E-COMMERCE: IT'S IMPACT ON TRANSPORTATION, LOGISTICS AND SUPPLY CHAIN MANAGEMENT

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Abstract: The Internet has become part of our daily lives, and during this time we have watched a progression of Internet innovations. Internet browsers and the development of the World Wide Web made the Internet available. Search engines were developed in response to the proliferation of Web sites. Commercialization of the Internet, initially business-to-consumer, spawned online shopping. Search engines morphed into portals, adding content, shopping, and other items.

In this paper Supply Chain Management represented an attempt to develop a unified process by which goods and services would be produced for customer sale and consumption. Logistics was now being considered as more than simply an opportunity to minimize cost - it was developing into a core component of corporate profitability. Finally, e-commerce came into full flower with the online auction leading the way.

KeyWords:e-logistics, e-commerce, transportation, e-business, sell-side, buy-side and supply chain Management.

1. Introduction

Around 1990, a confluence of factors began to change the role of logistics in major corporations. Quality initiatives and re-engineering were forcing companies to evaluate entire processes, rather than individual components. Supply Chain Management, the integrated control over goods, information, and money, followed. Supply Chain Management represented an attempt to develop a unified process by which goods and services would be produced for customer sale and consumption. Logistics was now being considered as more than simply an opportunity to minimize cost. It was developing into a core component of corporate profitability.

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Finally, e-commerce came into full flower with the online auction leading the way. E-commerce exists along two dimensions. The first dimension defines the parties: B2B (business-to-business), or B2C (business-to-consumer.) The second dimension defines the transactional nature. Here there exist several categories of service types. Sell-side servers are electronic storefronts and catalogues that manage the purchase process from the selection of items through payment. Buy-side servers provide the capabilities for purchase orders to be entered and fulfilled. Usually there are well-established business rules that are incorporated into the e-commerce application. Marketplace applications establish electronic communities which both buyers and sellers can access.

2. E-Commerce and Logistics

E-commerce is having a massive collision on the logistics and observes consignment. Foremost supply chain networks are prepared with total visibility across the entire logistics arrangement, relying on associated extranets that encompass global positioning satellite (GPS) systems that pin down trucks, rail cars, and shipments in transit. The finest companies in this region have filled network connectivity that they be able to precisely pathway and watch their transport possessions and the freight they enclose, from source to purpose, around the world.

3. Manifestation of innovative functions and companies providing information services :

With the appearance of the replicated business, a original strain of service provides that some authors describe as replicated logistics outsourcers tender to administer the whole inhalation of the supply chain. They truly supply services beyond transport and warehousing for persons networks that consider they need the capability to approach close to best circumstances.

4. Redefining E-Commerce as a Traditional Role:

E-commerce collision on logistics alters and redefines a few of the conventional positions. The following are a few of the areas where important changes are taking place due to E-commerce:

4.1 Cargo space auctioning:

Instances comprise companies like National Transportation Exchange (NTE), a dot com firm that focuses on unlocks Less Than Truckload (LTL) capacity opportunities, and Nistevo that deals in cargo exchange for full freight shipments, are instances of companies that provides freight space auctioning services. In freight space auctioning, the transporter is able to ship last-minute additional cargo, often reacting to unanticipated market command, and talented to obtain a real time spirited price.

4.2 Cargo reservation system:

An instance is CargoReservations.com, an unbiased exchange of services that connects buyers with transport needs to forwarders and transporters who have freight ability in one market. Buyers can position shipment, pathway shipments and administer contracts. Forwarders preserve find parties able to shift freight, or can join the carriers EXCEL. Carriers, referred to as vendors, can position obtainable capability or quotation on cargo posted by forwarders and shippers.

4.3 Global track and trace:

Instances contain companies like FedEx and UPS. These companies give the system member with on-status information of the development of the consignment. The transport company provides tracking by acquire order numeral, consignment number, bill of loading number, and so on. They exploit one-stop pathway and outline for all modes of shipment through currently obtainable knowledge and allows the consumer to see a illustration status and position of the ecstatic possession.

4.4 Online logistics market places:

An instance is Freight Matrix, an online market where the logistics population can buy and sell logistics services, diagram to improve administer carrying networks and implement the movement of materials around the globe.

5. Vertical incorporation Between Trading Partners:

The perpendicular incorporation between the partners in the supply chain helped companies to diminish stocks by up to the miniature information beginning together their suppliers and the transporting companies. The most important transportation companies account in-transit consignment position to clientele on a near real-time foundation and add all trade associates giving them admission to essential shipment statistics.

