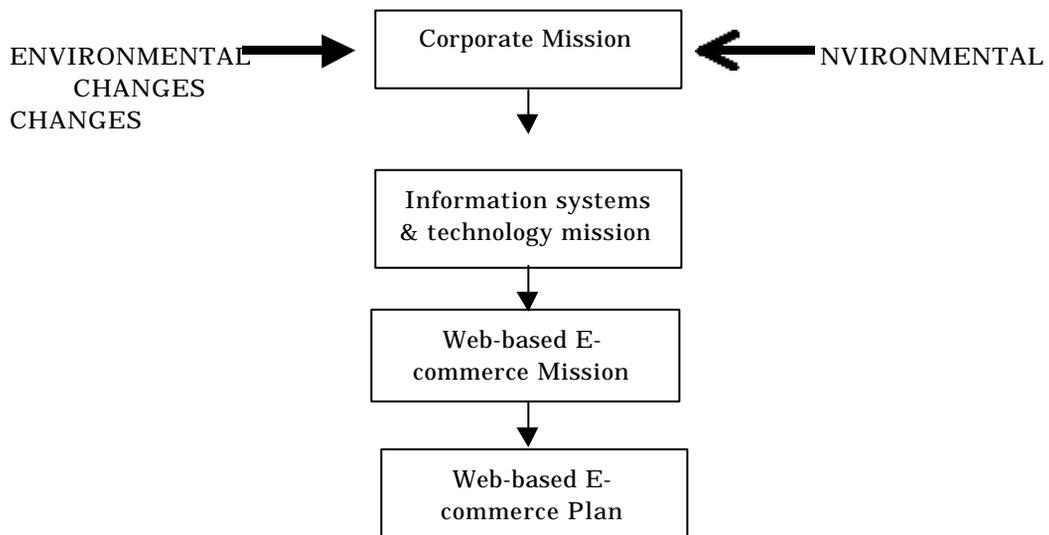
(Source: Greenstein and Feinman 2000: 10)

Global business trend and new technology advancement may affect the business environmental changes. These changes, in turn, may force the businesses to rethink

and adjust their corporate mission and goal. Once the company settles its adjusted mission and goal, then the information systems and technology mission can be set to help company to achieve their corporate mission and goal by deriving it into the web-based e-commerce mission and plan.

2.1 The Impact of Electronic Commerce on the Value Chain

In traditional value chain, information systems data is flowing sequentially through the processes from supplier – within the business – to customers. With e-commerce, supplier, business and customer share information at many stages of the value chain. Thus, the flow is not sequentially anymore. Electronic commerce changes the traditional value chain to customer-oriented value chain, as depicted in figure 2. It enables the customers to access the supplier's information system at virtually every phase. For example, customers can access to the supplier's inventory system and place an order electronically. Then, customers can check the shipping status of their order directly though the supplier information systems that is provided (for example: through the supplier's website). Basically, in this scheme, customers are allowed to enter the company's internal information system network.

Figure 2.
Customer-Oriented Value Chain
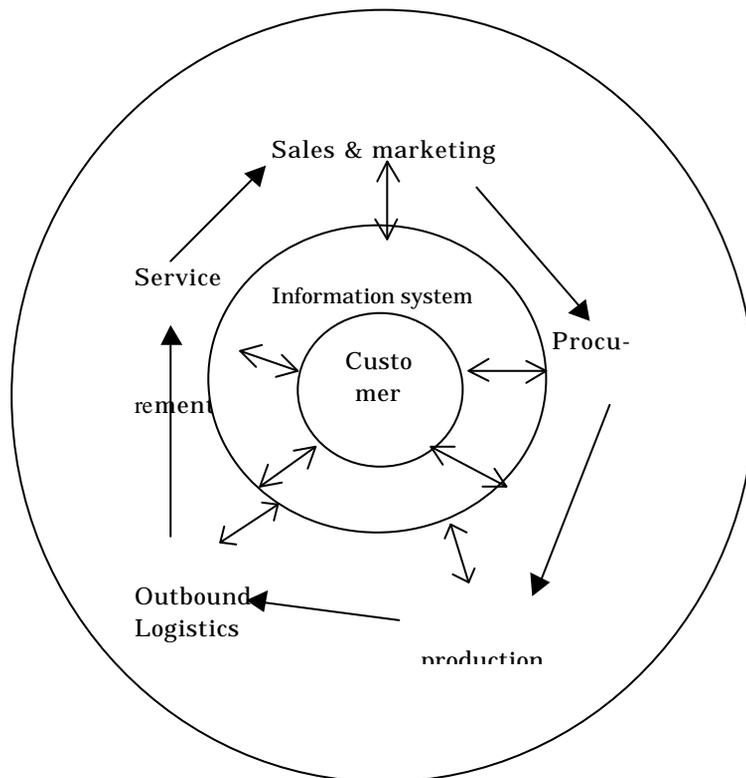
(Source: Greenstein and Feinman 2000: 14)

