An Investigation of Amazon’s Supply Chain Management Strategy

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Abstrak


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1. Background

Inventory management plays important role while pursuing company objectives. Amazon is a good example how a company should manage its inventory. When Bezo, founder of Amazon.com selected competitive strategy which he wanted to develop with Amazon to run an online business, he used three criteria such as: offer low price product, has a relative big market, and wide range of choices (Pillai, 2004). He found books matched with the criteria because there were 1.5 million books in English, 3 million books in all World Wide languages and 4,200 publishers in the United States (Kotha, 1998). To get a low price offering to customers, Bezo wanted to decrease inventory cost by not opening store as well as warehouse (Pillai, 2004). Conversely, Amazon managed inventory by maintaining its own warehouse to get benefits of time and cost efficiency in order to satisfy customers (Pillai, 2004). In this situation, it can be seen that there was an inconsistency between what Amazon wanted and what it decided. On the hand Amazon did not want to deal with its inventory and on the other hand, Amazon managed its own inventory to ensure customers satisfaction.

2. Amazon.com strategy of inventory management

In 1999, Amazon had ten warehouses after adding new six warehouses which increased capacity became over five million square feet. They were supported by very well maintained and fully computerised inventory system which led to easiness in dealing with management inventory (Pillai, 2004). Furthermore, in holiday season 1999, Amazon stocked every possible item that customers wanted to buy in order to avoid customer disappointment due to could not find what they want (Pillai, 2004). In this situation we can see that Amazon focused on effort to satisfy its customers as it
increased availability and outbound logistic performance.

Product availability is a significant factor which influences customer loyalty as well as easiness of return and timeliness of delivery (Heim and Sinha, 2001). In addition Newton (2001) found that product distribution from merchant to consumers would influence consumer decision to order next items. Innis and La Londe (1994) also acknowledged that one of the most important factors which affect consumer satisfaction and intention to repeat purchasing is physical distribution capability. Base on these perspectives, we can see that by increasing the number of inventory, Amazon increased availability to satisfy customers. In addition, by adding several new facilities, Amazon could increase its outbound transport performance by reducing the distance and delivery time as the warehouses were closely located to customers' houses or offices.

By stocking a wide range of items and managing its own inventory as well as adding several warehouses, consequently Amazon could increase responsiveness in order to satisfy customers. Chopra and Meindl (2007) acknowledged that supply chain responsiveness is a capability to:

- a. respond to wide range of demand
- b. fulfil order in short lead times
- c. manage a huge variety of items
- d. develop highly innovative items
- e. provide a high level of service
- f. manage supply uncertainty

However, despite of increasing of responsiveness, Amazon should spend a lot of money to handle inventory. Increasing responsiveness requires cost increasing. Chopra and Meindl (2007) describe the relationship between responsiveness and cost in the figure 1.

![Figure 1. Cost-Responsiveness Efficient Frontier (Chopra & Meindl, 2007, p.30).](image)

The figure shows that when a company wants to increase its responsiveness, it should increase cost as a consequence.

Furthermore, in 1999, most of the decision to determine what sorts of items should be stoked was based on speculation. We can see that Amazon stocked every possible item which would be bought by consumers (Pillai, 2004). Using speculation strategy, Amazon faced a great amount of uncertainty with its inventory. Additionally, inventory in large volume would increase inventory holding cost as well as face a possible depreciation of the inventory value (Bailey and Rabinovich, 2005).

Increasing in the number of warehouses and locate them close to consumers could minimize respond time (Chopra and Meindl, 2007). The figure 2 shows relationship between desired response time and number of facilities.

The figure 2 shows that when a firm deal with customers who prefer to decrease response time, the number of facilities should be increased. However, increasing in the number facilities will increase facilities cost (Chopra and Meindl, 2007).
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Figure 2. Relationship between desired response time and number of facilities (Chopra & Meindl, 2007, p.77)

When Amazon decided to increase responsiveness by adding more warehouses, consequently it increased facilities expense. Pillai (2004) acknowledged that cost of one warehouse which Amazon managed was around $50 million each. It means Amazon needed around $500 million for ten warehouses in 1999. Additionally, Amazon inventory was supplied by distributors instead publisher (Pillai, 2004). Hence, it could not get a good margin.

