Postponement in Retailing Industry:
A case study of SIBA

Master’s thesis within International Logistics and Supply Chain Management
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We hope the readers will enjoy reading our work.

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Abstract

Problem: Today's business environment is characterized by changing customer demands, increasing cost pressures on retailers, shorter product life cycles and products becoming obsolete shortly after their introduction. The above factors make it difficult for electronics retailers to balance the costs of dealing with excessive inventory and not be out of stock. To be competitive, retailers should delay some of their activities until customer demand becomes visible. This brings us to the phenomenon of postponement. Electronics market in Sweden faces continuous growth, although at a declining rate. This is indicative of a saturation that this sector, as a whole, is approaching to. The above problems are due to the speculative approaches and standardized products policies that are in practice. Loss of sales and customers result from these practices. The current study analyses the importance of postponement strategy and the benefits it offers. This study also tries to explore the potential solutions for retailers that postponement may relate to.

Purpose: The scope of this study is to identify possible postponement strategies needed for SIBA.

Method: A case study approach has been taken. The choice of the method is qualitative with an inductive approach. This involved personal communications during interviews with the managers of SIBA, using semi structured questions to collect data.

Results: The concepts of postponement, supply chain flexibility, agility and customer order decoupling points (CODP) are closely related to one another and it has been shown that as the depth of postponement increase from right to left in the CODP continuum, the CODP changes its position, moving along the CODP continuum from right to left and towards the upstream. With this movement, the flexibility and agility in the chain increases. Our finds suggest that postponement is rather underutilized and that wastes (by way of lost sales and customers, obsolete inventory costs and storage costs) in the retailing process occur due to speculative approaches in application at the retail level. We have suggested logistics postponement for two out of three product categories and enumerated the ensuing benefits that the retailer can derive by way of enhanced flexibility, agility and reductions in wastages and satisfied customers.
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1 Introduction

This chapter as the introductory chapter has the aim of explaining the general background information, problem statement and purpose of the study. The chapter also will make clear the general outline of the thesis.

1.1 Background Information:

Today's business environment is constantly changing. Customer demand is frequently altered. Retailers face increasing cost pressures and shorter product life cycles which often results in products becoming obsolete within a few months after their introduction. A study by Freathy (2003) showed that retail trade constitutes one third of the private industries in Europe. The challenge, thus, is to meet frequently changing consumers’ demands. Fisher (1997) states that it is necessary for the retailers in the electronics industry to adopt and adapt to globalization, information technology and consumers’ demands to meet their requirements which are created due to the changes in the variety of products, prices, technology and ever shortening product life cycles. To adequately meet customers’ demands, some researchers propose a switching from push to pull strategies, as suggested by Simehi-Levi, Kaminsky et al. (2008), while others like Pagh and Cooper (1998) suggest the use of a tailored postponement /speculation strategy in the chain as an alternative solution to meet this demand gap.

Meeting ever-changing customer demand in the electronics retailing creates difficulties for the retailers in balancing the costs of dealing with excess inventory and out-of-stock situations. To address the above problem, retailers should delay some of their activities until customer demand realizes (Bucklin, 1965; van Hoek, 2001) which brings us to the phenomenon of postponement. The concept of postponement, as discussed by Bucklin (1965), also revolves around the concept of speculation. Speculation dictated that changes in the form and movement of goods to forward positions be made at the earliest points in time. Postponement and speculation strategies offer the advantage of rapid delivery by designing and managing methods and structures of supply chains separately (Cooper, 1993).

Postponement, by improving responsiveness, helps retailers in reducing inventory, transport, warehousing and obsolescence costs (Yang, Burns & Backhouse, 2004). It also increases the agility of the chain (Christopher, 2000). Fisher (1997) indicates that postponement helps retailers in becoming more flexible and dealing with the uncertainty to meet customer demands.
1.2 Problem Definition

Despite the theoretical data accumulated since 1920 (CLM) cited in Christopher (2000), very little has been developed to address the changing customer demands and requirements in relation to supply chain management and postponement. Bucklin in 1965 conducted a survey, the results of which indicated that meeting customer requirements is a way to enhance the competitive advantages of companies (here retailers). Retailers do not specifically know how much inventory stock should be carried in order to meet these customer needs. Some attempts to address the above question have been made by building up high stocks. But these were not successful due to customers’ needs for customization. This created rigidness in the supply chain and insensitiveness to customers’ needs.

After Bucklin’s paper on postponement in 1965, several researchers tried to extend the concept and suggested strategies to cope with the frequently changing consumer demands in retail industry. The proposed strategies not only address customer demands when they realize, but also increase efficiency in the retail sector by increasing the flexibility and reducing the costs.

However, limited endeavours have been made to operationalize the postponement-speculation (P/S) theory that may be helpful in the process of managerial decision-making (Cooper, 1993). This is true to some extent, especially for the Swedish retail sector where postponement has been observed to be underutilized (EUROMONITOR, 2010). This shows that there is a huge knowledge gap in the field. In Sweden, where retail trade caters to approximately one third of private consumption, these issues are paramount. In addition to this, the lack of study on postponement in relation to the Supply Chain Flexibility in the Swedish retail businesses motivates us to research in this area.

1.3 Purpose

The scope of this study is to identify possible postponement strategies needed for SIBA.

1.4 Research Questions

Based on the purpose of this study an attention is given to the main issues to be analyzed. Detailed investigation will be based on the following questions.

1. How is the postponement influencing the SIBA in achieving flexibility and enhancing agility and what are the major determinants for Postponement?
2. How do postponement strategies help SIBA in reducing the degree of uncertainty, increasing customer orientation, agility and flexibility enough to meet customer demand?

1.5 Outline of Thesis

To provide the readers with an overview of the thesis, we present below a detailed outline of our work starting from the theoretical framework (chapter 1) to the conclusion (chapter 5).

Chapter 1 “Introduction”
The background to the thesis is presented in this chapter. This provides the reader with a firsthand understanding of the subject and issues. The research problems of the thesis is defined and formulated. The purpose of the paper then follows. A description of the terms speculation, postponement, logistics and supply chain management have been given as these have been used commonly throughout the thesis.

Chapter 2, “Frame of reference”
All the chapters, from frame of reference till the chapter of conclusions, have the purpose of answering the thesis’ purpose. The frame of reference chapter presents the various theoretical works connected with the formulated questions, and also states results of similar studies undertaken previously. This chapter will be utilized extensively in the chapter of Empirical findings and analysis (Chapter 4).

Chapter 3 “Methodology”
This chapter explains the design of the various steps of the research study. Also, the chapter explains the formulation of the empirical work. Different arguments, view points and motivations regarding the method undertaken have been presented. Discussions such as qualitative versus quantitative, choice of population; survey type, validity and reliability have been presented.

Chapter 4 “Empirical Findings and Analysis”
In this chapter empirical findings have been retrieved and demonstrated. This chapter uses as a tool, the chapter 2 (i.e. the frame of reference), for the analysis and comparison of the results with those of other previous studies.
Chapter 5 “Conclusions”
In this chapter the results of this study along with recommendations for future research have been presented.


2 Frames of Reference

This chapter, as the framework chapter, focuses on Postponement related literature, theories and previous studies. The chapter goes through theories related to Supply Chain Management, Postponement process, types, the extent of their use and the determinants of Postponement strategies. These theories are used as tools to help understand the problem and the way of approaching the problem. These theories have the purpose of being used as eyeglasses when we in Chapter 4, attempt to analyze the empirical facts.

2.1 Retailing

Kotler and Keller (2003) include all activities involving the sale of goods or services for individual consumption (and which it is not for commercial purposes) as retailing. In other view points, retailing can be seen when retailers purchase products from a dealer and sell it again to other users (Rolinicki, 1998). Nillson and Høst (1987) even compared retailing with a highway that bridges the manufacturers and the end Market.

The traditional approach to retailing states that whenever a customer need arises, retailers used to serve final customers from the stored inventory that they purchased based on forecasted data. Today, this trend has changed and retailers respond to the end users by designing and controlling the supply chain. They are not just reacting in a traditional way to deal with customers. Apart from this, retailers at the current market are also the key players that determine most of the supply chain activities from manufacturing to distribution and customer service. And this is what the current market and retailing activity looks like (Fernie & Johnson, 2004).

Due to the increasing role of retailers and their close proximity to the final customers, retailers can, by devising right inventory management strategies, play an important role in cost reduction of the supply chain. The goal of proper inventory management is to buffer organizations from the uncertainties and variations arising from forecasts, customer demands and vendor deliveries (Benedict & Margeridis, 1999). The question here is how retailers can reduce costs in the chain by reducing these uncertainties. Shew, Yen and Chae (2006) argue that retailers can reduce these costs and have the opportunity to sell goods by getting visibility on customer demands and inventory availability. In addition to the main theme of reducing costs of providing customer service, getting customer’s visibility enable resellers to obtain shorter lead times and lower prices.
It would be of some use to discuss the different types of retailing activities as this thesis discusses postponement in retailing context. Kotzab (2005:22) mentions different categories of retailing, which are Non store retailing (general mail-order, specialist mail-order, electronic commerce, etc), Store based retailing (retail stores, general merchandise retail stores, supermarkets, departments stores, discount stores, etc). Other types of store based retailing that have been discussed in literature are vending machines, kiosks, catalogue show rooms and gas stations. Another important retailing in vogue is Hybrid retailing which incorporates street markets, markets halls, multilevel sales networks, party plan systems, home delivery, door-to-door sales, demonstrator sales and mobile trade.