The process of integrating suppliers and customers more closely for efficiency and cost saving, creates a virtual enterprise in which it is difficult to tell where one organization begins and ends. In 1997, Albert Angehern developed The ICDT Business Strategy Model. ICDT stands for Information, Communication, Distribution and Transaction.

This model, as seen in figure 3, consists of many elements: Virtual Information Space, Virtual Communication Space, Virtual Distribution Space and Virtual Transaction Space.

Figure 3.
The Expanded ICDT Model
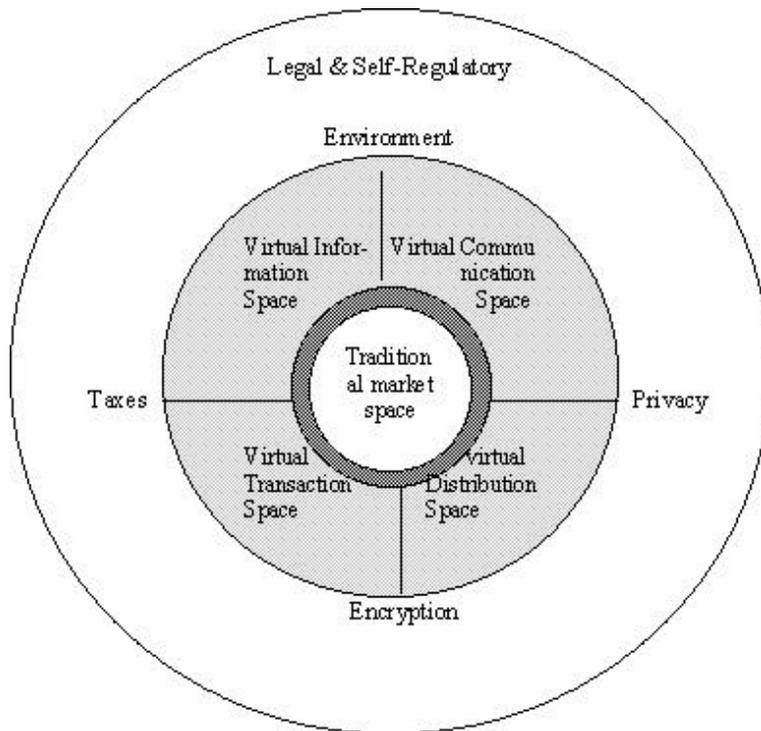
(Source: Greenstein and Feinman 2000: 15)

Virtual Information Space is where companies display information about their organizations, products and services in the internet he company first enter to the virtual market. Virtual Distribution Space is a space that is used to deliver the requested products or services by customers, for example delivering product such as software, electronic or digital book and journal. It means these products are transferred to the customer through the electronic medium. Virtual Transaction Space is where they can initiate and execute business transaction, for example receiving sales order from and sending purchase order from their website. Here, the security of data will be a very important issue. Virtual Communication Space can be used to enable relationship

building such as negotiation, exchange information and idea by establishing forum, chat room and virtual community.

2.2. Supply Chain and Logistics Functions

The concept of supply chain and logistics are very important to understand how the e-commerce affects the shipping and warehousing industry. Supply chain management focuses on shortening the travel time associated with both finished goods and work-in-process goods so that the ability to produce the orders is faster. It also expected to lower the cost of maintaining the inventory and eliminating distribution inefficiencies in order to boost revenues. The Council of Logistics Management has defined logistics to be

> "the process of planning, implementing, and controlling the efficient flow and storage of raw materials, in process inventory, finished goods, services and related information from point of origin to point of consumption (including inbound, outbound, internal and external movements) for the purpose of conforming to customer requirements." (Langley et all. 2000)

