

ELECTRONIC COMMERCE: THE CHALLENGE OF DELIVERY

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Electronic Commerce: the Challenge of Delivery

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Abstract: Internet has eliminated distance for information flow. The challenge now is to deliver goods to e-commerce buyers in a speed that doesn't frustrate all their expectations of a diligent and convenient service. The fact that it is so easy to buy – products are just a click away – makes the level of expectation to the delivery service much higher than what would be feasible even if e-tailers had well fit distribution schemes, which they still don't. This paper deals with some of the logistics matters companies will have to worry about if they are willing to succeed in e-business.

Key-words: e-logistics, e-commerce, e-business, Internet

Internet's effect on the business world

When DRUCKER (2000) established a connection between the impacts of the railways and the Internet on people's lives, stating that the railways made human beings feel as if they had conquered distance and that the Internet made them feel as if they had eliminated distance, he depicted the real importance of these two major events to mankind, due to the enormous transformations resulting from them.

The railways allowed manufacturers and business people to plan the volume of their activities considering not only the local demand for their products, but also the sales they could make in other locations along the railroad. That surely had a great impact on production scale and the expansion of their businesses, contributing for the success of the Industrial Revolution. The railways were a technical advance that made it possible and economically feasible to transport physical goods to other markets far from where they were produced. That caused a revolution in the way entrepreneurs could think their businesses, making it possible for them to expand their operations far beyond what they could have imagined before.

Internet was also a technical advance with an exceptional impact on the possibilities of communication and information gathering. Unlike the railways and the amazing development of other transportation means along the Industrial Revolution, so that companies could sell their products to the most remote places, the Internet had no impact on the physical transportation of goods, whatsoever. In spite of that, the notion of distance will never be the same after its introduction, for it changed the way people feel about distance in some important ways that will

be further discussed below. Mark Rhoney, president of UPS e-Ventures, believes that the world is experiencing a time much similar to that of the first days of the Industrial Revolution: people know something new is happening, they know it's going to cause severe changes in their lives, but they are incapable of predicting what the deployments of present changes will be (ROGERS, 2000).

Although it is not able to move a single matchbox or any other physical good, the Internet, through its extraordinary web of computer connections around the planet, has eliminated the distance for information flow.

There is nothing to argue about. The world has shrunk to the size of Saint Exupéry's little prince planet, when the matter is information, taking advantage of the flow of bits through the web. Anything that can be converted into a digital stream of bits can be transported through the Internet and has gained the speed of the new times. And that is not just computer stuff: any document or image, for example, may be quickly sent through the web, eliminating the barriers imposed by the need of physical presence and turning the anywhere office into a feasible concept, for those who dream on working from home or by the swimming-pool. But the elimination of distance goes even further, allowing for medical doctors to operate patients thousands of miles away from where they are, with the support of the web to transmit images and instructions to a robot, which is physically going to perform the surgery, at the other side. Specialists from anywhere in the world may operate maintenance equipment for petrol platforms or deep-water rescue. Surfers can check where the waves and the wind are more suitable for surfing before going to the beach. And those who enjoy going out at night have a chance of knowing which night clubs are the best options for their outing, checking for the images sent from cameras installed inside the premises of such places. All of that just to name a few of the things people can do through the web these days.

A flood of dot-com commercials and over hyped coverage on the media also contributes to the perception that distances have definitively been overcome and has created expectations of a world where products would leap invisibly from factory plants to consumer mailboxes. A mouse click and an item has just been purchased through the web. Would a second click deliver it to the person's door steps? Unfortunately, that is not how things work. Most physical goods cannot be converted in bits to cross the web. Delivery happens exactly the same way it used to, before Internet was around. And it seems it is going to remain so, unless science is going to provide us with another of its sporadic miracles and turn teleportation into something feasible, disassembling matter in one place and re-assembling it somewhere else, as in Star Trek. There is no evidence, nevertheless, this is going to happen in the near future, at least in a future one should consider for business planning matters.

Purchasing goods through the Internet has become really easy, for many products. From home or the office, people can acquire what they want in just a few minutes, without the hassle of getting to the streets and experiencing traffic jams or long queues, at any time of day or night. But the delivery of products purchased through the web is seldom as simple as the transaction, as it is faced with real logistics difficulties. Sometimes, the consumer has to be very patient and wait for several days or weeks before the arrival of the product. The thing is, although it is possible to buy a pizza through the web, it's impossible to download it. E-commerce relies on the delivery and on a system capable of moving products from a warehouse or the manufacturer's plant to the consumer's home. Unfortunately, most companies are still not ready to support such logistics demands as the ones generated by electronic commerce in a proper manner. According to

MAHONEY (2001), about one-third of all orders placed over the Internet was not fulfilled exactly as promised in 2000. He argues that “there are plenty of online retailers who know how to take the order... just not as many who know how to fill the order”.