2.2 Consumer Electronic Retailers in Sweden

The retailing sector in Sweden has traditionally been strong with consolidated retailing practices. Sweden’s retailing sectors closely follows European retail trends. Retailing is consolidated with small traditional retailers being replaced by large stores and shopping malls, although this practice is to a lesser extent in Sweden that it is in the Continental Europe, which is due to the smaller size of the Swedish market. Expansions in employments rise in earnings and improvements in the confidence of consumers have benefitted new forms of retailing. Moreover, there has been a fall in many prices due to reductions in value-added tax (VAT) on food since 1995 and partly due to Sweden's entry into the EU the same year (nationsencyclopedia, 2010).

Electronics market in Sweden faces continuous growth, although at a declining rate. This is indicative of a saturation that this sector as a whole is approaching to. Except for products such as video cassette recorders and analogue cameras that are now moving out of the market, or for those such as digital video cameras and GPS navigation systems that have recently entered the market, the penetration rates for household generally exceeds 90%. Home cinema and speaker systems that now seems to replace hi-fi systems is the only sector of the market which shows a continued potential for dynamic growth (EUROMONITOR, 2010).

2.3 Supply Chain Strategies

While designing a supply chain strategy that should serve products with a wide range and differing characters sold in diverse markets, it is fairly crucial to understand that many issues need to be explored. A policy of a “standard supply chain” does not work. Boone, Craighead and Joe (2007) state that there are as many techniques and strategies of supply chain management as there are discipline from which such strategies emanate from, and the customers that they seek
to serve. There is but one common goal of these supply chain strategies and techniques. They all seek cost reduction and at the same time work to improve supply chain performance and customer satisfaction, and fulfil customer needs. To address the main objectives of this thesis and to address the issue of strategies applied in the supply chain of SIBA, we focused on the postponement and speculation as the main reference for our study.

2.3.1 Speculation

The concept of speculation has been treated as a no postponement strategy from early literature conducted by Bucklin (1965). We can see two extremes of supply chain strategies used by today's retailing industry to manage its businesses. On the one hand, we can see speculation when retailers used it as a deliberate strategy to deal with business issues. On the other, the strategy that has been used is that of postponement. Companies used the strategy of postponement as a tool to manage uncertainties in the process of retailing. The concept of speculation or no-postponement has been treated by researchers like Zinn and Levy (1988) and Pagh and Cooper (1998) and Bucklin (1965) in his paper on 'postponement-speculation'.

According to Bucklin (1965) speculation is the change in both form and movement of inventories to forward positions in the chain at the earliest possible time. Although, speculation as a strategy provides the ability to reduce costs in the supply chain (Bucklin, 1965) and gain economies of scale (Cooper, 1993), it has more disadvantages because it leads to overstocking which ties extensive capitals on inventory.

Speculation leads to investments in inventories. So, in some instances, speculation is beneficial (Schaumburg, 2008) in that it improves customer service (product availability) allows for slower, cheaper and less frequent transport. But this necessitates an increase in safety and in-hand stocks, which have their own costs. Problems related to speculation occur due to the probability that forecasting will goes wrong because of the change in customers' demand, technology and globalization (Pagh & Cooper, 1998).

2.3.2 Postponement

van Hoek (2001) defines postponement as temporary suspension or delaying of some supply chain activities till uncertainties regarding the customer demands become clear. Postponement is
not just limited to manufacturing or logistics, but is a comprehensive concept that includes, among others, the concept of price postponement (pricing decision are delayed until resolution of demand uncertainties) (van Mieghem & Dada, 1999). Postponement, as stated above, is not limited to a few points in the supply chain but can be extended to be applied throughout a supply chain from the point of initial product inception stage to that of the delivery to final consumers. The table 2-1 below tabularizes some different extensions of postponement that lend the concept some credence to be applied universally across a supply chain.

Table 2-1 Extensions of Postponement (Boone et.al, 2007, pg. 598).

<table>
<thead>
<tr>
<th>References</th>
<th>Description of Postponement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Mieghem and Dada (1999)</td>
<td>Compares price postponement (when a firm sets prices after uncertainty resolution) with production postponement (where a firm makes production quantity decision after uncertainty resolution)</td>
</tr>
<tr>
<td>Waller et al. (2000)</td>
<td>Expands concept of postponement to include upstream postponement, production postponement and downstream postponement</td>
</tr>
<tr>
<td>Brown et al. (2000)</td>
<td>Describes postponement in which some of the functionalities of products are specified in the field, even after delivery to the customer.</td>
</tr>
<tr>
<td>van Hoek (2001)</td>
<td>Defines postponement as the delaying of the supply chain activities until customer orders are received with the intention of customizing products as opposed to performing these activities in anticipation of future orders.</td>
</tr>
<tr>
<td>Aviv and Federgruen (2001)</td>
<td>Expands the concept of design for postponement where products and processes are designed/redesigned to facilitate postponement</td>
</tr>
</tbody>
</table>
Analyzing the above table, it becomes obvious that in a supply chain, product development (inception and design) can be postponed at the earliest and thus represents the earliest stage of postponement. Product delivery postponement therefore represents the latest stage. Boone et al. (2007) very aptly state that the concept of postponement stretches right across the supply chain, from the stage of design to that where the consumers receive deliveries.

Pagh and Cooper (1998) are appreciated for developing distinct postponement strategies by combining the concepts of manufacturing and logistics postponement and speculation. The strategies developed by Pagh and Cooper (1998) are: full speculation, logistics, manufacturing, and full postponement. These, we will discuss in details later in the frame of reference. Ernst and Kamrad (2000) specify four supply chain structures: rigid, flexible, postponed, and modularized. For each of the above structures, a different degree of postponement has been suggested. Yang et al. (2004) states that the depth (strategy) of postponement in a supply chain depends upon the degree and type of modularization in the cycle of production, and also on the amount of uncertainty in the supply chain. The authors combined uncertainty and modularization in varying degrees to present a similar set of postponement strategies, viz: purchasing, product development, logistics, and production.

Postponement can be used to outsource the positioning of inventories to other players in the supply chain (Bucklin, 1965; Zinn & Levy, 1988). For instance, a company can, while postponing its forward movement of inventories to its factories, let inventories remain with its suppliers—subcontracting its inventory carrying to its suppliers. This provides the opportunities for, and ease, the final manufacturing to be postponed. The opportunity to postpone final manufacturing is opened up when a manufacturer decouples its production process (LaLonde & Maltz, 1992).

There has been a tremendous growth in postponement application. To meet the needs of the local markets for customized products, many international firms have opened themselves to changes and have been seen to apply the strategies of postponement to cater to the local tastes (Bhatnagar & Viswanathan, 2000; Twede, Clarke & Tait, 2000). The use of postponement by a Spanish apparel firm presents a good example (Ghemawat & Nueno, 2006). Large scale application and practice of postponement by information technology firms have been reported by Chiou, Wu and Hsu (2002). Moreover, further explorations of the application of postponement have been done by Wanke and Zinn (2004) in South America. They have done a
detailed study of industries in Brazil, and showed that the strategies should have varied by their operation, production and demand factors.

2.4 Benefits of postponement in the supply chains

Different ways of postponement has been observed and its concept is found to incorporate form and time. Benetton, Hewlett Packard, Whirlpool, etc present examples of companies which illustrate how postponement provides opportunities of benefits to the business. In Benetton, the process of dying of garments was delayed to the point in time where uncertainty in customers’ demand gets reduced. This benefitted Benetton in two ways: the inventory of less popular colours gets reduced and at the same time Benetton’s responsiveness in meeting its customers’ demands for popular colours gets enhanced (Dapiran, 1992). Another good example is Whirlpool’s postponement of appliances’ shipments to Sears till it receives orders from customers. Whirlpool reaped exactly the same benefits as those derived by Benetton and a reduction in transportation costs as well (Waller, Dabholkar & Gentry, 2000). In the case of Hewlett Packard, the company employed postponement to delay the final assembly of its Deskjet printers to a very late stage of the supply chain and moved the assembly locations close to the customer (Feitzinger & Lee, 1997). The benefits to Hewlett Packard from this strategy resulted in a production process that was more efficient and also reduced its transportation and logistics costs. Table 2-2 shows different examples of successful application if postponement strategy at Benetton, Whirlpool and Hewlett Packard, as mentioned in the literature (Dapiran, 1992; Waller et al, 2000; Feitzinger & Lee, 1997).

