Cycle Time Reduction in the Order Processing of Packaged Computer Software

by

Mark N. Frolick
The University of Memphis

Executive Summary
Product distributors are facing increasing competition from many avenues and an increasing number of competitors in the market. As a result, distributors are looking for ways to gain a competitive advantage. Few markets are more competitive than that of packaged computer software distribution. With thousands of software titles to chose from, how does a distributor efficiently handle the ordering process of this software?

One approach to make order processing more efficient is through reengineering. Insight Direct, a Tempe, Arizona-based hardware and software distributor, did just that. Their original order processing system had several problems. It did not provide on-line access to inventory information, so salespeople accepted customer orders for products that were not in stock. The resulting order would then be back-ordered without notification to the salesperson or the customer. To add to the problem, the way back-orders were handled was not efficient. To address this problem Insight Direct reengineered their order process and developed an interorganizational information system (IOIS). This system allowed Insight Direct to exploit technology for their competitive advantage. The IOIS helped Insight Direct better meet the needs of their customers by reducing order processing cycle time, lowering transaction cost, and increasing profitability.

Introduction
While most companies have automated many of their functions (accounting, manufacturing, etc.), organizations are now exploring the final frontier of automation—the sales process (Kay 1995). In an attempt to become more profitable, companies are seeking new ways to reduce sales/order processing cycle times, cut the costs associated with sales/order processing, make salespeople more productive; all while trying to provide better service to customers.

While the automation of sales/order processing holds a great deal of promise, it is a huge task to consolidate the information needed to integrate all parts involved in the process. For the organizations that have the technical expertise, however, the payoffs can be substantial. For example, Campbell’s Soup reengineered and automated its sales process. For their effort, Campbell is now saving more than $18 million annually through reduced order cycle times, more accurate invoicing, and better control of funds (Kay 1995). This improvement in sales/order processing through the use of automation is now being explored by organizations in many industries.
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Few industries are more competitive than computer hardware and software distribution. While most distributors of hardware offer several configurations of their products, the number of computer software programs available seems almost limitless. With new software packages and new versions of existing programs being released with ever increasing frequency, it is extremely difficult for distributors to keep these products in stock.

Insight Direct, a Tempe, Arizona-based hardware and software distribution organization, felt that they had to improve the performance of their sales/order processing system. They needed a system that could support a broader product offering, while reducing the cycle time involved and making the process more profitable. The result is an on-line inventory status and electronic data interchange (EDI)-based sales/order processing system that has met each of these requirements and has dramatically increased customer satisfaction. This paper presents the cycle time reduction initiative at Insight Direct, addressing order processing, acquisition, and distribution for packaged personal computer software.

The Company
Insight Direct was founded in October 1987 in Tempe, Arizona as a distributor of computer hardware and software. Their business has grown substantially over the last few years to the point where they now have approximately 1 million customers. Insight Direct has grown from $1 million in sales in 1987 to sales of $250 in 1995. Their customers, who are ultimate end consumers of software products, place an average of 2,000 orders per day with peaks of up to 3,000 orders per day. Insight Direct has 400 order entry terminals which allow its salespeople to serve their customers’ orders efficiently for over 5,700 product stock keeping units (SKUs) offered by the firm. Insight Direct, like most companies experiencing rapid growth, had growing pains associated with an increasing customer base and a plethora of software products to offer.

The Challenge
Insight Direct wanted to broaden its software product base to address increasing customer demand for the latest software products. If a customer wanted to order a software product that Insight Direct did not have in stock there was always a possibility that the customer would take his or her business elsewhere. To avoid this dilemma and to ensure that the software needs of their customers were met, Insight Direct wanted to broaden its software product offering tenfold. While an admirable objective, this strategy would have dramatically increased the complexity associated with managing their business from both an order
entry and inventory control perspective due to limitations of their existing order processing system. To add to the problem, while there are hundreds if not thousands of software titles available, only 25 of these titles had a turnover rate high enough to justify holding them in inventory at Insight Direct’s distribution center.

Insight Direct wanted to sell every conceivable computer software package available under the sun but it did not want to have to keep the software in inventory. This issue was problematic given its existing systems and practices.