Understanding logistics and how it can be optimized across the supply chain can lower cost and increases customer satisfaction. So that the company's competitive position can be achieved. The information needed in the logistic chain are: (Loebbecke and Powel 1998: 17-27)

- A single data input
- Information arriving before the goods
- Information regarding delivery status accessible at any time
- Immediate notification of delays or other delivery problems
- Integrated communications services to all members of the logistic chain
- Integration of existing data processing and communication/data exchange system
- Interfaces to other logistics networks such as air carriers or cargo community systems
- Communication/data exchange at least across certain regions, ideally globally

A firm supply chain consists of three major parts: internal functions, upstream suppliers and downstream customers: (Helm 1999:99-106)

- The internal functions are the process of procurement, production, and distribution that are used to transform raw materials to finished products. Coordinating and scheduling of these processes are very essential to ensure everything is right on its way.
- The management of upstream supplier network ensures that the right material is received at the right time and right location. The focus is on selecting a few good suppliers and maintaining a good relationship with them
- The management of the downstream customer network ensures that customers receive the products they want in timely manner. The focus is on the distribution channels that the firm employs to send the product to the end customer.

Businesses are utilizing the Internet, intranet, and extranet to re-engineering the supply chain. These technologies enable a company to be linked with its customers, business partners, suppliers, decision makers, and other key employees together to conduct various forms of collaboration in a timely fashion. In fact, global networking

infrastructures now exist to support such advanced e-commerce models such as service and product deliveries. Customers can access current information on freight rate, tariffs and schedules, find out about delivery time requirements and transport costs and decide on the appropriate transport medium without large investment. However, from the logistics service provider's perspective, transport-tracking system requires huge initial investment.

Throughout the supply chain, the expectations are to reduce the inventory and to deliver a qualified product at a good price in a timely fashion to satisfy the customers. Two benefits most companies expect from supply chain integration are reduced cost and improved cycle time. Improving the efficiency of the distribution function is a very important thing to do.

Once the physical goods move into the supply chain, they will always be accompanied by the information and financial flows. In this scheme, the information flow about the inventory is the same issue as the physical inventory itself. It is not just doing business *faster,* it is doing business *smarter* by replacing inventory with information - since warehousing is very costly- (FDX Corporation Annual Report 1999: 5). Business customers will be very comfortable if they can track the status of their ordered inventory before it comes into their hand. The overall system and its physical, information and financial flows or interaction can be described by figure 4.

Figure 4.
Relationship between Physical, Information, and Financial Systems
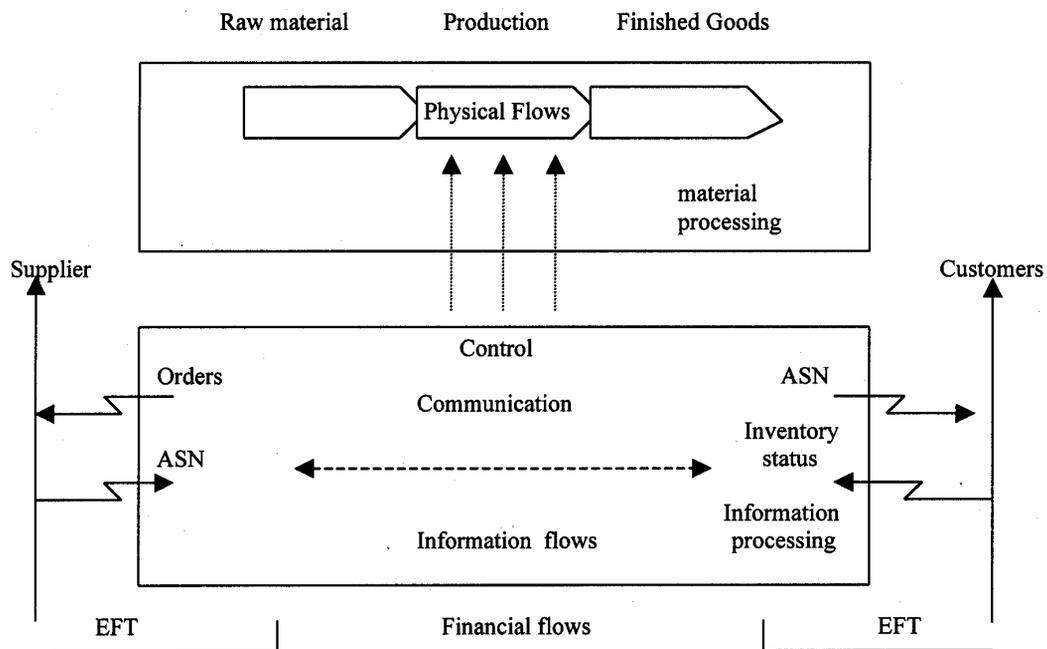
(Source: Kalakota and Whinston 1997)