Customers are realizing e-commerce faces logistics problems the hard way. In the U.S. alone, during Christmas, on-line purchases surged by 270% and electronic retailers reported that the average on-line order was up 8% over the same period last year. It looks like good news, however, many customers returned from their cyber shopping endeavors disappointed. Late deliveries, poor order fulfillment and inferior customer service all contributed to this state of affairs (VERDISCO, 2000). A recent survey of retailing strengthens the veracity of this situation. The survey revealed that buyers are disappointed with distributor’s inability to meet promised delivery dates with complete orders (STUNDZA, 2000).

Brazil represents the largest e-economy in Latin America, as described by NOVAES and CHRAIM (2000, p. 296):

“A study prepared by the Boston Consulting Group/visa International in 1999 (Folha de São Paulo, 1999) indicated a figure of about US\$ 77 million for e-commerce in Brazil for that year (B2C only). This figure represents 88% of Latin America’s sales, while Mexico is responsible for 6%, and Argentina only 2%. Projections indicate a sharp increase, with e-commerce in Brazil reaching approximately US\$ 3.8 billion per year, by 2003.”

Logistics is a major obstacle to the growth of e-commerce in Brazil, the fifth largest country in the world (NOVAES and CHRAIM, 2000).

Brazilian retailers are organizing themselves so that consumers can have access to the products they buy through the web more diligently, but most of the companies that are accepting orders through the Internet are not well equipped to deal with the coordination and integration of all parts involved in the delivery business (MULLEN, 2000), which is not at all just the case of Brazil. Henrique Thoni, director of Ecuality, a virtual shopping center, considers that when one of the players in the market is late with its deliveries it destroys the trust of the customer in the whole market, as it starts thinking it is impossible for any company to deliver e-commerce goods on time (INFOEXAME, 2000).

New demands on the logistics function

Logistics can be defined as that part of the supply-chain process that plans, implements and controls the efficient, effective flow and storage of goods, services and related information from the point of origin to the point of consumption in order to meet customer’s needs. Or, more simply, logistics is “the management of inventory in motion or at rest” (TARNEF, 2000, p. 17).

According to SEIDEMAN (2000), e-commerce is presenting one of the greatest logistics challenges in history, with consumers demanding service levels that are frequently equal to or better than those found in the most stringent just-in-time agreements - and they want it all for free. At the same time, e-logistics providers must deal with a technological and economic environment that is changing so rapidly that the rules rarely seem to hold from one month to the next. Such changes are so extreme that, for Ryder Systems, a Miami based logistics company, one cannot call itself a logistics provider anymore if it doesn’t provide web-based services (ANONYMOUS, 2001).

With e-commerce, the business of getting goods from suppliers to customers is even more complicated than usual, due to the nature of e-commerce transactions. Orders and shipments are much smaller, as end users are the ones who are doing the ordering over the Internet, rather than middlemen buying in bulk. Orders are not only smaller, but also more frequent and more time-sensitive. Another complicating factor is that transaction volumes are more unpredictable than before, as there is a global audience of customers exposed to the company's goods on the web. That makes predicting sales volumes much more difficult.

Logistics often consists on a conflict between opposing forces: the cost of shipping versus the cost of storing inventory. In an amazingly short time, e-logistics has begun to reverse the trend toward tighter, smaller inventories that has helped drive costs down for most operations in recent years (SEIDEMAN, 2000). WineSmart, an e-commerce operation based in Holland that specializes in trading American wine in Europe has decided that if they were going to provide a pan-European service and meet customer expectations for delivery within three to five days, they would have to hold inventory (SWEAT, 2001). A big part of WineSmart's speedier delivery is, thus, an inventory system that is integrated with its web site and automatically generates fulfillment orders as purchase orders come in. That results in customers receiving their orders the day after they make the purchase, which benchmarks very well against the competition.