The Original Order Processing System

Lead times for software products orders at Insight Direct for out-of-stock products were extremely long and could often take up to seven days to fill. In a best case scenario, it would take Insight Direct three days from the time a customer placed an order to get that software product into the distribution center. Then shipping the software to the customer took an additional two days. The total cycle time for this best case scenario was five days. In the worst case scenario it would take five days to get the software product into the distribution center with an additional two days for shipping the product to the customer for a total cycle time of seven days. A significant problem with this order processing system was that salespeople would take orders for computer software packages without knowing if the products were actually in stock. It was not until the evening after the order was taken that a computer program would check customer orders against current inventory. If the product was not available, it would be

Figure 1: Order Processing Prior to the Interorganizational Information System
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“back-ordered.” The salespeople would then be alerted to the back-order condition the next morning when a purchasing report was generated.

In the “back-ordered” situation, the purchasing department had to generate a purchase order that would be faxed to the appropriate software vendor. The software vendor would then have to enter the purchase order information into their own order processing system, which would trigger the software product being express shipped to Insight Direct (see Figure 1).

Upon receiving the vendor-ordered software product, Insight Direct would have to perform the product-receiving process, which includes bar coding the software product, placing the product on the appropriate shelf in the warehouse, and entering the software’s availability into the computer. The computer would then release the order to the distribution center for shipping. The software product then had to be picked, packed, and express shipped to the customer. This process is very expensive and time consuming when one considers that one piece of software retailing for $55 typically has a gross profit of approximately eight dollars.

Insight Direct realized that for reducing cycle time, increasing customer satisfaction, and making the packaged computer software order process profitable, the current system was not adequate. Therefore, Insight Direct set out to solve the order processing dilemma by reengineering the sales/order process and developing a new information system to support it.

The Solution
To solve the problems associated with the sales/order process, Insight Direct decided that it needed an easy-to-use system that would allow it to access its vendors’ software product inventory information in an on-line manner. Therefore, Insight Direct developed an IOIS that allowed it to better interact with its software vendors. This IOIS approach to order processing has allowed Insight Direct to create a competitive advantage in the field of packaged computer software distribution. The use of IOIS to exploit technology for competitive advantage is becoming increasingly popular (Gomes-Casseres 1994, Kanter 1994, Levinson 1988, Levinson 1994, Nichols et. al., 1995).

An IOIS is an integrated data processing/data communication system utilized by two or more separate firms (Barrett 1986-1987). Use of IOIS has allowed business partners to reengineer their relationships in a beneficial way to all parties involved (Riggins & Mukhopaphayay 1994). IOIS benefits include higher levels of operating efficiency both internally and inter-organizationally, better bargaining power for products, lower product costs, and improved customer service (Johnson & Vitale 1988). The IOIS at Insight Direct, which took three months to develop, has
had a significant positive impact on both customer service and profitability. The Interorganizational Order Processing System

The IOIS initiative at Insight Direct required significant collaboration between Insight Direct and its software vendors. One of the things that is often true of interorganizational relationships is that they are “out of alignment” (Wetherbe 1995). Often the different organizations in a supply chain hold very different perspectives on the world in which they compete. A key to reducing cycle time is for the organizations in an interorganizational relationship to better understand each other’s needs. Therefore, it was important for Insight Direct and their vendors to understand the problems and concerns that each were experiencing in the software product order fulfillment process.

The IOIS at Insight Direct was developed to allow salespeople to determine product availability interactively for every product SKU that they have in the system on a

<table>
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<tr>
<th>Table 1: Summary of IOIS Benefits at Insight Direct</th>
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<td><strong>Cycle time from customer order to product delivery</strong></td>
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<tr>
<td>Best case - 3 days</td>
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<tr>
<td>Worst case - 7 days</td>
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<tr>
<td><strong>Percentage of product SKUs sold which are held in Insight Direct’s inventory</strong></td>
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<td><strong>Number of software products offered</strong></td>
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real-time basis, regardless of inventory location. For example, some products may be stored in Insight Direct’s distribution center while others reside at a software vendor’s location. The IOIS displays cumulative inventory availability for software products from vendors. This system allows salespeople to better serve customers by providing timely and accurate product availability and delivery information.

Order processing at Insight Direct is now a much smoother process. Salespeople now know the availability and location of products. If the product resides in a vendor’s warehouse, the salesperson simply answers the system prompt, “Do you want to drop ship this line item? Y/N.” It is at that point that the IOIS takes over the order process. The system reads through all line items with a “Y” answer and compares the products to vendor availability. If all of the interorganizational partner software vendors have the product in stock, the system then chooses the vendor with the lowest price. Once the vendor has been selected, the order is transmitted to the vendor via EDI. All vendors have agreed to same-day express ship orders directly to customers for all orders placed by 4 p.m. (See Figure 2). The use of EDI as part of an IOIS interface is becoming more commonplace (Bakos & Brynjolfsson 1993, Riggins 1990, Riggins & Mukhopaphayy 1994, Williamson 1995).