**Table 2-2: Some practical and successful examples of postponement application**

(Dapiran, 1992; Waller et al, 2000; Feitzinger and Lee, 1997).

<table>
<thead>
<tr>
<th>Examples of Companies</th>
<th>Postponement Application until customer order is received</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benetton (Dapiran, 1992)</td>
<td>Dyeing of clothes</td>
<td>Better response to end user demand Reduced Excess Inventory Improved customer satisfaction</td>
</tr>
</tbody>
</table>
Getting rid of unpopular colors.

<table>
<thead>
<tr>
<th>Whirlpool (Waller et al., 2000)</th>
<th>Shipment of appliances</th>
<th>Reduction in transport cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Reduction in inventory</td>
</tr>
</tbody>
</table>

- Hewlett and Packard (Feitzinger & Lee, 1997)
  - Desk Jet Printer
  - Closer to Customers
  - Efficient Production
  - Minimized Costs for transport
  - Minimized costs for Logistics

Postponement delays activities (product's variety, volume, final configuration, etc) in a supply chain and in doing so provides the opportunities of following benefits: savings in transportation costs, storage and obsolescence costs and also provides ease of assorting (Yang & Burns, 2003). Some of the more visible and important advantages that postponement provides is that it decreases the lead time and increases the speed of delivery. This enhances responsiveness in companies applying postponement. Whereas van Hoek (2001) pointed that postponement helps companies in addressing customer demands adequately. These benefits are summarized in the table 3 as presented below.

**Table 2-3: Benefits of Postponement (adapted: van Hoek, 2001, pg. 163).**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Postponement benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainties</td>
<td>Reduce risk of volume and variety mix by delaying finalization of products</td>
</tr>
<tr>
<td>Volume</td>
<td>Make batches of one job (job shop for customization, flow shop elsewhere)</td>
</tr>
<tr>
<td>Variety</td>
<td>Presume, customize, requiring flexibility</td>
</tr>
<tr>
<td>Lead times</td>
<td>Offer accurate response, yet perform activities with in order cycle time</td>
</tr>
<tr>
<td>Supply Chain approach</td>
<td>Reduce complexity in operations, yet possibly add flexibility and transport costs</td>
</tr>
</tbody>
</table>
To weigh the pros and cons of postponement, it is better to discuss some of the limits of the strategy. Postponement as a strategy seeks to shift the ownership of goods and thus risks (the capital tied to inventories) to the most appropriate player in the supply chain in order to minimize the supply chain wide costs (Berry & Towill 1992). But for the above, there needs to be a high level of collaboration among the various players in the chain (Cox, 1999). It should be noted that invariably all actors involved seek costs minimization for themselves, seeking the most appropriate value from the relationship and participation in the chain. The problem surfaces when one player (say a dominant manufacturer) leverages its position to force others (its dependent suppliers) while shifting the ownership of goods. In doing so this manufacturer extracts the most appropriate value (i.e. diminishes risks and uncertainties) for itself (Bucklin 1965; Zinn & Levy, 1988) and the dependent supplier has to shoulder the induced costs and risks. Thus, instead of minimizing the costs for the supply chain as a whole, postponement may sometimes just shift costs in the supply chain. Postponement may sometimes even cause some of the costs to rise. In this regard Christopher (1998) comments that postponement (logistics) is seen to increase cost of transportation in some cases. Moreover, postponement may sometimes instil anxiousness among those dealing with orders from customers. For example, Brown, Lee and Petrakian (2000) point towards the nervousness that production postponement can create for employees working to take customers orders, as production postponement dictates that stocks of semi finished products replace stocks of finished products.

2.5 Types of Speculation/Postponement Strategies

The increasing consumers’ need for customization is reflected in the growth that is observed in postponement (Boone et al., 2007). The above is a result of many changes that have constantly changed the conventional ways in which businesses were embedded. These changes include: growth in competition and varieties of products accompanied by shortening life cycles, the enlightened consumer, etc (Bowersox, Closs & Stank, 1999). Zinn and Bowersox (1988) identify postponement to constitute five types of functions. These are: assembly, manufacturing, packaging, labelling and time. The above typology still continues to remain in perception when postponement is mentioned. Mass customization is seen as a very useful strategy which provides opportunities of producing differentiated products on a large scale. To offer differentiated products and varieties, companies have been seen to restructure their supply chains. To accomplish this, postponement has been applied (Su, Chang and Ferguson, 2005). In these
restructured supply chain structures product differentiated points are delayed (i.e. time postponement) to the moment where orders from customers are, in fact, received (Boone et al., 2007).

Cooper and Pagh (1998) developed a 2x2 generic matrix which shows four different P/S strategies. This matrix is based on costs and customer services of companies. These varied strategies offer distinct advantages/disadvantages.

Figure 2-1: Postponement and Speculation strategies (Cooper & Pagh, 1998 pg. 15).

### 2.5.1 The Full Speculation Strategy

Full Speculation is a traditional strategy which has been used the most by companies (Zinn & Bowersox, 1988). All the functions related to the customers’ orders are carried out downstream in the supply chain. All activities of the manufacturing and logistics operations are carried out on the basis of inventory forecasts. Inventories are usually placed as near to the final customer as possible. Even though it has benefit of achieving economies of scale due to the distribution of larger lot sizes (Bucklin, 1965), it is difficult to generalize the disadvantage of applying this
strategy. However, according to Pagh and Cooper (1998) speculation leads to higher cost of investment in inventories due its decentralized nature of inventory holdings. The additional disadvantages include occurrences of transhipments and obsolete products.

### 2.5.2 The Logistics Postponement Strategy

This may be understood to be a hybrid strategy incorporating both, the features of postponement and speculation. In the Logistics Postponement Strategy, manufacturing is done on the basis of speculation and logistics on postponement. The final retailer/customer receives fully finalized products from a centralized inventory location. The underlining features of this strategy is direct distribution of products to the retail part of the chain and inventory initiated (speculative) manufacturing, which is carried out before any of the logistical operations have been carried out. All logistics operations are delayed and only the customers’ orders initiate the logistics operation in this strategy. This strategy completely eliminates or reduces the dependence on forecasts and anticipation for the logistics operations as distribution of products to the retail/customer is direct from a centralized location. In this case the advantage is reduction in inventories and thus costs due to the centralization of inventory (David & Maister, 1976).

The application of logistics postponement is getting more acceptance since the last few years (Pagh & Cooper, 1998). For example, the study done by Pagh and Cooper (1998) shows that some Swedish international companies like Atlas Copco tools, Sandik Cormant and ABB motors changed their strategy from full speculation to logistics postponement. The study also shows that after applying logistics postponement these companies enjoy the advantages of shorter and more reliable lead times, reduced inventory costs, constant transportation costs and faster introduction of new products in the assortment (Pagh & Cooper, 1998).

### 2.5.3 The Manufacturing Postponement Strategy

This strategy is also known as the post factory manufacturing strategy (Schary & Skjott-Larsen, 1996). The manufacturing postponement strategy, very much like the logistics postponement strategy, incorporates postponement and speculation. Here, all manufacturing is delayed to a point where customers’ orders are received. Thus, manufacturing is customer order initiated Logistics on the other hand is based on speculation and is thus anticipatory (based on
anticipation of future orders from customers) in nature since the distribution system in this strategy is decentralized with stocks of inventories at dispersed locations (Pagh & Cooper, 1998)

### 2.5.4 The Full Postponement Strategy

This is the converse of the full speculation strategy and employs the greatest degree of postponement among all the strategies stated in the P/S matrix. In this strategy, all activities in the chain are based on postponement strategy. Both the manufacturing and logistics are deferred until customer orders are received (Pagh & Cooper, 1998). Employing this strategy provides companies with the opportunities of lowering manufacturing costs and reduction in inventory levels in the distribution system. This, in turn, causes a reduction in the investments in inventories and hence in costs. In addition to the above, researchers like Matts (1993) assert that applying this strategy would enable companies to maintain the logistics economies of scale.

From the P/S matrix, one can understand that postponement and speculation strategies have their own advantages and disadvantages. Speculation benefits by providing economies of scale but it has the risk of product obsolescence that occur when very large lots are produced and stocked in anticipation of orders. On the other hand, postponement is an alternative strategy which appears to eliminate the risks inherent with the strategy of speculation (Kong & Allan, 2007) and obsolescence in products (Pagh and Cooper, 1998). These risks are also the cause of decrease in operational flexibility and efficiency of the firms (Kong & Allan, 2007).

### 2.6 Determinants of Postponements

Mathematical models have been used for studying how different factors/determinants influence postponement strategy. These determinants have been recognized as demand uncertainty (Aviv & Federgruen, 2001; Gary & Tang, 1997); product variety (Eric Johnson & Anderson, 2000; Su et al., 2005); and production characteristics (Ma, Wang & Liu, 2002; van der Vlist, Hoppenbrouwers & Hegge, 1997).