Thus, the opportunity to create logistics or physical solutions provides major savings in company's total distribution cost, especially in carrying and holding inventory costs. The company does not need to build their own warehouse since they can utilize their supplier's storage to be functioned as theirs. Another advantage is timesavings since sound logistics program can eliminate lengthy distribution channels, centralize warehouses and utilize information systems for fast, precise inventory management.

2.3 A Glance Competition in the Shipping and Warehousing Industry in US

Refering to the Forrester Resesarch on November 1998, the growth in the number of businesses moving toward enabling e-commerce technologies to conduct e-businesses on the Internet will accelerate exponentially during the next few years.

Table 1.
US. Business E-Commerce Revenue

	1998	1999	2000	2001	2002	2003
Total (Billions $)	43.1	109.3	251.1	499	842.7	1,330.80
Computing & electronic	19.7	50.4	121.4	229.1	319.1	395.3
Motor vehicles	3.7	9.3	22.7	53.2	114.3	212.9
Petrochemicals	4.7	10.3	22.6	48	96.8	178.3
Utilities	7.1	15.4	32.2	62.9	110.6	169.5
Paper & office products	1.3	2.9	6.4	14.3	31.1	65.2
Shipping & warehousing	1.2	2.9	6.8	15.4	32.7	61.6
Food & agriculture	0.3	3	6.3	13.1	26.7	53.6
Consumer goods	1.4	2.9	6.1	12.7	26	51.9
Pharmaceutical & medical	0.6	1.4	3.5	8.5	20	44.1
Aerospace & defense	2.5	6.6	14.8	25.6	34	38.2
Construction	0.4	1.6	3.4	7	14.2	28.6
Heavy industry	0.1	1.3	2.5	4.7	8.7	15.8
Industrial equipment	0.1	1.3	2.4	4.5	8.5	15.8

(Source: Fellenstein and Wood 2000: 95-96).

The migration of the industries toward e-commerce will vary. As seen in table 1, during the year 1998 only $ 4.3 billion of online e-commerce was conducted by the businesses in U.S. This number is forecasted to reach $ 1.3 trillion by the year 2003. For the shipping and warehousing industry, in 1998 it reached the number of $ 1.2 billion, and it will be projected to hit $ 61.6 trillion in the year 2003. The results of applying e-commerce solutions will change the tactics of many companies, especially in terms of supply chain management. The logistics function has been highlighted in the context of better supply chain management. The US Department of Commerce reported that 60 percent of all Fortune 500 companies logistics costs are spent on transporting products, a considerable number of cost saving opportunity. Many businesses are aware that a logistics cost is one of the highest operating costs.

FedEx, RPS, UPS, DHL, US Postal Service, and Airborne are some of the companies in the shipping and warehousing industry. FedEx is the most aggressive company in term of technology utilization in this industry. In fact, approximately, there are 800

million online transactions a year in this company. This company was the pioneer of both overnight delivery package and the ability to track the journey of these packages by using computer. It has five companies that compete in a separate and well-defined segment in the total transportation and logistic market (FDX Corporation Annual Report 1999: 3). They are:

- FedEx is one of the business-to-business brands, the leader in virtually every segment of the information-intensive express transportation market.
- RPS offers cost-effective, guaranteed ground package delivery, utilizing state-of-the-art sortation and scanning technology.
- Viking Freight is the less-than-truckload leader in the Western United States, providing reliable, on-time regional freight service.
- Robert Express – creates the expediting delivery market and provides the fast response and special handling required to meet the customers' *service-critical needs.*
- FDX Global Logistics offers one-stop shopping for complete supply chain solutions by combining transportation, information and physical logistic services.