Overall, increasing inventory on the basis of speculation and increasing in the number of warehouses without improvement in dealing with inventory led Amazon did not achieve successful in managing the inventory in 1999.

In holiday season 2000, Amazon tried to increase efficiency of inventory management. Pillai (2004) highlighted several decisions they made such as:

a. Reduced the number of inventory based on demand uncertainty
b. Increased range of product offering
c. Increased of efficiency of logistic by deciding which distribution centre should stock particular inventory by considering demand of distribution centre region.
d. Bought the books from publishers instead distributors to get a good margin
e. Developed new software to accommodate region demand to assist decision which distribution centre should stock products.
f. Reduce split shipment by reducing order which were delivered from different warehouses and stocking several items which customer usually buy together in one point.
g. Outsourcing shipping activities

From 1999 to 2000, there was a significant development which Amazon had done. Decision to reduce inventory by reducing risk of demand uncertainty and at the same time increase the range of inventory was a significant factor in dealing with inventory. Reducing inventory led to decreasing of holding cost. Increasing the range of inventory allowed Amazon to increase its availability. Chopra and Meindl (2007) pointed out that response to wide range of demand and capability to fulfil order in short lead times are parts of responsiveness. Heim and Sinha (2001) also acknowledged that product availability and timeliness of delivery are some of the most important elements which influence customer satisfaction. Therefore increasing the range of product could increase responsiveness.

In 2000, Amazon also improved its inventory management performance through location postponement. In location postponement, inventory could be centralized in one strategic location where it could be transported to possible destinations when demand is coming (Bailey and Rabinovich, 2005). When holding service levels is steady, location postponement can reduce safety stock (Zinn and Bowersox, 1988). Therefore by reducing orders which were delivered
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from several warehouses and stocking several items which were likely bought all together by customer at one point, Amazon managed its inventory by location postponement. It allowed Amazon to reduce the number of safety stock.

To sum up, by taking into account the risk of demand uncertainty and location postponement, Amazon could reduce the number of inventory as well as safety stock. Ultimately, Amazon could reduce the holding cost. By outsourcing shipping activities, Amazon also could reduce cost of shipping. These cost efficiency were main factors of obtaining the first net profit of $5 million in fourth quarter 2001 for Amazon (Pillai, 2004). Therefore, in 2000, Amazon improved its efficiency dealing with inventory management and started to achieve successful in managing it.

3. Amazon's inventory outsourcing

Amazon obtained good reputation of providing superior customers service by maintaining a good level of responsiveness. High responsiveness could make consumer happy since they could get product they want. However, by doing so, Amazon should increase the number of warehouses as well as inventory which led to increasing the cost (Pillai, 2004). Chopra and Meindl (2007) highlighted that increasing in the number facilities will increase cost of facilities. In addition by stocking many items to increase variety and availability to reduce risk of out of stock, consequently Amazon should spend a lot of expense in dealing with inventory.

From the beginning of its business, Amazon had expertise in e-commerce. Thus, outsourcing inventory could be a right decision since inventory management was not its core competency. Maltz and Ellarm (1999) highlighted some criteria that can be used to determine what activities should not be outsourced by a company. According to them, a firm should not outsource its business activities when it has resources, competencies or capabilities which:

a. allow to create better customer value added or more economically than competitors

b. can not be easily imitated or substituted by competitors

c. allow to dominate competition in the market

d. can be used in multiple activities or business units and can be occupied to access many markets.

Most of Amazon resources, competencies and capabilities were e-commerce. Therefore e-commerce should not be outsourced. However, inventory management could be outsourced.

By outsourcing inventory, Amazon could focus on its core business and also obtain access to inventory management expertise which provided by its partners. Bailey, Masson and Raeside (2002) highlighted there are several benefits from outsourcing activities such as: cost reduction, quality of service improvement, flexibility and allow organization focus on its core competencies, access to resources such as: skilled human resources and up to date technology, and increase flexibility associated with fluctuating demand. In addition, Shefi (1990) acknowledged that outsourcing of logistic activities provides many advantages such as: better transport system, reducing cost, obtain professional logistic services, access to technology development, flexible process, and simplification of administration.