According to Pagh and Cooper (1998), following are the determinants of postponement strategy: product characteristics such as life cycle, monetary density, value profile and product design characteristics; the characteristics of market and demand such as the relative delivery time and frequency of delivery and demand uncertainty; and the systems of manufacturing and logistics that is in use. Similarly, van Hoek et al. (1998) categorized the determinants of
postponement under three heads. These are: characteristics of technology and processes, characteristics of product and characteristics of market.

Some of the determinants that have been argued to have a high positive relation to the postponement strategy are demand variability, manufacturing complexity, modularity and external application of information technology (van Hoek et al., 1998).

According to Chiou et al. (2002), customization, modularity, value and life-cycle of product and implementation experience of a specific strategy of postponement are crucial determinants for that four categories of postponement (labelling, packing, assembling and manufacturing) that they tested. Skipworth and Harrison (2004) recognize demand profile of the product (mix, variability and volume of demand), amplification of demand (bullwhip-effect), and design of product (standardization and modularity), etc to be motivating factors for postponement application. Some noteworthy determinants of postponement strategy discussed below are:

- **Changing Behaviors of Consumers**: Changes in Consumer behavior is forcing retailers to move to postponement from speculation. Forecasting of consumer demand has been rendered difficult for the electronic retailers due to ever changing consumer behaviors. These changing behaviors affect the demand, variety and life cycles of products (Pagh & Cooper, 1998).

- **Uncertainties in Demand**: Turbulences in markets and changes in technologies and consumer behaviors cause uncertainty in customer demands, which make forecasting difficult. To address adequately these changes in demand conditions, Yang and Burns (2003) suggest that there should be an integration and intensification of postponement in the channels of distribution. Demand uncertainties can be adequately addressed by the application of logistics postponement (Yang, Burns & Backhouse, 2004). Electronics industry faces some of the most erratic and unpredictable consumer demands with regards to colors, designs, shapes and technology. Taking the above into consideration Boone et al. (2007) aptly state that growth in postponement depicts increased demand for customized products.

- **Shortening Life Cycles of Products**: Changes in demand conditions coupled with new technological developments have shortened the product life cycles. But these changes have been taken on as opportunities by markers to cater to the consumers’ needs and desires by introducing new products with large varieties (Hart, 1995). The electronic industry faces new inventions and innovations for almost all categories of products.
- **Increasing Varieties of Products**: Technological changes and changes in behaviors of consumers have lead to an increase in the variety of products offered. Now, the consumers desire variety and customization in their home appliances and in the entertainment goods (Piller, 2004).

- **Lead Time**: Chopra, Meindl and Kalra (2006, p. 361) define lead time as ‘the gap between when an order is placed and when it is received. Lead time performances directly impact a firm’s strategic position and compression or elimination of variation in lead times enhances a firm’s flexibility (Bowersox et al., 2007, p.92). Failures in logistics systems introduce delays and lengthen Lead times which leads to uncertainty. This increases safety stocks so that a customer’s demand and the firm’s ability match with respect to assortment, time and place (Bowersox et al., 2007). Long lead times eat up a company’s customer base and profit margins (Treville et al., 2004). Customer service and responsiveness gets improved by shortening lead times (Sun, Sun & Wang, 2008).

- **Mass Customization**: The processes have become more complex due to the above mentioned rapid changes in technology. The electronics retailers have to adapt to these changes in order to remain competitive. The trend of mass customization, which according to Borrus (2000) is a critical debating issue for management in US and Europe these days, is a must for the electronic retailers to adopt in order to keep pace with the ongoing developments. Hart (1995) defines Mass Customization as the process where flexible approaches and organizational structures are used for producing varied, customized and tailored products. But this process increases demand volatility and unpredictability which indicates a shift in the consumer demands towards products that are tailored to meet exact needs and requirements (Hart, 1995).

These above determinants would be helpful during our analysis of SIBA and also in deciding which postponement strategy we should suggest for different product categories for our case company.

### 2.7 Supply Chain Flexibility (SCF)

The ability to be responsive to emerging customer trends at a supply chain’s various nodes, by possessing an ability of assets and operational reconfiguration, is known as flexibility (Leslie et al., 2001). Thus, Flexibility of a system is the ability of that system to make proactive/reactive adaptations to its configuration to better deal with uncertainties (Winkler, 2008). Cost, quality
and responsiveness (delivery time and product delivery flexibility) are the three elements of flexibility that have received considerable attention.

Supply chain flexibility (SCF) has been defined by Vickery (1999) as consisting of those elements that are shared along the supply chain by two or more functions and that these elements affect a firm’s customers. SCF consist of flexibility dimensions that exist among different partners along a supply chain (suppliers, carriers, third-party companies, and information systems providers) (Duclos, 2003). Winkler (2008) says that SCF includes “the flexibility to gather information on market demands and the exchange of information between organizations”.

Flexibility has a positive effect on operations, enhances agility in enterprises and has been seen to improve lead time performances when design and manufacturing flexibility have been utilized (Wadhwa & Rao, 2000). Other benefits of flexibility as enumerated by Fawcett and Clinton (1996) are that it enhances responsiveness towards customers and also the delivery dependability. Wadhwa and Rao (2004) further state that for time based performances flexibility is an important firm characteristic. It is easier to control the flow of materials, information and resources in a flexible system.

SCF not only contributes towards responsiveness but also towards efficiency (Nagel & Dove, 1991) by understanding the very importance of demand management and role of information in firm decision making.

### 2.7.1 Relation between Postponement and SCF

Nair (2005) shows that by implementing postponement, companies benefit from “better asset productivity, delivery performance and value chain flexibility”. Davila (2007) and Krajewski, Wei and Tang (2005) states that application of postponement reduces uncertainty. But Winkler (2008) describes flexibility as the ability of an enterprise to reconfigure itself to deal with uncertainty. Thus, Postponement and flexibility are closely related concepts that go hand in hand.

Postponement and flexibility are both reactive adaptation behaviours that deal with uncertainty (Yang & Burns, 2004) and the relationship between Postponement and SCF is that it leads to different kinds of flexibility (product development flexibility by postponing product development; product mix flexibility by postponing production).
2.8 Agility

Nagel and Dove (1991) define agility as an organization’s ability to sustain and prosper in a business environment characterized by continuous changes and unpredictability. An agile organization has a quick and appropriate movement, suiting the conditions of business. Information for decision making and an ability of managing and applying knowledge have been described as important elements to be agile (Dove, 1999).

Agility is crucial when product variety, demand volatility and uncertainty are high (Nagel & Dove, 1991). With stable and predictable demand lean approach can safely be used (Christopher, 2000).

Agility can be achieved by reconfiguring flexible structures dynamically (Wadhwa & Chopra, 2000). Goldman, Nagel and Preiss (1995) add that supply chain agility depends on the management of changes and uncertainties, customers’ enrichment, cooperation among different supply chain entities and effective leverage of people, information and technology. Yusuf, Sarhadi and Gunasekaran (1999) discuss market environment, product and competition as the three important actors for agility. Therefore, the need to satisfy customers’ requirements and preferences for a diversified product range, shorter product life cycles and the trends of mass customization make agility very crucial in today’s business environments. Agility helps businesses in retaining competitive (Goldman & Nagel, 1993; Kidd, 1995). To be agile, an enterprise must be able to perform in dynamic, turbulent, and competitive market environments.

2.8.1 Agile Supply Chain Strategies

Authors such as Fisher (1997), Childerhouse (2002), etc. have discussed numerous classification schemes to choose supply chain strategy. Which strategy is to be chosen and adopted can be a complex process, but the choice of a specific strategy must suit the needs of and benefit the chain which adopts these strategies. The best strategy can be chosen by analysing the supply chains with the help of the following 2x2 matrix as suggested by Christopher and Towill (2000).
2.8.2 Relation between Postponement and SC Agility
Postponement takes an enterprise towards customization of products and services, makes use of the customer order information through the supply chain; and enhances cross functional efforts in organizations (van Hoek, 2000). Thus, Postponement is an important strategy that leads an enterprise towards the attainment of agility (Yang et al., 2004). Christopher (2000) also maintains the same view point that for any agile supply chain strategy, postponement is crucial.

2.8.3 Relationship between SCF and Agility
Agility is considered an element that encourages integration of all flexible and core competent resources of an organization so that value-added products and services can be offered in competitive environments characterized by high volatility. Since flexibility provides an ability to change various enterprise-wide processes and resources, in terms of cost and time dimensions, supply chain flexibility can be considered as a crucial (and initial) requirement for an enterprise to be agile (Wadhwa, Mishra & Saxena, 2008). Thus, Winkler (2008) views flexibility to be a subset of agility. Wadhwa et al (2008) also underline the importance of synergy among suitable supply chain flexibilities for agility to be practised. Wadhwa and Chopra (2000) further state that Agility can be achieved by reconfiguring flexible structures dynamically. The benefit of flexibility in a supply chain is evident in lead-time reductions, which in turn lends agility to the enterprise (Wadhwa & Rao, 2003). On the same note, Chan et al. (2004) add that flexible business
processes lead towards agility in Supply Chain performance. Design and manufacturing flexibility improves lead-time performances which results in improved agility (Wadhwa & Rao, 2000).