6. Sell-Side E-Commerce:

The use of the Internet to provide sell-side e-commerce has been widely adopted in the transportation and logistics industries. Primarily as a means to provide customer service and to sell its product. Almost every transportation company offers its customers the ability to log onto its Web site to make bookings, or to track and trace shipments. Many of these initiatives were developed for fairly simple reasons. When a customer opts to visit a Web site instead of calling the service center, the company usually benefits, as the transaction requires no paid employee. This not only represents a cost savings, but also eliminates the risk of any unfavorable customer employee exchange. Such a risk is a constant worry in a full-employment society where companies are unable to attract and retain qualified employees. The danger increases when the company competes in a global market where calls can be coming throughout a 24-hour day. The range of these solutions has varied. Some companies have tried to create a competitive advantage with their Web pages by developing signature options unique to their brands. They have developed a customized portal for each customer with sophisticated support capabilities that can also be customized.

6.1 Sell-Side E-Commerce Obstacles:

Despite the promise, transportation carriers had trouble utilizing e-commerce solutions to fulfill customer supply chain expectations. The primary problem involves tracking and tracing. Customers want to know the location of their shipment and to be alerted if its time-definite delivery is threatened. This problem can manifest itself in two forms: the shippers and the intermediate carriers.

If a shipper wishes to track an individual shipment, he must go to a Web page for each carrier or logistics provider. Multiple shipments therefore require constant movements between Web pages. Three problems result from this type of setup.

- The shipper must match carriers to shipments prior to tracking, which is sometimes complex and difficult for the customer.
- Carriers usually allow tracking from either the equipment ID or their shipment ID. Carriers do not always retain the unique shipment ID that the customer utilizes (i.e., purchase order, lot number, customs file, etc.). In some cases, this makes it almost impossible for a customer to locate the shipment for tracking.
- Perhaps most important, the customer lacks a single point of focus. All of this leads to sub-optimization for customers. E-commerce has not delivered value to them and, as a result, their supply chain suffers.

Some transportation movements are intermodal - they involve more than one carrier and different modes. Often an intermediate, intermodal trucker is involved. Truckers, usually the last link in the intermodal chain, must know when equipment is ready for movement. But they too suffer from disaggregation of information.

Major port areas experience the same problem. Truckers are forced to browse numerous Web pages for different steamship lines and marine terminals. But without complete information, these truckers are unable to optimize their movements. For example, they may depart a terminal empty without realizing a return move will be available. Additionally, a concentration of moves during daylight, which could effectively be spread out over more hours, continues to plague the business.

So there is a real cost to this peak demand. Better information could lead to more level utilization, which would allow truckers to be more profitable without raising rates. Carriers would benefit while terminal assets would become more productive. Customer service would improve without any additional infrastructure capacity. Shippers have also been reluctant to complete the supply chain loop. Although information about goods may be exchanged, integration of financial transfers has lagged behind. Although electronic funds transfer has become routine, it is often a standalone application. Funds are transmitted separately from remittance advises instructing the recipient on application of funds.

In many cases, such transfers increase the very workload they were meant to alleviate. The recipient may just deposit the cash to a customer clearing account. They may find themselves with large unapplied balances at the same time they have apparently overdue invoices.

6.2 The Rise of Intermediaries:

At much the same time companies came to recognize the need for logistics' awareness, an increased awareness of core competencies developed. As more sophisticated financial tools, such as activity-based costing (ABC) and economic value-added (EVA), entered the corporate mainstream, management became focused on the return of assets. Outsourcing allowed an organization to concentrate on its core competencies and customers, and to take advantage of greater operational flexibility.

The quest for supply chain improvements that could support overall corporate performance inspired many companies to seek help achieving these results. As the scope of operations grew to be global, outsourcing became more common. It has been estimated that more than 60% of Fortune 500 manufacturers used some form of third-party logistics services (3PLs). And many use more than one.

Using 3PLs enabled businesses to improve their financial positions by reducing operating and capital expenses. It also simplified transportation purchasing decisions by providing scope and scale unavailable from individual carriers. Successful 3PLs boast service throughout the world and can do so across various modes: surface, ocean, and air. Scale provides the volume to handle business in a very cost-effective manner.

Information technology allows 3PLs to manage the business and take full advantage of scope and scale. Some customers believe that 3PLs can provide better service than can the underlying carriers because they have the systems advantage, including customer service operations. Often, the merger of systems and scope enables the 3PL to perform helpful functions such as regulatory compliance and determining the total delivered cost of goods for sale. Some recent surveys suggest that the rush to employ 3PLs has subsided. The current trend is to develop a lead logistics provider (LLP) or Fourth-Party Logistics Provider. A 4PL is treated as a strategic partner, rather than a tactical one such as the 3PL. A 4PL is a supply chain integrator that synthesizes and manages the resources, capabilities, and technology of its own organization with those of complementary service providers to deliver a comprehensive supply chain solution.

The skill sets necessary for a 4PL are unique and differ significantly from the operating expertise needed for logistics outsourcing. Strategy consulting, business process review and redesign, technology integration, and savvy people management are some frequently cited prerequisites for 4PLs, as are global capabilities and the organization to manage multiple service providers. A 4PL that can also provide 3PL services has become known as an infomediary. Not by coincidence, 4PL or infomediary growth accompanies the explosion of e-commerce. Customers are being forced to develop solutions in Internet time. There is a dawning recognition that the first mover accrues most financial benefits from innovation and that the benefits of simply catching up are even smaller than they used to be.

