E–Logistics: The Slowly Evolving Platform Undrepinning E–Business

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INTRODUCTION

By 1998, arguably some four years after the Internet's general user beginnings, many commentators did not doubt that Internet based home shopping was on its way to revolutionize our lives. At the margin, it certainly allowed us another purchasing channel and for many retailers some 5% to 12% of differing goods is now done through an "e-store" or "e-marketplace". (Visser & Hassall, 2005). However, by 2001 a range of major e-business summits, perhaps very notable being the 44 nation OECD hosted e-transport and e-logistics summit in Paris (June, 2001), was beginning to demolish the euphoria of B2C. In its basic state, B2C was a very marginal business. But what of B2B? Yes, it is a bigger sector but how were the business rules and logistics strategies shaping up for network design, e-marketplace use, and logistic fulfilment changing when compared to the rapidly evolving B2C environment? The ICT sector rapidly began to assemble a host of B2B applications for Supply Chain Management and despite the "tech wreck" occurring towards the end of 2001, these highly expensive suites of products found some traction over the next three to four years. So, initially, the development of large logistics software packages such as I2, Baan, Descartes, and so forth, were offerings that the B2B sectors availed themselves of. However, besides the ICT developments in the B2B space, the evolution of new logistics strategies would prove themselves to be good, bad, and various shades in between, when examining the full end to end (E2E) e-business operations. Since 2001, a tide of interest has turned towards the adoption of fit for purpose e-logistic models to support the end to end functionality of e-business. Hassall (2003) describes a detailed survey for the international Postal Authorities as to what new e-logistics and e-business strategies should be developed. These ranged from new householder delivery choices, to global e-marketplaces being developed. Why this survey was important was because the global postal authorities are the largest combined B2C operator and also a growing B2B logistics supplier.

The Tools of E-Logistics

The staple of the world's logistics is activated by orders generated by the use of the phone and the fax machine. This is true for small/medium enterprises (SMEs), small

Table 1. The tools for e-logistics

E-logistics Tool	Description
e-ordering	Via Web, e-market, auction, collaborative system, etc.
EDI Requirements	Optional – dependent on contract requirement
Activated order/Shipment number	Usually an imperative requirement. Various Generators
Activation of Logistics services -order/pick/pack -despatch -transport, etc.	Activation of a specific set or single operation from warehouse, transport operator, delivery agent etc through shipper, broker, customs agent, and/or sub-contractor or own fleet
Barcode or RFID scan	Optional – dependent on requirement
Track and Trace capability	Optional – dependent on requirement
Call Centre CRM ability	Optional – dependent on requirement
Automatic Logistic Performance calculator	A rare but powerful tool. Can save many hours per week in evaluating if functionality is available.
Client Accounting	Commonly an e-market and portal offering,
Quarterly reporting	Specified financials/service performance or customers, etc.

Source: Hassall (2005)

office/home office (SOHOs) and Medium Enterprises (MEs) involved in B2C, b2b (small business to small business) or b2B (small business to large business). In many ways it will be the customer requirements that eventually force the smaller enterprises into adopting the use of further enhanced Web based products so that the information flow and reporting of their product orders or dispatches can feed customer or client information systems. B2B logistic contracts will often have a predefined set of software systems in place for reporting, monitoring, and accounting. Usually these will be more expensive than the suite of systems that the SMEs, SOHOs, and so forth, will have at their disposal.

The above list of e-logistic options is a list of capabilities that either the customer may require, or the logistics supplier offers. It would be quite unusual for many major 3PLs (Third Party Logistic Providers) to supply all of these capabilities unless directed to, usually by the decree of a major client. However, a subset of these strategies ought to be examined by the supplier or the e-logistics provider fulfilling the service.

The Evolution in B2C Logistics

The evolution of B2C from the Christmas mishaps in 1999 to now has been to achieve a cheap and successful delivery by the delivery agent. This statement is true but another dimension to the home delivery is trying to minimize the problems associated with product returns, and products being taken back to the delivery depot. That is, home delivery is also aware of the problems of "reverse logistics," which range from 2% returns for household chemicals to 50% returns for magazines. (Bayles, 2001). Reverse logistics is a large cost burden and, in fact, integral to the physical and environmental cost of the B2C operation. (Sarkis, Meade, & Talluri, 2004). Generally, the full planning and operational capability required for reverse logistics has even spawned several specialist providers in this area. (Poirier & Bauer , 2001). However, is a better way to minimize the reverse logistic operations to have the customer pick up the item? This may minimize some aspects of reverse logistics, but it may not be a winner in the area of customer satisfaction. Certainly delivering to a retail agent is a large cost benefit for the delivery agent. One drop of a hundred parcels to a retail agent is a lot cheaper than attempting delivery to one hundred households. But perhaps the delivery dump at the retail partner is not the choicest alternative for the majority of customers.

New strategies outlined in Table 2 are, for example, the electronic home parcel box (Number 2) which is just progressing beyond the R&D stage. In Europe this method of delivery is being discussed in regard to new planning regulations and this strategy may be a significant strategy within ten years. One way retailers are experimenting with loading for household delivery is directly out of their normal retail premises, not from a distribution centre. This Strategy (Number 8) is employed by such retailers as Tesco. This strategy may negate the need for a separate loading centre but what happens when 100 commercial vehicles arrive to load at the same time slot? Answer: Severe queuing and a valuable loss of time for the delivery agents.

However, for a wholesaler with a diverse enough range of products, an entire retail operation could, in theory, be by-passed in a home shopping environment. The wholesaler takes orders, picks the orders from a central warehouse, then undertakes the delivery of these orders directly to households from the warehouse. The benefits to customers could see a substitute to a retail price which would be now made up of a wholesale price, plus a transport cost, and a small margin. This could be cheaper than the retail purchase price. Many major retailers, however, offer both services to span both the customer shopping and home delivery requirements.

Customer Fit in the New B2C Pairwise Strategy Models

Some of these new strategies, listed in Table 2, are geared towards a high degree of cost minimization for the delivery operator. This inherently may not be a bad thing, however, where does the customer rate in the strategy? More importantly, customer response surveys may indicate exactly what proportion of the customers are happy and unhappy with the offered delivery strategies. If the surveyed service response rating exceeds 85% or 90%, then that one strategy may be worth keeping for that delivery agent for that class of home-shopping products. One survey conducted in 1998 (Hassall, 2000) suggested that about 12% of electronic order forms allowed for alternative delivery instructions. Limiting alternative delivery strategies will hardly reflect a high level of customer satisfaction. However, allowing a limited set of delivery options may add significantly to the home shoppers' level of satisfaction.

Figure 1 suggests that the combination of "hypothetical generic pairs" of strategies will give at least an equivalent level of cumulative satisfaction. Seven pairs of strategies are hypothetically displayed. For any particular retailer and delivery agent it is a matter of examining what pairwise options are feasible and customer friendly. It may only be that two single and two pairwise options are feasible. Perhaps even one direct hop strategy and one pairwise strategy is feasible for the particular commodity purchased, but it is certainly part of the operation that the retailer is aware of the customers' highest preferences for the particular delivery options either offered or not offered. For example, the delivery of backyard furniture may very much limit the feasibility of selecting from at most a small number of the 13 options listed in Table 2.

Why are pairwise delivery strategies important? As stated above pairwise strategies can reflect higher levels of customer

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