2.9 Decoupling Point

‘A decoupling point (DP) is the boundary between make-to-order (MTO) and make-to-stock (MTS).’ (Suna et al., 2008, pp.943). To quote and Wikner and Rudberg (2005, p.211) ‘Decoupling points are used to classify value-adding activities in terms of customer demand information and clarify the need for different management approaches depending on whether the activities are upstream or downstream of the decoupling point.’

2.9.1 The Customer Order Decoupling Point (CODP)

The point which separates the forecast-driven production from the order-driven production in a flow of goods is known as the Customer Order Decoupling Point (CODP) (Wikner & Rudberg, 2005). In a conventional CODP typology there are four kinds of customer order de-coupling points. These are engineer-to-order (ETO), make-to-order (MTO), assemble-to-order (ATO) and make-to-stock (MTS) (Wortmann, Munstlag & Timmermans, 1997; Sackett, Maxwell & Lowenthal, 1997; Porter et al., 1999). Decisions taken in an organization are influenced by CODP and the information regarding customer demands (Wikner & Rudberg, 2005).

Another definition of CODP by Hoekstra and Romme (1992, pg.66) define CODP as “the point that indicates how deeply the customer order penetrates into the goods flow”. This definition has its basis on the concept the P:D ratio (Shingo, 1981) where P denotes the production lead-time and D denotes the delivery lead-time (Winker & Rudberg, 2005, pg.212). The importance of the P:D ration lies in the fact that it measures the magnitude of production and planning that may be speculative. This means that if there is high uncertainty in consumer demands, D is short in relation to P and thus production is to be based on speculation (Wikner & Rudberg, 2005, p.213). The following figure shows four kinds of CODPs in a traditional CODP typology.
2.9.2 Benefits of applying CODP

It would be of great value to us to look at the Table 1-2. and understand how various business look like once we apply the decoupling points. Profits are maximized by just satisfying customer demand by optimally combining the process characteristics listed in Table 1-2.

Table 2-4: Operating Scenarios Either side of the Material Flow De-Coupling Point for supply chain competitiveness (Denis R.Towil, 2005, pg.38).

<table>
<thead>
<tr>
<th>Business Attribute</th>
<th>Business Processes Before the De-Coupling Point</th>
<th>Business Processes After The de-Coupling Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery Philosophy</td>
<td>Lean –level the schedule</td>
<td>Agile-produce to order</td>
</tr>
<tr>
<td>Scheduling</td>
<td>Forecast Driven</td>
<td>Demand Driven</td>
</tr>
<tr>
<td>Order Volatility</td>
<td>Small</td>
<td>Large</td>
</tr>
</tbody>
</table>
2.10 Identifying feasible customer order decoupling points

The position of the CODP (along the CODP continuum) is influenced by the delivery lead-time (D) (required or offered) and by the planned production lead-time (P). That point on the CODP continuum which is able to separate the order-driven flow from the forecast-driven gives the position of the CODP (Wikner & Rudberg, 2005).

According to Rudberg and Wikner (2005), two counterbalancing forces, namely, the Productive forces (P) and flexibility forces (D) interact and decide the position of the CODP between postponement and speculation in a CODP continuum. Moreover, the ability of the retailers to separate the order-driven flow and the forecast-driven flow (i.e. postponement and speculation) helps in deciding the position of the CODP (Rudberg & Wikner, 2005). Forecasting (and thus speculation) is easier for products with low demand volatility and high volume demands. In this case, CODP is easily positioned downstream. CODP is, thus, pushed downstream by the productive forces where cost leadership is considered a competitive priority. Flexibility forces, on the contrary, push the CODP upstream when customization and flexibility are considered to be crucial competitive priority (Olhager, 2003). CODP is pushed upstream when product range is high and customization is the requirement (Rudberg & Wikner, 2004).

2.11 Relation between CODP and Postponement Strategies

During the literature review we found some connection among the concepts of postponement, speculation and decoupling points. It has also observed that as the decoupling point is moved towards the upstream more and more postponement is observed and vice-versa.

Postponement is the strategy which suspends or delays certain activities in the supply chain until demand pictures become clearer (van Hoek, 2001). It lessens the impact of unpredictable and
uncertain customer demands on the supply chain. CODP, on the other hand, is the point of penetration of customer order in the supply chain (Hoekstra & Romme, 1992).

CODP and Postponement are closely connected concepts in that the uncertainties and unpredictability in customer demands prompts a supply chain to adopt postponement as an operational strategy to delay activities until a customer demand is faced. Postponement, when applied in a supply chain, moves the CODP upstream. It is the depth of postponement across the CODP continuum which decides the positioning of the CODP in the continuum. Yang and Burns et al. (2004) brought to the fore an important point to be considered. They stated that as a consequence of postponement, the CODP moves upstream and the effectiveness and flexibility of the supply chain gets enhanced. Also, from the concept of P: D ratio (Shingo, 1981) emanates an important and observable connection among postponement, speculation and CODP. As the CODP moves upstream the ratio (P: D) decreases, all activities are order driven and hence delayed until a demand is faced leading to postponement of activities. The reverse happens when CODP moves downstream leading to speculative activities. When the CODP is moved farther away from the end user, postponement increases in depth (from left to right).

![Figure 2-4: Relation between Postponemtn and Decoupling Point (Yang and Burns, 2003, pg.476)](image-url)
### 2.12 Profile Analysis

Pagh and Cooper (1998) used profile analysis as a key theme for an appropriate selection of P/S strategy. The profile analysis is a tool used to select the most appropriate P/S supply chain strategy (Pagh & Cooper, 1998). The profile analysis has two important purposes. The first purpose is to help managers in selecting appropriate P/S strategy and according to the authors companies should take care to select certain elements of high importance from the figure below. They should not consider extensive or insufficient determinants. Choosing large/insufficient number will blur the meaning or will not reflect the expected P/S needs.

![Figure 2-5: Profile and analysis (Pagh & Cooper, 1998, pg. 25).](image-url)

The other purpose of the profile analysis is that it expresses the extent to which the alignment between the determinants (needs) and strategies of P/S can be improved. The thrust of this strategy is to discover how the company determines an adjustment needs in the future. Pagh and Cooper (1998) suggested that better the alignment, the straighter the line of the profiling will be.
They also added that the strength of the P/S strategy can be gauged by predicting the changes that the supply chain will undergo. Finally, the authors summarized the benefits of profile analysis (Pagh & Cooper, 1998, pg. 26) as a means to “identify the supply chain P/S needs: the supply chain P/S-strategy that provides the best mix of tradeoffs: the degree of alignment between P/S needs and P/S strategies: and the robustness when anticipating changes in the supply chain needs.”

2.13 Working Model

Figure 2-6: Working Model adapted (Adapted: Yang & Burns, 2003, pg. 476; Rudberg & Wikner, 2005, pg. 215).

This model depicts postponement/speculation strategies in a P/S continuum and also explains the relationship of these strategies with the CODP and its positioning in the continuum. At one end of the spectrum the strategy that is applied is that of speculation, which is a forecast driven strategy. Standardized products are pushed (manufactured and positioned) as near to the end user as possible in anticipation of customer demand. The position of the CODP in this strategy is at the distributors (Yang & Burns, 2003). In this case there is maximum speculation and minimum flexibility/agility. At the other end of the spectrum postponement is applied which is a
demand driven strategy. CODP is positioned at the product design stage, there is maximum (pure) postponement and all activities are suspended until a customer demand emerges. In this case there is maximum customization that can be provided (Yang & Burns, 2003). The chain is very flexible/ agile and responsive to demands and adopts a pull approach. Between these two ends a combination of P/S strategies can be applied by moving the CODP up and down the chain. As the CODP is moved up the chain (from the distributors), an increasing degree of postponement is observed (Rudberg & Wikner, 2004), with maximum postponement and hence operational flexibility at the design stage. The reverse happens if the CODP is moved down the chain.

We intend to make use of this model in analyzing the different P/S strategies used at SIBA (the case company) and give suggestions for improvements. We intend to follow the steps given below:

**Step 1**
- Analysis of the supply chain strategies at SIBA
- Identification of current CODP position at SIBA

**Step 2**
- Redefining Supply chain strategies
- Redefining the position of the CODP
3 Methodological Considerations

This chapter presents the methodology for the detailed study of the case and will focus on the chosen qualitative strategy. The chapter starts by giving some introductory information about the selected case and ends with an identification of the selected strategy applied all over the study.

3.1 Choice of method

It is known that it would be good if we refer to the problem and the purpose of research when doing a research and obtain qualitative data (Saunders, Lewis & Thornhill, 2007). The general purpose of this study is to identify the possible postponement strategies required by Swedish retailers in a way that may help Swedish retailers to create a better competitive edge and meet customer demands. The specific purpose of this study is to explore strategies that may help reduce uncertainty in the electronics industry, increase customer focus and enhance flexibility to meet customer demand. Also, this study will focus on how can Swedish electronics retailers remain competent in a dynamic industry by addressing the above issues. An explanatory type of research is one way to understand these patterns of problems that need explanations (Saunders, Lewis & Thornhill, 2007).