A recent survey conducted by *The Economist* with retailers and potential customers highlighted two aspects that may undermine some of the potential economic advantages of online shopping. The first one was that shipping costs were (and remain) one of the biggest deterrents for consumers considering online purchases of physical products. The second was that traditional warehouse and distribution centers were not properly suited to the business of e-commerce fulfillment (The Economist, 2000).

E-logistics demands fast and accurate information systems, capable of processing real time orders, which makes system integration an absolute priority for competitive players. Information is the lifeblood of an e-commerce or e-logistics company. If a company can't move data instantly and easily, without errors, it is not going to succeed in the business. That is a good reason to build the best, most compatible databases, an essential part of e-logistics systems. Not only must these databases be fully integrated into whatever systems a company is running, they must also be scaleable, so that they can expand to meet growing business' demands.

Some more physical issues are also important. Distribution centers and warehouses should be well located and right sized, considering where markets are and the mix of products being traded, among other things. A limited amount of products should be kept in these centers, and replenishment should be carried out on a highly regular basis, in order to minimize inventory costs.

Transportation means should be fast and reliable, even if that means not using full capacity. Costs have to be kept low enough so that end prices are not severely affected, scaring customers away. Someone has to have product ready to move, and someone has to pay for that capability. It's a matter of finding out whom. Sometimes it may be the company, sometimes the customer, depending on the value the customer puts on the convenience of home delivery.

The Internet allows companies to provide their customers with fast and convenient products and services, suited to their specific needs. But, the higher the level of service performance expected, the more companies will have to concentrate in supporting local/regional customers, due to the problems of distribution discussed above.

Logistics as part of the value chain

E-commerce has tremendous potential for improving the full range of related logistics activities, including warehousing, inventory management, picking and assembling orders, and more (ELLIF, 2001). There are significant levels of total inventory in the overall supply chain, in industry after industry. While these stocks help ensure that the products are out in the market when they are needed, they also represent a cost of storing, financing, handling, and insuring inventory that is shared among the participants of the supply chain. E-commerce can play an important role in increasing the efficient use of inventories, driving them to the lowest possible levels.

Internet Logistics Operators (ILOs), as they are beginning to be called, provide one-stop shopping for customers who want to maximize the promise of e-commerce. They create a simple and comprehensive way to deal directly via the Internet with a single provider that takes responsibility for meeting their shipping, warehousing, and fulfillment needs.

Few e-commerce companies have the resources to build their own global logistics frameworks. For smaller goods, carriers such as DHL Expressways, Federal Express, and United Parcel Service have strong international operations. FedEx and UPS, in particular, are moving beyond carrying packages to become full-service logistics providers (SWEAT, 2001).

The new e-logistics services that best fulfill the promise of electronic commerce will be those that directly provide transportation and logistics services, take responsibility, and do it in a low cost, flexible, virtual way that meets the requirements generated by the individual transactions that shippers must manage every day.

Custom barriers and other restrictions to the international trade

The negotiation of bylaws of trade and customs regulations is another challenge that has arisen from the increment in international commerce in recent years, partially resulting from the introduction of the Internet and e-commerce. SWEAT (2001) argues that, due to its ability to link people around the world, the Internet is causing a global logistics transformation, in which moving goods is part of the challenge, but dealing with customs and tariffs is even harder. Fortunately, software automation and supply-chain suites are starting to help improve the process.

While pacts such as the North American Free Trade Agreement have eliminated many trade barriers and costs among international partners, paperwork and bureaucracy haven't gone away. Because there's no way of knowing how long it will take goods to cross international borders, the average company keeps 25% of its internationally sourced inventory at warehouses or distribution points, says analyst firm Benchmarking Partners (*apud* SWEAT, 2001). That's costly, as are the duties that can be levied if the company doesn't know how to participate in a country's trade programs.

Supply-chain vendors offer logistics and transportation software integrated with their back-office products so companies can tie together - in a single enterprise system - multiple business processes, from product development to delivery. Some vendors focus on the physical movement of goods, while others offer software and services that deploy expert systems to help companies comply with customs laws and tax duties.

WineSmart, for example, uses trade consultants to make sure it complies with each country's customs laws, and it will work with 1eEurope to extend its logistics and inventory system as an extranet so wine suppliers around the world will have access to guidelines regarding their countries' export and import customs, according to SWEAT (2001).