7. Buy-Side E-Commerce

Buy-side e-commerce is compelling to businesses for the economies that seem apparent. It offers a convenience, timeliness, and choice that may not always be available. In many cases, multiple vendors offer sales to multiple customers. Although e-commerce is still in its infancy, some companies have already generated significant savings by moving their purchasing to the Internet. This can also be a means by which 3PLs can assure themselves an adequate, cost-effective supply of underlying carrier transportation capacity. While they show promise, buy-side transactions are not largely employed amongst transportation carriers. Many carriers seem to think they are engaging in e-commerce if they have a Web page showcasing their newest equipment. This is not the case, and they are overlooking a multitude of opportunities.

8. Marketplace E-Commerce

The growth of buy-side e-commerce in the transportation industry is similar to - but more accelerated than the development of other areas of the industry. Early on, logistical operations involved a complex chain of transportation transactions, a large number of participants and hand-offs, and a multitude of redundancies and reworking.

The transportation world was easily broken down to three groups. At the basic level an asset-based carrier provided services directly to a customer. Customers had numerous bilateral contracts with carriers, and carriers had many one-to-one contracts with customers. Contracts involving multiple carriers and multiple customers were almost non-existent.

Beyond this basic arrangement two other marketplace solutions formed. Bulletin boards developed on which truckers posted notes at truck stops offering capacity and responding to notes seeking capacity. This method required an actual presence at the truck stop. Over time, truck brokerages performed load matching by improved communications.

The e-commerce methods available through the Internet built upon the former methodologies. The bulletin board is the simplest. The business model is fairly simple. The bulletin board provider charges a monthly subscription fee and offers levels of service, remaining mindful of the goal of offering the preeminent bulletin board. Users will rarely look at more than one or two sites. A first mover advantage exists for the provider who quickly becomes the largest.

To grow revenue the provider has two options. It can either expand into other modes of transportation, which may not be easy, or it can offer additional value-added services. One bulletin board for motor carriers provides credit checks, handles fuel purchases, and obtains group discounts. Often these are services rendered by a third party who offers access to their services through the bulletin board, and pays a fee to the bulletin board.

Another type of marketplace e-commerce is the auction. These sites perform a freight rate auction marketplace. Shippers either place their desired bids on the site or they may just request the carriers best rates. Some carriers might advertise capacity and seek bids for it. The process is blind. At a predetermined date and time, the winning parties are advised of the winning bid.

The e-commerce marketplace also offers the exchange method, a process similar to that of an auction, but with several distinguishing features. For example, one can see the moving rate as the market moves to a price. It is like a commodities exchange. Currently, however, only providers offer capacity and speculators will be kept out by preliminary screening of participants by the exchange operators.

9. What Will the Future Bring?

A large number of carriers fear that the technology will cause further depression of rate levels. This is a valid concern. Internet auction sites have usually yielded two types of results. For products, the price can sometimes rise, but for services, the price frequently has been driven down (perhaps reflecting the perishable nature of services).

In today’s transportation market, the cause is not so much e-commerce, but basic microeconomics. If supply exceeds demand, the price will fall. E-commerce sites will not cause rates to fall further than they would - but they may cause rates to fall faster. Better communication and information in the marketplace will allow prices to achieve market equilibrium more quickly.

E-commerce penetration can be determined by supply and demand in addition to market aggregation and intermediation. The advent of e-commerce suggests a range of possible outcomes. Carriers may find pricing on the spot market unappealing because they lack the necessary information systems and personnel to handle such market dynamics. In such cases, dealing with 3PLs may be the easier option.

Rather than getting caught with capacity that must be sold at a steep discount, carriers may seek contracts with 3PLs for large cargo commitments. These rates may be lower than those for some cargo, but such action also requires less employees, less time and less information technology. Overall, the economic result may be more sensible. Customers have often proven themselves ingenious at using spot market pricing tricks to establish a basis for ongoing rate levels. Carriers may just wish to avoid subjecting themselves to this rate whipsawing.

10. Conclusion:

Due to e-commerce, an inevitable market shakeout awaits the transportation industry. The number of transportation and logistics e-commerce products proliferates daily. Despite their success in attracting venture capital, most will succumb to the handful of survivors, who will, in turn, be absorbed through mergers and acquisitions. And while many B2B sites claim to eliminate the need for intermediaries, many are becoming intermediaries in their own right. Sites that claim to embrace intermediaries risk becoming trivial as the intermediary, with its existing customer base, lowers the site’s price by leveraging it against other sites. The e-commerce business models will prevail, and, like Internet time, the shakeout will be brief - but memorable. Information is a critical component of the supply chain and will continue to drive change in the transportation and logistics markets. E-commerce will be a major component of this transition.

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