In the detailed study carried out at SIBA, we broke the problem down into simpler levels of solutions in a manner that would help managers in the electronic retail market operationalize such solutions. We adopted a qualitative approach in this study because this approach is seen as a sound means to analyze complex historical concepts. Haberman and Danes (2007) asserted that qualitative research is a useful method when the concepts need to be explored, and for general understanding. The purpose of this study, as stated previously, is to explore those strategies (and the underlying concepts) that may help Swedish retailers in reducing uncertainties regarding customer demands and enhancing their responsiveness/flexibility. The study, therefore, requires us to explore concepts from the previous literature to collect data and analyze it. All of the reasons provide a rationale for choosing the qualitative approach as a method to be used in this thesis.
3.2 The case study approach

When the theme of the research is qualitative in nature, a case study approach better suits it (Ghauri & Gronhaug, 2005). Yin (1983, 23) defines the case study approach as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context: when the boundaries between the phenomena and context are not clearly evident, and in which multiple sources of evidence are used."

The case study approach is an important exploration technique for an event when questions like "what", "why" and "how" are raised (Chetty, 1996; Yin, 1989). Considering the pitfalls of the complex postponement strategies and getting the missing link that could improve the managerial decision making would not only enhance the understanding of the concept, but also serve as a basis for further study. It is not an easy task to know if and how the Swedish electronic retailers are implementing postponement strategy without taking observations, opinions and interviewees. Qualitative data can also be used when “we collect an individual data and aggregate them to analyze organizations” (Ghauri & Gronhaug, 2005, pg. 85).

Yin (2003) argues that case study approach helps in understanding the complexities of a business phenomenon in order to implement a strategy. In this regard, Saunders, Lewis and Thornill (2007) support that idea of using a case study when answering strategic dilemmas that need detail questions. The case study methodology helps in the analysis and interpretation of an observed phenomenon in a remarkable way (Stake, 1995). Also, a case study is useful in pin-pointing the relevant descriptions, testing theories and to generating answers to research questions (Chetty, 1996; Saunders et.al, 2007).

3.3 Case design

The basic interest of this research and the case under study is the description and testing of a theory. The description and analysis of theory needs decomposition of the case in smaller parts and then look at the aggregate level in a meaningful way (Stake, 1995). To achieve this goal, we conducted interviews with the managers of SIBA, our case company (in Å6 shopping center, Jönköping). SIBA has its headquarters in Gothenburg. The company has 60 electronics stores in Sweden, Norway and Denmark. SIBA also provides services to other companies in Copenhagen, Stockholm and Gothenburg. The basis of this study is the patterns and strategies for extension and retail as described in the frame of reference.
Saunders, et.al (2007) explained two types of research methods, the deductive and inductive approaches. Ghauri & Grønhaug (2005, pg. 9) explained deductive method as “a research approach involving the gathering of facts to confirm or disprove hypothesized relationship among variables that have been deduced from propositions or earlier theories” whilst, they defined the inductive approach as “an approach involving the process of observing facts to generate a theory and is perhaps the first step in scientific methods.”. This research is more qualitative in its nature and thus, an inductive approach is applied.

3.4 Limitation

As with any other thesis, the limitations of this thesis, in the authors’ view, is that this study encompasses a case study of a single organization, namely SIBA. As such, studies of other retailers have not been taken into consideration. So the basis of this thesis is the feedbacks from only one organization. Moreover, this research does not considers the relationship of the retailer company (SIBA) with its various suppliers and how these relationships and the positions of the suppliers affect SIBA’s strategies and decision making in relation to postponement. Also, due to the limited time frame of the study and lack of similar previous studies done, the data collected may not be abundant and the analysis and conclusive discussion may not have the enough depth. The other limitation is that all the interviews, communications and interactions were in English due to the non familiarity of both the authors with the Swedish language.

3.5 Data Collection

Data can be collected either from primary or secondary sources. The use and context of the data may be different, based on the type of data (Ghauri & Grønhaug, 2005). This study, conducted within a short period of time, as mentioned in the limitation part of this paper, uses primary data (interviewees, and observation and secondary data. Jacobson (2002) describes primary data as information that provides an insight from an examined object without any intervention. Qualitative methods extract primary data using an interviewee, observations and documentations as a tool to manipulate and get proper information (Patton, 2002). Secondary data, on the other hand, includes data that has previously been developed and can further be used for similar studies (Collins & Hussey (2003). The research also contains data that is integrated in the same or other way from previous research and documents which have supporting ideas for this study.

3.5.1 In-depth interviews

Saunders et.al (2007) divided the interviews into two kinds: standardized and non-standardized interviews. Standardized interview is that kind of interview in which the researcher forwards the list of interview questions in an absolute structured, standard and formal manner. Where as in a
non-standardized (semi-structured) interview, the research questionnaire has no absolute structure and the list of questions is not formally forwarded in the first step. For the convenience of this study, we used semi-structured kind of interview with the managers of SIBA in order to create an open kind of environment and to obtain information about the core products of the company so as to map the postponement matrix. Using this method with an in-depth interview technique, the authors of this thesis try to create an open environment for the interviewees so that they may understand the concepts well and answer the technical questions adequately.

According to Darlington and Scott (2002), in-depth interviews also give an advantage of getting deeper information from the interviews. Darlington and Scott (2002) and Yin (1994) regard in-depth interviews as being the most suitable tool in collecting data for a qualitative research method. Therefore, a semi-structured in-depth interviewee technique is an appropriate tool that the authors used with the help of detailed discussions and unbiased information sharing for better understanding the research problem of this thesis.

3.5.2 The interview process

For a qualitative research method, formulating appropriate steps for conducting an in-depth interview is not an easy task. Taking this into consideration, the authors of this thesis followed the five stages that have been suggested by Darlington and Scott (2002). These steps are: 1) Finding and selecting participants, 2) Making a connection, 3) the initial contact, 4) the interview and 5) Ending

3.5.2.1 Finding and selecting participants

As per the requirement of the information that was needed for this study and the limited scope of the research, we tried to get the manager of different electronic retailers to participate in interviews with us. SIBA (at Å6 shopping centre, Jönköping) responded positively to our email and the manager (Kent Johansson) gave us assurances of multiple interviews. SIBA basically operates in Sweden, Norway and Denmark. Conducting a research with this company will provide a concrete insight of electronics retailing market.

3.5.2.2 Making a connection

After getting a positive responsive from SIBA, we confirmed appointment for our first interview through email. We frequented the company many times and got involved in lengthy discussions about the research problems and expressed the need for conducting a research with them. These
connections were our first efforts to get the documents and approval to explore the needed data in the company.

3.5.2.3 The initial contact

Our first formal contact with the manager of the company was on 23rd of March at Å6 shopping centre, Jönköping. The manager, Kent Johansson, first explained to us the formal ways of approaching employees, the profile of the company, its entrepreneurial sprits and working conditions. Following this discussion, we presented the entire problem and our purpose of conducting this study. After we understood how the company functions and how its stores operate, we explored opportunities, with detailed plan, of further interviews. The manager who was our source for the primary data was Kent Johansson and later was Jonathan Lundlin (who succeeded Kent Johansson), at SIBA, Å6, Jönköping. After these information interchanges between us and the manager of the company, we decided to have some more detailed interviews as described in the following section.

3.5.2.4 The interview

After several attempts we were successful in chalking out a schedule for the interviews with Kent Johansson (the first manager) and later with the new manager, Jonathan Lundlin. For a detailed study of the issues, and according to the nature of the topics, we divided our interviews into five separate parts (Table. 3-1). During the first meeting we explained the problem statement, scope and purpose of the study to the company manager in order to get acceptance and make it clear for further communications. At this point, we found some valuable conversations from the manager and other staff. After we conducted the next three interviews, Mr. Kent Johansson (who also arranged us a telephonic interviewee with the SIBA warehouse manager in Gothenburg), was succeeded by Jonathan Lundlin. In order to proceed to the next steps, we had to wait for the new manager and requested appointment from him for the remaining last interview. Fortunately, after few conversations we got a schedule to conclude the final interview.

The interviews were aimed to achieve at least five basic objectives. We accomplished the first by explaining our problem statement, purpose and scope of the study. This provided us with a foundation for conducting the remaining interviews to explore in details, important issues related to the company and its supply chain. The second objective was to understand the product categories and to identify the retailing strategy currently applied in the company. This involved the cooperation of the manager who spelled out the product categorization and the retailing
strategy of the company. At this specific point, we tried to map how the retailing process in the company is going on. The third objective, identification of the CODP for each product category, was a crucial issue as many important concepts of our thesis are related to it. The interview with the manager was quite fruitful in resolving the CODP positions of SIBA product categories (as indicated in the analysis section of this study). The fourth objective of the interviews was the identification of the inventory management strategy of the company. This was accomplished with the help of Mr. Kent Johansson, who arranged us a telephonic interview with the SIBA warehouse manager in Gothenburg. This telephonic conversation lasted 55 minutes and we were successful in discovering some problems related inventory management. The last objective was accomplished when we had some important discussions with the new manager, Jonathan Lundlin, aiming to see what the company seems to do with the proposed solutions and seeking answers to the remaining questions regarding customer service at SIBA.