FedEx started to use the web for their activities in 1994. At that time, the web had not been used for commercial activities. Other strategic information systems that had been used were the hand-held scanner equipment for its drivers to alert the customers when packages had been picked up or delivered. Also, PRISM to manage its human resources and increase the effectiveness and efficiency of its operation.. These systems were heavily supported by the information technology. A major challenge with this kind of strategic system was the difficulty of sustaining competitive advantage. FedEx's package tracking system was copied by its competitors such as UPS and DHL. Only three to five years FedEx enjoyed a success. Now, the package tracking information capabilities pioneered by FedEx have become industry norms rather than a competitive advantage. Not only did UPS begin to ape FedEx's tactics, it was able to duplicate the results—and often at a lower cost (Haddad and Ewing 2000)

Using the power of technology, especially the Internet in e-commerce strategy made the business more profitable. In March 1999, FedEx reported more than a fourfold increase in its quarterly profits. At that time, investors believed that FedEx was a cornerstone of the Internet economy. Wall Street believed that FDX was a "safe" Internet stock whose business would prosper from the Internet and still had solid earnings from its core business (Smart 1999).

However, in the third quarter of 1999, the earning of this company is less then the projection because of the increasing of fuel cost. This problem, together with the rivalry from UPS, especially in residential delivery, the strike from their pilots, and the growth of free-based personal electronic mail (e-mail) that delivers documents instantly are the threads for this company. It seems that FedEx ignored the opportunity to build up a residential ground-delivery network and highly depends on the air-delivery system that is increasingly expensive to operate later on.

UPS is the biggest rival of FedEx. Although UPS just planned to go public in 1999, this company is very aggressive also. UPS has already had powerful success in e-commerce by leveraging its ground delivery system, which reached nearly all addresses in the US. Because of its massive volume, UPS' costs per package on residential deliveries were tiny. It charged a much lower rate than airfreight and still made much money. UPS decided to integrate overnight delivery into its vast-ground-transportation

network by using planes and trucks. As people notice, UPS's core strength is its fleet of brown trucks which reach virtually every address in US and other countries. FedEx dismissed much of the residential delivery business as well as the movement of low – value goods between business. It also changed its pricing structure to drive away other low-profit customers. UPS' domestic package revenue exceeded that of FedEx in 1999. UPS performance has hurt FedEx on Wall Street.

However, to strengthen its previous strategy, it seemed that FedEx tried to concentrate on large customer solutions and leveraging the international delivery network. It has spent billions to build network in Asia around those years. In fact, FedEx was the only US all-express carrier with authority to fly to and from China according to the new bilateral agreement.

Late in 1999, FedEx was preparing to embark in its new strategy by leveraging cross-company synergies called "sisters companies" (Blackmon 1999). Cisco, the Silicon Valley Internet hardware maker that transacted 80% of its sales over the web would be the first partner for this synergy. FedEx would overhaul its entire operation to create a unique system for Cisco. Although Cisco had already negotiated with UPS before, Cisco finally chose FedEx because UPS did not want to overhaul its operation in order to accommodate Cisco's need. Cisco's business was booming in this era. Its revenue has grown 40%. FedEx was scheduled to begin coordinating all of Cisco's shipping over the next two years afterwards. Then, in the following three years, it would gradually eliminate virtually all of Cisco's warehousing, as more orders were merged in transit. This was a very ambitious plan. The unique system that would be built was a system that would automatically select routers for an endless number of Cisco shipments. The new software was supposed to be picked whatever the type of transportation was most effective and economical. So, it was quite possible that FedEx's system would route deliveries on ships, planes or trucks owned by other companies, even by UPS.

It is clear that FedEx will emphasize their strategy in business-to-business sectors since this sector is more than ten times the size of the business-to-consumer market. Two of their largest business customers are in computer and electronic segments, business segments that are very promising in the near future. Once again, UPS can catch it up quickly, not only by establishing the partnership with IBM and Oracle Corp, it also build strong relationships with the brick-and-mortar companies such as Wal-Mart Stores and Ford Motor. When both of the computer and electronic industry as well as dot-com company are slowing down, UPS still can reap the benefit from the brick-and-mortar partners. However, FedEx still has an agenda for 21st-century competition. It will focus on how to design a compelling customer experience and how to embrace the transforming power of the web. Moreover, it wants to interact with its customer digitally. FedEx has built superior physical, virtual, and people networks, not just to prepare for change or to shape change on a global scale but to change the way to connect with each other in the new Network Economy (Joachim 1999).

