E-Business in a Vendor-Customer Interface: Implications for Logistics Concerning Physical Distribution and Information Management

Orremo, Fredrik; Persson, Pehr-Ola

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E-business in a vendor-customer interface: Implications for logistics concerning physical distribution and information management.

Fredrik Orremo, MSc*
Pehr-Ola Persson, MSc**

*Department of Design Sciences, Packaging Logistics, Lund Institute of Technology, Phone: +46 46 222 95 19, Fax: +46 46 222 80 60, e-mail: fredrik.orremo@plog.lth.se

**Department of Logistics and Transportation, Chalmers University of Technology, Phone: +46 31 772 1326, Fax: +46 31 772 1337, e-mail: ppeoper@mot.chalmers.se

ABSTRACT
In today’s business environment the use of e-business is gradually becoming more common. This paper sets out to highlight the implications for logistical operations and possible future developments in a vendor-customer relationship (B2B environment) when e-business is introduced. The paper implies that use of an e-business solution does not necessarily mean any changes in the physical distribution. It also shows that reality does not always correspond to the expectations of bypassing different functions in the supply chain. Both case studies show a change in the information flow but the different steps the information goes through remain the same; hence, no prior steps are bypassed with the e-business solution. However, value can be added to the vendor-customer relationship, i.e. increased information, online tracking of orders etc.

INTRODUCTION
Different e-business applications and platforms are predicted to have an impact on the future way of doing business and the supply chains of tomorrow (Skjoett-Larsen, 2000:1; van Hoek, 2001; Bauer et al., 2001). It is claimed that the companies must adapt and change their business processes when implementing e-business. The customers’ behaviour is predicted to change, raising new demands on business operations (Rao, 1999; Lancioni et al., 2000).

In many cases the marketing department uses e-business as a tool for marketing and sales, thereby not considering e-business as a tool for creating efficient logistics solutions. For the customer, in a B2B relation, e-business in most cases means just another communication channel, a complement to the traditional ones (Phan, 2003; Porter, 2001). This paper sets out to highlight implications for logistical operations, in this case: physical distribution, information management and customer service, in a vendor-customer relationship (B2B environment) when e-business is added. Further possible developments for the e-business initiative are elaborated on.

Availability, transparency, timeliness and quality of information reduce the bullwhip effect, increase forecasting abilities and thereby reduce overall inventory levels (Lee et al., 1997; Voss, 2003). Although the correlation between e-business and the bullwhip effect is not fully investigated it is likely that there is a positive correlation between those two factors. The Internet enables access for communication peer-to-peer between the different actors of the supply chain, i.e. the use of information systems ensure visibility of e.g. item demand, location and status to all parts of the logistics network (Boyson et al., 2003).

A common view is that intermediaries in the supply chain will be bypassed and that customers will be doing business directly with the original manufacturers instead of intermediaries (Webb, 2002). This raises new challenges for the original equipment manufacturers (OEM). When
operating e-business the number of orders is claimed to increase whereas the number of items per order decreases (Beamon, 2001). The logistical operations extend from sending large shipments to a few recipients to small shipments going to many recipients. Another claimed effect is that goods will be distributed from the OEM to the customer, using the traditional channels of distribution. This poses conflicts in the distribution system since the intermediaries have to change their role into becoming a logistics provider instead of a retailer (Webb, 2002).

Golicic et al. (2002) state that connectivity via the Internet helps companies share information in an easier way than before. Instead of sending information and typing information manually the information is automatically transferred and spread throughout the system. In e-business the customers carry out all, or most of, the order processing work, i.e. entering the order on the web site, and increasing the product’s cost efficiency (Akkermans, 2000). It is also claimed that the accuracy of information increase since the information is entered manually into the system only once.

The Internet has changed the conditions for customer service. Voss (2003) argues that there are three main areas of customer service in e-business: foundations of service, customer-centred service and value-added service (Table 1).