Table 3-1: Details of the interviews.

<table>
<thead>
<tr>
<th>No of interviewees</th>
<th>Dates of interviewee</th>
<th>Name and Position</th>
<th>Duration</th>
<th>Place of interviewee</th>
<th>Issue discussed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2010-03-26</td>
<td>Kent Johansson, Manager</td>
<td>85 min</td>
<td>SIBA(A6, Jonkoping)</td>
<td>Problem definition, scope and purpose of the study</td>
</tr>
<tr>
<td>2</td>
<td>2010-04-14</td>
<td>Kent Johansson, Manager</td>
<td>120 min</td>
<td>SIBA(A6, Jonkoping)</td>
<td>exploration of product categories and retailing strategies</td>
</tr>
<tr>
<td>3</td>
<td>2010-04-19</td>
<td>Kent Johansson, Manager</td>
<td>79 min</td>
<td>SIBA(A6, Jonkoping)</td>
<td>Identification of CODP for each product category</td>
</tr>
<tr>
<td>4</td>
<td>2010-04-21</td>
<td>Kent Johansson, Manager</td>
<td>55 min</td>
<td>Phone interviewee</td>
<td>Inventory status and its management</td>
</tr>
</tbody>
</table>
3.5.2.5 Ending

After gathering all the relevant data during the five interviews with both of the managers, the warehouse manager and the with different SIBA employees at A6, we thanked them for their cooperation during the interview process. We also intend, upon their request, to share a copy of our findings with SIBA.

3.5.3 Empirical analysis

Taking into consideration the interviews and the frame of reference, we conducted the empirical analysis of this thesis. During the analysis we applied our working model, developed in the frame of reference chapter, in a way that would be helpful for SIBA in eliminating problems created due to the current strategy of speculation. The study in hand uses the “profile and analysis” developed by Pagh and Cooper (1998, page. 24) which helps in identifying “CODP location” of each product categories. The identification of CODP position is based on the concepts incorporated from articles by Yang and Burns (2003, pg. 476) and Rudberg and Wikner (2005, pg. 215). In conducting this thesis and applying the profile analysis, we attempted to change the form of the profile analysis, with the involvement of the SIBA manager, Kent Johansson, in a way compatible with our research and objectives. The analysis is done on the basis of the concept of “Profile Analysis” that emanated from Pagh and Cooper (1998). When selecting the determinants of P/S strategies, we picked only the relevant determinants (with the guidance given from the manager) that were useful for the study. When modifying the “profile analysis”, we took into consideration the product categories of SIBA and the main objectives of profiling and analysis. So, our modified profile analysis is presented after explicit description and analysis of each product categories in the analysis section of the thesis.

3.5.4 The research Approach

Three important issues can be discussed when we come to the research approach that we followed for the case company, SIBA. The first issue, the primary data that we collected from the company, previous studies and literatures which state about postponement, speculation and related issues, is our backbone for conducting this thesis. Based on the above data and literature,
we developed our own model. The second issue was to conduct the empirical analysis and state the findings and conclusions of the thesis. But before that and before completing our final thesis, we used recommendations (feedbacks and feed-forwards) that we got from our advisors and the company managers in order to make the thesis as realistic as possible. Fig. 3-1 depicts the research approach followed by the authors.

**Figure 3-1: Research approach.**

### 3.6 Trustworthiness

Credibility of data is an important issue that needs attention, especially when qualitative data is affected because of subjectivity (Walker et al., 2008). Trustworthiness consists of validity and reliability. According to Robson (2002), there are four factors that affect reliability of qualitative data. These are: subject or participant bias, observer error, observer bias, subject or participant error.

There is subject or participant bias when the top managers of the company do not allow employees to criticize the company's policies/operations or to tell anyone any information that may harms the good will of the company. To reduce the risk of subject or participant bias, it is important to indicate the anonymity of the answer provided by each group of individual of the interviewee. The observer error occurs when no clear interview scheduling has been done. The third error is the observer bias which occurs when different observers are biased due to application of different interpretations. This bias can be resolved by interpreting data independently. The final and important factor is the subject or participant error. This is a situation that is dependent on the mood and condition of the interviewee. To resolve this kind of situation, it is critical to arrange a comfortable time and date for the interviewee. Hence, it is
important to analyze factors that affect the reliability of a qualitative data in order to keep its creditability.

The issue of trustworthiness also encompasses validity as an important element to secure the value of the data. Validity can be defined as the “the accuracy and trustworthiness of instruments, data and findings in a research. Nothing in research is more important than validity” (Bernard, 2006, pg.53). Ghauri & Gronhaug(2005;1995) identified some of the threats to the validity. These are: history, maturation, test effect and selection bias. The threat of selection bias can impact the validity seriously when the subject is not assigned randomly.
4 Empirical Finding and Analysis

*With the background primary data presented above, this chapter presents empirical findings, analysis and interpretations.*

4.1 Background of the company

SIBA is a success story that started more than 58 years ago at Herkulsgatan 7 Hisingen Gothenburg, Sweden by Folke Bengtsson. The company had only one radio station in 1951 which offered radio readings. SIBA started its entrepreneurial spirit by starting the first music-based retail trade in Sweden. In addition, SIBA was one of the first electronic retailers in Sweden.

SIBA opened its first store in Gothenburg in 1974. After such and similar other operations, it grew more and established stores in Sweden, Denmark and Norway since then. SIBA expanded further in the Danish market in the 1990s and in Norway since 2000. Currently, SIBA has more than 60 stores in the three countries. Now SIBA is one of the leading electronic retailers in the Nordic countries. (SIBA, 2010).

4.2 Product categories at SIBA

4.2.1 Product category A- Home appliances and kitchen goods

This category of products include items like cooking wares, refrigerators, washing machines, vacuum cleaners, grills, microwaves, ovens, utensil-washers, mixer-grinder-juicer, toaster, electric kettle, etc (Personal communication, Kent Johansson, 14th April, 2010).

4.2.2 Product Category B- Electronic items

Items in this category range from small to large sized electronics products like mobile phones, mobile phone accessories, TV, Hi –Fi systems, CD & DVD players, home entertainment goods, etc (Personal Communication, Kent Johansson, April 14th 2010).

4.2.3 Product Category C-Computers

Some of the items that belong to this category are lab tops, printers, Mice and keyboards, etc (Personal Communication, Kent Johansson, and April 14th 2010).
4.3 Retailing strategy of SIBA

SIBA is a forecast driven retailing company. Pure speculation is used for almost all the products that they sell and perform the retailing functions for. Historical Data and estimated budget is used to manage inventory. Also, SIBA uses forecasts that have been based on previous market trends and consumers’ patterns of purchases. Demand forecasting is an important function in the company, future events are kept in consideration while predicting demand and inventory is adjusted to this forecast. As demand is forecasted, the company invariably faces demand that is different from the forecast. This result in loss of sales in some categories of products and in other categories there tends to be overstocking which leads to loss by means of high storage costs for these categories. This dual mechanism of losses brings down the profit margin of the company. Uncertainty in demand leads the company to use forecasts and speculative measures and thus the problem for it is loss of sales and profits. SIBA makes weekly forecasts for its inventory. The same is forwarded to its vendors and suppliers who in turn replenish its inventories to its desire. There is no reconfiguration observed in SIBA. Only a very initial level of customization is practiced in the personal computers category. The figures for loses by way of lost sales range 12-17% of sales and 6-10 % of customers are lost due to unavailability of products. The buying function at SIBA is centralized for Denmark, Norway and Sweden and the centralized warehouse of SIBA is located in Gothenburg, Sweden (Kent Johansson personal communication, at A6 shopping centre, 14th April, 2010).

4.4 Position of the current CODP in the company

To meet customers’ requirements, the company should balance flexibility forces and productivity forces (Rudberg & Wikner, 2005), exercising the position of the CODP either up or down the stream. The position of the CODP depends on the retailers’ ability of using speculation or postponement strategy (Rudberg & Wikner, 2005). The current positioning of CODP in SIBA is at the point of distribution because of their speculative strategies applied to most product categories as stated in the retailing strategy of SIBA. This is because, at SIBA, cost is the major competitive priority, and because of that productivity force pushes the position of the CODP downstream. So, the location of the CODP is downstream after distribution as described in figure 4-1 below.
4.5 Current position of CODP for different product categories

To identify the current strategies of SIBA for the different product categories, the authors analyzed appropriate P/S determinants and location of CODP for each category. In choosing the appropriate determinants, the authors used the following factors: product characteristics, market & demand and manufacturing & logistics, as criteria for understanding the current strategy employed. As described in the Model of this paper, the current position of the CODP is determined for each product category. This identification will help SIBA in balancing Flexibility and productive forces. All of the determinants are selected taking into consideration the basic theme of the profile analysis (Pagh & Cooper, 1998), i.e. choosing INADEQUATE determinants will not reflect the true P/S strategy used in SIBA.