2.4 How to Build and Integrate the Supply Chain and Logistics Functions with the E-Commerce Technology in the Shipping and Warehousing Industry

This section will take a closer look on how to build and integrate the supply chain and logistics functions within the e-commerce in the shipping and warehousing industry that is done by FedEx, since FedEx is the most aggressive company in utilizing such technology in this industry. Another reason to choose this company is that most of the technology that adopted by FedEx, at last, will be followed other companies and finally, it will become the industry norms rather than a competitive advantage.

FedEx is moving away from traditional logistics offerings, like stand-alone warehousing and dedicated transportation into a total supply chain management that expect to have partner for thousands of companies. As part of a new supply chain model, FedEx is both supplier and customer. It supplies the transportation, information, and logistics solution for other companies to enhance their effectiveness. As a customer, it spent almost $1.5 billion in 1998 for information technology goods to strengthen its superior technology capabilities. Its business is speeding the supply chain, increasing the fast-cycle logistics as companies of all sizes discover the power of supply chain velocity. This business is at the heart of business-to-business e-commerce. FedEx's worldwide transportation network connects its customers to the global marketplace. The information connects its customers with their customers and with their supply chain alliances.

E-commerce actually started a decade earlier at FedEx. In 1984, PowerShip, one of the company's programs, provided the active customers with 100,000 free desktop computers along with the software. It was a good strategy to link and lock in thousands of customers into its ordering and tracking systems. It also increased the record keeping efficiency by eliminating paperwork. Later, the PowerShip functionality was combined with the RPS MultiShip proprietary computer networks. Now, customers can just hit a few keystrokes to switch between FedEx and RPS domestic shipping while they still sit in their offices and work at the dedicated computer that has been installed before.

In 1986, they introduced SuperTracker, a hand-held bar-code scanner system that captures detailed package information. Each computer will be supplemented with a keypad, an infrared bar codes scanner, a small LCD screen and an electronic pad for capturing customer's signatures. Here is the scenario. The driver enters data on the hand-held terminal when the package is delivered. This data is uploaded to the microcomputer at the distribution center using the telecommunication network. Then, the data is forwarded to the mainframe, a place where the central database resides. Data that originated from this mainframe can be accessed by the local and remote customer service representatives in order to track the package location at customers' requests.

Since most of the competitors have already duplicated such systems, FedEx moved its system to the Internet. In 1996, FedEx introduced the InterNetShip that facilitated customers to process their shipment electronically. It became the first company with the true Internet shipping capabilities, such as empowering its customers to check prices, preparing shipping labels, finding the location of the nearest drop box, and tracing the status of the packages. On the other hand, this strategy gave payoff in term of efficiency. It could avoid employing 20,000 clerical and other office workers to process

shipping orders because its customers do so much of their business online. However, the competitors quickly followed too.

Today, more than two-thirds of US domestic shipping transactions are handled electronically using this scenario. Some of the e-business activities in this industry are conducted as follows:

- Customers can calculate the cost of any shipment and order a pickup
- Using e-shipping tools, customers can prepare, verify and print shipping documents as well as cancel the shipments online.
- Using e-tracking tools, customers can track the status of their package and search the drop-off locator around the world.
- Providing online invoicing and remittance, customers may be in complete control of billing data, processing invoice on their own computer using their own programs for integration with their account payable application program and shipping transaction reporting.
- Delivering useful information, customer can have some information, dropoff locator, and list rate to their handheld devices.

Besides, by developing and using the ShipAPI and the TrackAPI e-commerce solutions, customers can integrate the shipping and tracking functions provided by FedEx IT systems into customers' intranet systems. This allows customers to customize their applications according to their operation's shipping needs, eliminate redundant programming and save valuable time, generate shipping labels, and track packages in real time manner.

By Fall 1998, as part of their strategy, FedEx launched Virtual Order Software which helped hundreds of companies get into the e-commerce. It represented business-to-business e-commerce. Virtual Order integrated the web catalogs of companies and ordering with fulfillment and delivery using FedEx's own trucks and planes. It proved that FedEx moved its whole logistics and order processing to the Internet. It was a new stage for electronic commerce on the Internet. It is understandable that every business should provide real time marketing nowadays. It can be accomplished by developing two-way dialogue to replace the-one way product broadcasting by the company. Internet is the best solution for it. Thus, FedEx offers services to companies that do not want to personally deal with transactions over the Internet. They can just outsource those functions to FedEx. This scheme is very beneficial for the small-to-medium sized companies that must compete with their industry leader, while they do not have the sustained scale of activity to support full internal capabilities.