Table 1: Areas of customer service

<table>
<thead>
<tr>
<th>Foundation of service</th>
<th>Ease of navigation, web site effectiveness and fulfilment and delivery</th>
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<tbody>
<tr>
<td>Customer-centred service</td>
<td>Trust, information and status (current status of orders, order tracking, etc.) and configuration and customisation</td>
</tr>
<tr>
<td>Value-added service</td>
<td>Education, information and extra services related to the main offering, e.g. proactive services, such as reminders and innovations</td>
</tr>
</tbody>
</table>

These stages are also connected to the non-virtual offering of a company meaning that e-business, to a high degree, depends on other services offered by the company. Being available 24 hours a day, seven days a week, means accessibility for the customers but has also to be associated with the corresponding service and delivery of ordered products. From a customer’s perspective it is also important that the e-business solution also implies added value, e.g. through better access to information, increased service, shorter lead times, efficient order handling, etc..

As a complement to the information provided by the web shop, personal contact has been shown to be an important tool for customer service (Bernett et al., 2001). A combination of e-business and personal contact is thus probably the most beneficial combination for customer service. Focusing on customer value delivered through the web shop, personal contact will be used mostly as a complement to the services available on the Internet.

CASE STUDIES

In order to illustrate the effects that can be expected when implementing e-business in the vendor-customer interface two case studies have been made. The case studies concern two Swedish companies, having successfully implemented e-business. In both cases the implications for the physical distribution were investigated as well as how the e-business solution altered the management of information.
CASE DESCRIPTION: THE SPARE PART VENDOR

The case company is the spare part provider to the customers of a multinational machine-selling company. It provides standard spare parts, screws, ball bearings, etc. and speciality parts that only are available through the spare part vendor, to established customers. Hence, the company does not operate on the open market.

The supply chain consists of the Spare Part Vendor, the marketing companies of the multinational company and the customers. The marketing companies act as the seller of the spare parts to the customers and can be seen as an intermediary between the Spare Part Vendor and the customers.

The Web Shop

The web shop is used between the marketing company and the customers as an additional way of ordering, a complement to the traditional ways, i.e. fax or phone. Hence, customers having access to the web shop can still use fax or phone for ordering.

The web shop includes five basic functions, the possibility to order with track and trace possibilities, a database over spare parts offered, online drawings for certain machinery and insight into the inventory of spare parts kept at the vendor. Further, the customers’ orders are saved in a database and the customers can view their historical orders.

Figure 1: Supply chain of the Spare Part Vendor

Supply chain of spare parts

The customers order from the marketing company via fax/phone or web shop. The orders are all checked manually before manual transfer into the internal computer system. Hence, the web shop is only used in the interaction between the Marketing Companies and the customers. The orders coming through the web shop are electronic; however, they must be manually copied into the internal data system. Consequently the Spare Part Vendor sees no differences between orders coming via the web shop or via the traditional channels. The physical distribution and handling of an order is done at the Spare Parts Vendor’s warehouses. The orders are packed and shipped directly to the customer with third party distributors.

CASE DESCRIPTION: THE PAPER WHOLESALER

The Paper Wholesaler is one of Sweden’s largest wholesalers of paper products, i.e. all sorts of printing paper and consumable paper products. The company was formerly owned by its largest suppliers but is now acting independently of its previous owners.

The company is organised into three departments: a marketing department, a logistics department and an IT department. It is also divided into two functional areas: fine paper and consumable paper products. The marketing department is responsible for the customer contacts, including the web interface.

The Internet interface

The web shop is used between the marketing department and the customers as a complement to the traditional ways, e.g. fax or phone. It is also used as a way to provide product information to
the customers. In this case the service is provided to all customers. The web shop offers functions like order entry, availability and price, statistics on purchased products and general product information.

Regardless if the order is entered via the web shop or entered by the sales department, the order information has to be approved at the marketing department as a safety measure. This means that the situation is similar to the case of The Spare Part Vendor regarding the information flow.