This interorganizational order processing system has allowed Insight Direct to grow its packaged software distribution business in a manner that is both profitable and customer service-oriented. This new system has yielded several benefits for Insight Direct (See Table 1). The order processing cycle time at Insight Direct is now three to five days shorter, increasing customer satisfaction by getting software products to customers faster. Software inventory at Insight Direct’s distribution centers has dropped by 80%. The IOIS allows Insight Direct to sell any product it wants without having to hold it in inventory. This system has allowed Insight Direct to widen its total product offering to 35,000 products versus the 6,000 products that were sold with the original order processing system.

Perhaps the largest contribution the IOIS has made at Insight Direct is its contribution to the bottom line. By using the IOIS to drop ship software products from vendors directly to customers Insight Direct has lowered their order processing costs by an amazing 95%. A process that once cost several dollars per order now can be done for pennies.

Keys to Success

In order to be successful, it was determined that the system needed to simplify the order process, reduce order processing cycle time, increase customer service and reduce the costs associated with order processing. There were several keys to the success of the IOIS initiative at Insight Direct:

Transforming the original order processing system into an IOIS
Automating the order entry process
Simplifying the process
Transforming the original order processing system into an IOIS. Insight Direct realized that the original order processing system was not working in a way that would allow it to become more efficient and more profitable. Therefore, it felt there was a need to change the way the order process was structured through a reengineering effort. This reengineering effort included better alignment with their vendors through better understanding of the roles each played in the process. This effort also required a closer working relationship, or partnering approach, where the software vendors had to be willing to share inventory and price information in order to increase their share of Insight Direct’s business. In return for their willingness to share inventory and pricing information, the software vendors are provided a report at the end of each month detailing the total number of orders sent to vendors and the percentage of those orders the particular vendor received. This allows vendors to change their pricing on a regular basis to compete for business. It also ensures that Insight Direct will continue to obtain the best possible price for products.

Automating the order entry process. A key to the success of the IOIS at Insight Direct was “informating” (Wetherbe 1995), or the free flow of information. Without vendors agreeing to share their inventory and pricing information, there would have been little need to develop an IOIS as it would have accomplished little new that was not done with the original order processing system. However, with vendors agreeing to provide their inventory and pricing information, technology was the “enabler” for improving the order process by providing access to this critical information as well as the EDI conduit to place orders. One of the keys to success for the software vendors in this automation process was the realization that they could increase the sales of a particular software product by lowering their price under that of the other vendors. By doing so the system would automatically send them all of the orders for that particular product.

Simplifying the process. The original order processing system was limiting salespeople’s effectiveness. They were often unable to answer customer questions concerning product availability and would not realize out-of-stock situations until the day after orders were placed. The new IOIS allows Insight Direct to offer every software product they want, not have to inventory the product, give salespeople real-time inventory information regardless of location, and simplify the order process so that the salespeople only have to make one yes/no decision concerning drop shipping the products. After that one decision, the system determines which vendor is best for the order and transmits the order to that vendor. Not only does this simplify the process, but it ensures the highest order fill rate and the best possible price at all times.

Conclusion
In an effort to increase customer satisfaction, become more efficient, lower costs, increase profits, and reduce order
process cycle time, many organizations are beginning to examine their order fulfillment processes. Insight Direct is one such company. The original order processing system at Insight Direct was slow, stressful on salespeople, and costly when dealing with out-of-stock items. Through an intensive reengineering effort, Insight Direct developed an IOIS to better handle the 2,000 to 3,000 orders that they receive each day from their customer base of one million. Information sharing proved to be a key to success in implementing the IOIS. Information often proves to be a key factor required to improve cycle time between organizations (Nichols et al., 1995).

More important than the development of the IOIS was the establishment of partnering arrangements with software vendors. When all organizations involved in the order process realize the part that they play in the process’s ultimate success, they are more willing to share information, helping reduce the cycle time of the process. By developing their IOIS, Insight Direct has turned order processing into a process that better meets the needs of customers by reducing the order processing cycle time. This new system has also lowered transaction costs, increased operating efficiency, and made Insight Direct much more profitable.

References


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