The smart way Amazon did was it did not outsource inventory management of products which were popular or frequently purchased by customers (Pillai, 2004). Popular products inventory were managed internally while non popular products were stocked by distributors who deliver the product when Amazon had
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requested (Pillai, 2004). Rabinovich and Evers (2003) highlighted that in a situation when demand level is increasing, Internet retailers should not allow other forms to hold inventory in supply chain since they can produce optimal service to fulfill orders by locating the stock in their own facilities efficiently. Bailey and Rabinovich (2005) also found that increasing in product popularity generates an increasing in relying on inventory which was held internally. These findings match with the study of Maltz and Ellarm (1999) who proposed that a firm should not outsource its business activities if it has capabilities, competencies and resources to create better customer value added or more economically than competitors. In addition, Zhu and Kraemer (2002) argued that there was positive linkage between e-commerce capability and increasing of inventory turnover. Popular product with high demand led to high level of turn over. Therefore, though it had to manage popular products inventory, Amazon did not have to spend much money relatively since the high level of product turn over.

Amazon also handled the orders by drop-shipped inventory, for example: Amazon cooperated with Ingram Micro; a largest wholesale dealer of electronic products and supply chain management service, to provide logistics and fulfil the orders of desktops, laptops and other computers accessories at Amazon.com computer store (Pillai 2004). Bailey and Rabinovich (2005) suggested that online orders should be handled simultaneously by internal stock and drop-shipped inventory. To maximize profit, online retailer could postpone inventory location as well as ownership to upstream supply chain echelon and drop ship the items when consumer place the order to avoid the risk of out of stock (Bailey and Rabinovich 2005). By consolidating relationship with upstream partner for example Ingram Micro, Amazon could avoid risk out of stock and reduce level of inventory as well as holding cost. In addition, since the partners which Amazon chosen, had best performance in supply chain management service, it allowed customers to get their orders in a timely manner. Therefore, Amazon could obtain the profit without sacrifice customers satisfaction by keeping an appropriate level of supply chain services to customers.

To sum up, when stocked popular items on hand and simultaneously outsourced the others, Amazon could reduce the level of inventory in its warehouses. Moreover, popular item orders generated high level of turn over. In addition, by developing a partnership with best firm in supply chain service, Amazon could keep the level of customers satisfaction since its partner could deliver the orders in appropriate lead time. Therefore, it was a good decision for Amazon to outsource its inventory.

4. Amazon sells competing retailers products on its site

Decision to sell competitors products in its site could provide several advantages for Amazon. Firstly, it would widen the range of product offering. Increasing in the range of product which Amazon offered to its customers could increase variability as well as availability. Heim and Sinha (2001) highlighted that product availability was one of the significant factors which could influence customers satisfaction. Hence, consumers did not need to browse other sites to find the products. Secondly, it allowed customers to access much information including price of both Amazon and its competitor product. Amazon did not need to promote its low prices as customer could compare between Amazon and its competitors price on the site directly (Pillai, 2004). Thus, it could be used as a sign for customers that Amazon set the price reasonably.

Brynjolfsson and Smith (2000) argued that online shopping events were influenced by consumers assessment of information on the item that they want to order, as opposed to accessing the item
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itself. Therefore when consumers who considered to buy a book might be they considered to buy another item relate to the book, for example when a consumer wanted to buy a computer program book, he or she might be want to buy a software or even hard ware as well. Therefore it was a good decision to widen the product that Amazon offered even by selling its competitors product. Furthermore, since Amazon did not hold unpopular product in-stock, the competitors should be stocked such product by themselves. As a result, Amazon did not have to spend the holding cost of such inventory.

Generally, Amazon function just as a transshipment centre whereby Amazon only handled the orders while the inventory was handled by its competitors whose product offered by Amazon (Pillai, 2004). In this situation, Amazon employed inventory postponement strategy. This strategy allow retailer to postpone the purchase after the order is placed which can reduce holding cost and opportunity cost from tying capital up in inventory (Bailey and Rabinovich, 2005). Hence, Amazon could keep cost efficiency while get fee from selling its competitors products.

In summary, by offering its retailer competitors products allowed Amazon to increase variability and availability. Since it only handled order and let competitors to manage inventory, Amazon could avoid holding and opportunity cost. Therefore, this was a good strategy as Amazon could keep customer satisfaction as well as cost efficiency.

References


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