How the Virtual Order works is described in figure 5. FedEx hosts the web pages for companies that want to put their catalogs on the Internet. These companies can create their own catalog or web pages.

Figure 5.
Virtual Order
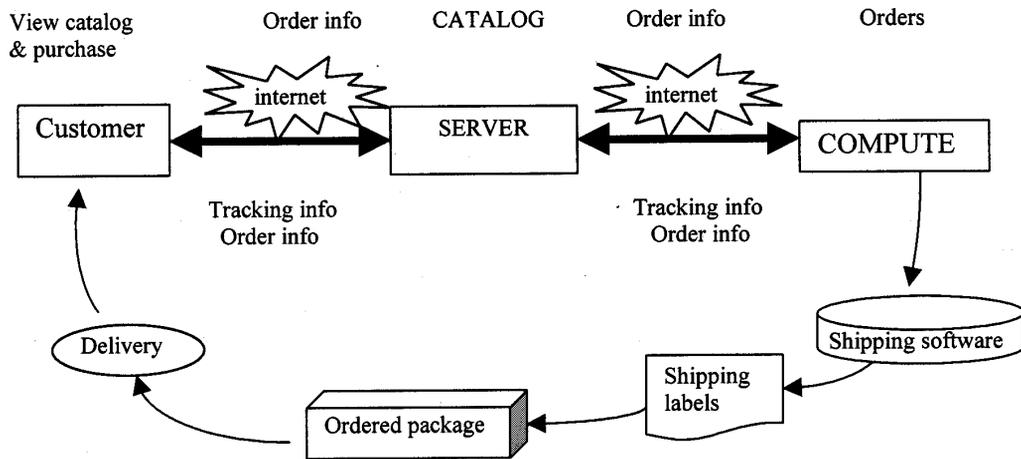
(Source: Turban et al. 1999)

Otherwise, FedEx also provides the software necessary to create the online catalog for the selling company. These web pages run on the FedEx server, but are exclusively selling companies' branded items. When an order comes through, all of the applicable charges are calculated and are sent to the buyer and to the selling company's server. Also, the information is linked to the selling company's database for real-time inventory management. FedEx offers a secure server, so both the selling company and its customers can be assured of a safe transaction. The order then is routed to the selling company's product warehouses, where FedEx handles the packaging and shipping of the products. As with any others, the shipment can be tracked by both the buying and the selling company. FedEx also provides a 24-hour web-based technical support line for Virtual Order merchants. FedEx offers other services such as confirmation, invoicing, and an after-sales service for returns and repairs.

These solutions can reduce capital requirements, bring the company added flexibility to enter new markets, respond to new opportunities and establish additional points of presence in the market without incurring the costs or overhead of new plants. The market is very pleased with these offers. Along with the services offered with Virtual Order, FedEx launched a marketing alliance program. The program is designed to help companies boost their business sales by offering points to the companies using the Virtual Order system.

FedEx also gives the dotcom companies, such as Fujitsu, NetGrocer, Inc. and Omaha Steaks, the tools to embed package tracking on their own web pages, linked back to FedEx mainframe. It also has launched consulting services to manage warehouses and distribution systems on behalf of big manufacturers and even build entirely new electronic supply chain infrastructure for them.

Fujitsu moved its distribution center from Portland to Memphis, the home of FedEx's worldwide transportation hub. In this place FedEx orchestrates the arrival of components from suppliers throughout Asia, oversees the assembly of personal

computers and then ships them out. With this schema, Fujitsu's customers can get a laptop three or four days from the time of ordering. Before, it would take them ten days.

Fujitsu can replace costly inventory management system with the sophisticated information systems that still enable them to monitor where their products are and where these products are going in the supply chain. They do not need to be worried about finding supplier and delivering goods. They can focus more on designing world-class products and marketing their products. This transformation of supply chain allows Fujitsu to save millions of dollars and increase their profits by 25 percent. FedEx and Fujitsu are completely integrated in this work. It is very difficult to distinguish which is FedEx's and which is Fujitsu's business. Basically, FedEx is an extension of Fujitsu from the time the parts are picked up in Japan until the laptop gets delivered to the final customer.