Figure 2: Supply chain of the Paper wholesaler

Supply chain of paper products
The marketing department of The Paper Wholesaler is totally responsible for customer contact, which means that the logistics department in general is not involved in the design and running of the web shop. This also implies that issues regarding information management are run by the marketing department. The logistics department is only responsible for executing orders delivering the ordered products to the customers. Here, orders coming from the traditional marketing channels are treated exactly the same as the ones entered via the web shop. Accordingly, the interface between the marketing and logistics department is the same for all types of orders. Orders are executed and distributed by the companies’ own trucks in the major areas of Sweden.

DISCUSSION

Physical distribution
In neither of the cases the physical distribution has been altered. Orders from the web shop were handled in exactly the same way as before, indicating that existing systems are sufficient for handling e-business. One reason for this is that the main offering, the product, remains the same for e-business as in traditional business. Despite the assumptions in literature, an analysis of ordering data showed that the customers have not changed their ordering behaviour due to e-business. This is also a possible reason why the existing distribution systems have not been altered yet. Another possible explanation is that the customer needs are the same as before, indicating that it takes more time for the customers to fully benefit from the services provided through the web interface.

Information management
The main benefit of the e-business channels in the two cases, from the vendor point of view, is that the customer places the electronic order. Considerable savings are achieved on the part of the vendor through the “outsourcing” of administrative tasks to the customers, identified by Norton (2000) and Akkermans (2000). The Paper Wholesaler estimated the cost for handling an Internet order as one tenth of the cost of a normal order. The main part of the saving was a consequence of better utilisation of the personnel.

In the two case-companies the released capacity also enabled the companies to focus on value-adding services as a direct consequence of the changes in the information flow. In both cases the
vendors recognised this opportunity, and consequently acted to make their customers primarily use the web when ordering.

**Customer service**

In both cases the web shop provides increased value to the customer, e.g. visibility of stock, product availability, accessibility, detailed product information, etc. This means that the customers are able to get this information on a 24 hour basis through the Internet. Increased efficiency in the ordering process enables the vendor to focus on non-trivial issues where customers require highly specific information. In the Paper Wholesaler case extended personal service was offered due to changes in the sales organisation where time-consuming, non-value-adding processes were eliminated.

One way to increase the efficiency in the ordering process is to distinguish between what can be done on the Internet and what requires personal contact. In the banking area the Internet is used as the main information channel by many customers. The customers experience fast service through the Internet when required and expert consultation at the desk when needed.

**FUTURE DEVELOPMENTS**

A possible development, detected both in literature and in interviews from the case studies, is that the e-business system is directly related to processes further back in the supply chain, i.e. directly to the logistics department or even directly to the OEM, see figure 4. The customer order is directly sent to the marketing, logistics/fulfilment departments and to the OEM. This enables new logistical structures where an order can be fulfilled from the logistics/fulfilment department or directly from the OEM or from both. This poses new challenges for the actors in the supply chain; OEM:s might not be organized for sending single orders, the location of the OEM:s could be non optimal for direct shipping to customers etc. The complexity of the logistics system increases; an order can be fulfilled from several places. Hence, one order that former arrived in one occasion now arrives in several different occasion form different senders.

Further the hub and spoke system created with intermediaries will be challenged, larger amount of shipments might be sent directly to the customers requiring new logistical structures. For the two companies and their web shops, studied in this paper, this is a very important issue. It also shows that there is a need for further research before changing the design of the supply chain.

**CONCLUSION**

Within the case studies the largest impact from implementing e-business was a change in the information flow. The customers provide the vendor with information electronically, thus making the ordering process at the vendor more efficient. A lot of the manual operations regarding information handling could be eliminated. In the physical distribution of goods, however, despite the expectations found in literature, the changes were non-existing. Hence, adding an e-business
solution does not necessarily mean that a company needs to rethink or alter their operations. In both companies, considerable savings are achieved as customers use e-business as their standard ordering channel. We believe that, in the future, e-business will be used as the standard way of ordering products or services in business-to-business relationships. Similar to Internet banking, the most common operations will be made on the Internet whereas advanced services will be offered through the traditional channels, e.g. through human contact between organisations. To conclude the use of e-business can increase customer service and enhance information management. Further e-business opens up for new logistical solutions and structures although changes are not necessary.

REFERENCES