Other companies, such as CDWorld.com (mentioned by SWEAT, 2001), also use a third-party to help customers figure out customs costs before they make purchases, avoiding misunderstandings and non-acceptance of deliveries. CDWorld.com does 40% of its business internationally. Shipments of CDs to customers in Brazil, results in costs up to \$20 per package. But de to the high duties Brazil charges both on the cost of the product and on the cost of the shipping, a \$12 CD may get to the customer costing almost \$100, sometimes. It is important that the customer understands and accepts that beforehand. Otherwise, there is a great chance he/she will reject the bill and return the CD.

Reverse logistics needs

With the growth of e-commerce, any manufacturer not paying attention to its reverse-logistics process - that is, how it manages, processes, transports, and stores returned goods - is simply siphoning profits from the bottom line.

Although this is true, it is difficult to convince managers to pay attention to reverse logistics, since it seems to go against the organizational goals. All of the organizational energy, time, resources and activities are devoted to moving products out of the stores, not taking them back (POGORELEC, 2000).

Part of the problem is that the cost of processing returns for Web merchandise last year was \$2.5 billion - or twice the value of the merchandise itself, according to Geri Spieler, a Gartner Group research director (RICHARDSON, 2001). Gartner predicts that by 2002 companies that sell merchandise online will take back \$11 billion in returns and as a result lose \$1.8 billion to \$2.5 billion. Another survey indicated that reverse logistics costs might exceed \$35 billion dollars per year for U.S. companies. Further, the continued growth of online shopping increases the need for a proven process to efficiently facilitate returns. Regarding this aspect, it is estimated that 50% of online sales are potential returns, which makes managing reverse logistics a major priority for virtual retailers (POGORELEC, 2000). In the apparel business alone, returns make up 30% of sales (TRANSPORTATION & DISTRIBUTION, 1999).

Rogers (*apud* RICHARDSON, 2001) says that the value computers lose in transit is 12% per month. If you can save even 10% of the \$250 to \$300 that computer companies typically lose when transportation and labor costs are added, you save a lot of money. Therefore, a big issue in the high-tech industry is reducing cycle time and cost associated with returns—getting product returned quickly to the right place, minimizing obsolescence and other costs incurred during the logistics process.

The reason for so many organizations to pay little attention to reverse logistics in their operations is that everyone owns a piece of it - customer service, logistics, operations, sales - so it's difficult for companies to see the "total cost". Each segment sees it as a very small percentage of their cost, in RICHARDSON's (2001) opinion. He believes that manufacturers need to address asset recovery in an aggressive way, where two of the most important

elements - speed and inventory visibility - generally are lacking. The manufacturer learns of the return when it hits the dock.

Organizations must develop strategies for reverse logistics, otherwise they may lose customers very quickly. With the Internet providing more shopping alternatives than ever before, customers tend not to hesitate to take their business to a competitor, whether it is across the street or on the web.

Final remarks

Several on-line retailers have lost sight of the e-retailer's ultimate goal: delivering the product to the customer faster than they could get in the "traditional" marketplace. That may be difficult in many cases, but the retailer has to have a good understanding of the level of service expected by the customers and perform up to their expectations. Sometimes, the convenience of a very fast delivery may be of value to the customer, who is willing to pay for it. In those cases, delivery will definitively have to happen faster than if the customer drove to a physical store. Nobody will want the pizza-man to wait until he has two deliveries in the same block to minimize delivery costs. In other cases, customers will be happy to accept some sort of delivery planing to reduce the costs involved. Most people in Brazil wouldn't probably mind if their monthly supermarket Internet order were scheduled to be delivered at an agreed time the next day, if that helped reduce delivery costs.

An efficient logistics depends upon its alignment to the organizational goals. Before defining warehouse and distribution objectives and procedures, managers must have a clear and thorough business plan consonant with the organizational mission. The answers to the following questions should guide the logistics group through their task (ROMAINE, 2000, p. 41):

What does e-commerce mean to my organization? What does it mean to the logistics and warehouse group? What are its benefits and pitfalls? What will be the blend of electronic and traditional avenues of ordering? Are accommodations necessary to enable electronic ordering?

What are our business objectives? What do we bring to the marketplace that our competitors don't? How do I translate these unique selling propositions into tangible customer benefits and bottom-line sales? How will our competitors respond, and what will be our follow-up strategy?

Who are our end-user customers? What are their expectations? How do we meet or exceed those expectations? Who are our internal customers? How will our warehouse and distribution solutions impact them? What are their needs, and how do we address them?

Clear and precise answers to these questions would provide a guideline for developing logistics strategies that enable organizations to pursue operational excellence.

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