Allowing fast cycle distribution in partnership with FedEx, manufacturer companies can substitute information and velocity of inventory for working capital. Dell Computer Company has less money tied up in working capital, since a Dell computer does not exist until it's ordered. When there is an order, FedEx and Dell start to work together to deliver the spare parts, assembly it, and shipping it to the customer. It is a customized, built-to-order product delivered directly to the customers within days of placing the order. Other companies which profit from FedEx's logistical expertise include such high-tech giants as Cisco System, Apple Computer Inc, Hewlett Package Co, Sun Microsystems, and National Semiconductor Corp. What we have here is "virtual intimacy," "electronic collegiality," or "instant familiarity" (McKenna 1996: 176-177).

2.5 Implication for the Accounting Profession

Accounting systems have to provide the information that is useful for decision-making. In doing his job, accountants deal with thousands of transaction in certain firm that vary based on the business process, including the ones that are carried out in the shipping and warehousing company. The shift of traditional value chain that flow sequentially to the customer-oriented value chain that does not flow sequentially in the business process has already force the profession to aware the impacts and consequences that arise.

The process of designing the accounting system will be very complex since it is getting difficult to determine the system boundary. As stated before, in this industry e-commerce makes people cannot have a clear cut where the transaction begins and ends. For example the business process in FedEx and Fujitsu are completely integrated so that it will be difficult to distinguish which business is a certain transaction belongs to. Accountants must have a comprehensive knowledge of the business process that has been fully affected by the information technology as well as computer knowledge for processing the accounting transactions and events in order not to be abandoned in this era.

The businesses have been done in a faster way, lower cost and higher efficient and effective. By using such technology, precise inventory management is not only an impossible idea, even the carrying and holding cost of the business customer can be reduced significantly. The technology enables people to eliminate nonvalue-added activities that basically consume much money. Accounting will play a vital role in dealing with costing product mechanism.

Various steps of business processes, such as sending order, receiving order, shipping, cash receipt and payment are handled electronically in e-commerce. It requires accountants to have the ability to monitor the transactions, organizing the data and assess the transaction or system integrity and reliability in real-time fashion. Especially when it is difficult to distinguish certain transactions belong to the companies or their trading partner will be considered a complex transaction handling for accountants. How a certain company believe that the people placing the order in its website is a true customer that really want to spend his money for paying the product being ordered become a significant issue in e-commerce environment. Before recording and reporting this kind of transaction, accountants have to ascertain that this transaction is a valid one that must be recoded in the book. Accountants must have the understanding how the technology can help him to do that.

In a real-time transaction, accountants need to ascertain that the accounting records can also be reflected the transaction at the same time when the transactions occur. It also brings the security problems to the accountant when doing his jobs. Now there are many accounting software that can support the online transactions. However, the risk of implementing real-time transaction is also higher. A small mistake in updating or posting transaction can have a great problem in accounting numbers. In other words the risk is also higher in e-commerce environment. It is more than just control problem but also the risk assessment.

The auditing function is also affected by the implementation of such technology. The complexity of auditing through the computer will increase and requires accountants to incorporate e-commerce technology skills in performing traditional assurance engagements. The extent of audit assignment will be broader. They have to assess the integrity and reliability of data being provided by the company's trading partner especially when both business processes are very integrated each other. However, e-commerce still opens some opportunities for the accountants if they can keep up with the advancement of technology and can maintain their function to be the independent third party. Accountants can perform additional assurance functions such as system reliability, risk assessment and other web-related assurances as well as provide e-commerce business solutions that help their clients compete aggressively in international market (Greenstein and Feinman 2000).

3. CONCLUSION

The application of e-commerce in the shipping and warehousing industry brings some benefit such as performing business process faster at lower cost and timely fashion. The online-real time technology facilitates the company in this industry to better managed the inventory so that it become effective and efficient. Basically this application is a strategic information system that gives the competitive advantages for the first company that implements it at the first time. However the technology is easy to be duplicated so that it soon become an industry norms rather than a competitive advantages.

E-commerce causes the traditional value chain shift to the customer-oriented value chain that has a significant influence in designing the accounting systems since through the e-commerce the beginning and ending of certain company transactions

cannot be clearly stated. Thus, the accounting systems boundary can be difficult to be determined. Accountants must have knowledge in assessing the integrity and reliability of the transactions in doing their job. Their concern is not only in the internal control issue but also the risk assessment for the system. However, e-commerce environment offers many new opportunities such as web-related assurances and e-commerce business solution provider for accounting profession as long as they are capable in technology skills and can maintain their role as an independent and trusted third party in the business.

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