4.5.1 Product Category A –Home appliances and kitchen goods

SIBA uses service in cost/service strategy to identify needs and strategies applied in decision making process for this product category and this is one of the reasons why the CODP of this product category is located downstream. Products under this category have a narrow range in variety and are in the initial stages of the product profile. The values of the products are of low monetary density. Examination of the market and demand characteristics indicates that this
category faces a shorter lead time. Also, the economy of scale within the manufacturing and logistics determinant at SIBA is large (Kent Johansson, Personal communication, 14th April, 2010). All the above factors help in the identification of the strategy that is being applied currently at SIBA.

![Some important P/S decision determinants for Category A](image)

**Figure 4-2: Profile analysis of Product Category A (Adapted: Pagh & Cooper, 1998 pg.25)**

As we can see from figure 4-2 above, SIBA is applying pure speculation strategy for the product category A (as indicated by the analysis of the P/S decision determinants of product, market and demand and Manufacturing and logistics). Taking the above determinants into consideration, we made an analysis with the aid of the manager to identify the specific CODP position for each product category in order to re-define the approach used by the company (Kent Johansson, 19th April, 2010, A6 Jonkoping). Later with the help of the manger we found that the CODP is placed at distribution (Fig. 4-3) where the degree of order-driven activities is low and almost all of the activities are based on previously forecasted data (Zinn & Bowersox, 1988).
4.5.2 Product category B- Electronic items

Products in this category hold the same characteristics as those of category A, and therefore the strategy used by SIBA for this category, too, is pure speculation (Fig.4-4).
The difference, however, is that the product category A has product profile as an important determinant factor to be considered in the overall decision making process within the company. Whereas, in product category B, the manager at SIBA is not considering product profile as an appropriate element in analyzing the P/S strategy. Another point of difference is that product category B considers delivery frequency as an important determinant in aligning the needs and strategy for the decision making process. Considering the above issues, and making an analysis with the help of the SIBA manager (Kent Johansson, personal communication, 19th April, 2010, A6 Jonkoping), we identified the CODP for this product category in order to re-define the approach used by the company. The CODP for this product category, like category A, is found to be at the point of distribution (Fig. 4-5).
4.5.3 Product category C-Computers

For the product category C, we observed some customization offered to the customers at SIBA. Therefore, we asked the company manager to select those determinants that do not blur or render the meaning insufficient, but those that reflect the current P/S strategy used for this category. We tried to consider the factors that affect both, the downstream and upstream activities, and that have some significance in determining the competitive position of the company. These same factors help in determining the position of the CODP. In this category we observed that the products are characterized more with cost than service under the cost/service strategy. The products are offered with little or some customization and are available in wide range as depicted in Fig. 4-6 below.
Additionally, the products in this group are in their final stages of the product profile with high monetary density and high degree of uncertainty of demand. So based on the above, we observed that the company is utilising logistic postponement and the position of the CODP for this category is at the point of assembly as indicated in the figure given below (Fig.4-7)(Kent Jhoannonson, personal communication, 19th April, 2010, A6 Jonkoping).

![Diagram of postponement processes]

**Figure 4- 7:** Current Position of the CODP for product category C (Adapted: Yang & Burns, 2003, pg. 476; Rudberg & Wikner, 2005, pg. 215).
4.6 Consequences of current strategies applied in the company

After identifying the location of the CODP for each product categories in the supply chain, we asked the manager of the company to reflect the effects of the current strategy exert on their operations. “Well,” the manager started, “we cannot say the current strategy has no problems at all. There are some problematic issues that the company is facing due to this strategy.” The manager added “the current speculation strategy forces us to sometimes sell items on discount. Then, in addition to discount sales, we have to deal with the issues of excess inventories, high storage costs, loss of inventory, loss of customers, and loss of sales.”(Kent Johansson and Jonathan Lundlin, Managers, SIBA, Jonkoping)

- Sales Discount

Because SIBA uses speculative approach, forecasting is the basis of accumulating inventory at the store. The company orders products to meet consumers’ demands on the basis of forecasted demands, which most often do not reflect the true demand. This leaves the company with unsold products which are then sold on discounts. "SIBA advertises a discount on sales many times over the years and this is the way we try to sell unsold surplus stocks. All of this is due to speculation strategy being employed in the company" (Kent Johansson, personal communication, 14th April, 2010, SIBA, Jonkoping)

- Excess inventory

Due to the frequently changing customer demands and trends in the electronic industry, forecasting often goes wrong affecting the inventory turnover of the company. This leaves SIBA with excess stocks of some products. "Even though we are applying forecast-driven orders, and inventory replenishment tools like EOQ, still we are holding excess stocks at our stores which do not add value. We hold a minimum of three to four months of stocks before getting new replenishment." (Jonathan Lundllin, personal communication, 25th April, 2008, A6, Jonkoping) Due to the above, the operational flexibility of the SIBA warehouse gets affected.

- High Storage costs

The company holds excess inventory to a certain extent and this causes a problem related to space, capital and cost of sales. Regarding this issue, we asked manger if storage costs matter SIBA. He answered, "We cannot ignore the costs of storage for a single month. If we keep obsolete inventories around shopping malls, customers might think that we have not yet updated with current technology. So our only option is to sell them at discount or keep them
in warehouses and it costs us too much. "(Jonathan Lundllin, personal communication, 25th April, 2008, A6, Jonkoping))

- Loss of customers
An apt phrase: The customer is the king. Handling customers is paramount to achieve the best possible sales. However, the majority of customers in the electronic marketplace require careful attention to achieve maximum business value gains. They need strong attention due to the changes in their demand. SIBA loses customers when the available products do not match the customer requirements. In this regard the manager aptly remarks, "SIBA is bound to lose customers if the inventory is not updated on the basis of customer orders. Lack of update with new products and following the forecast driven techniques than demand driven approach lead us to lose our customers. I can also say that has an impact on our sales effort." (Kent Johansson, personal communication, 14th April, 2010, SIBA, Jonkoping)

- Loss of sales
The main objectives of doing a business is achieving the maximum sales in order to get the highest attainable business profit. Sales is lost when there is a mismatch of customer requirement and available product. SIBA is facing loss of customers which mean loss of sales. “It is clear that since we are losing some of our customers we are also losing our sales.” (Kent Johansson, personal communication, 14th April, 2010, SIBA, Jonkoping)

4.7 Redefining retailing strategy and position of CODP at SIBA
SIBA needs responsiveness in its supply chain to be able lessen the effects of demand uncertainty that it faces from customers. Also, to avoid lost sales SIBA needs to address individual customer needs and requirements. Postponement, for SIBA, appears to be a logical natural solution that should be applied. But there are different kinds of postponement strategies to choose from (Pagh & Cooper, 1998) and which strategy is the right strategy that should be applicable is a worthy issue from SIBA’s perspective. This issue of SIBA can be resolved by making an estimate of the uncertainty level in the demand faced by SIBA, customization that its products need, where to position the CODP in the SIBA Supply chain, and how lead times reductions can be achieved. Redefining a new supply chain P/S strategy and reorienting its CODP to a new position would lend SIBA an opportunity to work on new developments, new product areas and address a new vision. Agility and flexibility in operations at SIBA can be enhanced by applying and utilizing Postponement successfully (Yang & Burns, 2004 ; Yang et al.,
2004a) and by being more responsive. Furthermore, Postponement would help improve the functionality of the SIBA supply chain (Nair, 2005).

Our suggestion is that the supply chain strategies for SIBA be a midway in between Postponement-Speculation continuum. As activities cannot be postponed for infinite length of time (Bucklin, 1965), a partial postponement is what we want to suggest for SIBA. SIBA being a big retailer and closest to the end user in the supply chain, its role can be very influential in the designing and implementation of the supply chain strategy. SIBA does not practice the strategy of logistics postponement (except for product category C i.e. personal computers) in spite of the fact that its inventory distribution system is centralized. Forecasting, in SIBA, is the main decision determinant so much so that even after initiation of a customer order, inventory is not penetrated at its outlets. SIBA would logically be benefitted if it incorporates Logistics Postponement into its supply chain. This would have a positive effect on the supply chain as the CODP point which was earlier below the distribution point would be moved up the distribution function as SIBA transforms its current strategy of pure speculation into a strategy of partial postponement.

Cost reduction and shorter lead times are the benefits of Logistic and segmented Postponement (van Hoek, 2001) for SIBA and its supply chain. This would also allow flexibility in operations (Yang and Burns, 2004) for SIBA and its supply chain. Various authors too suggest a similar kind of inventory postponement strategies for retailers (Bucklin, 1965; Pagh & Cooper, 1998; Zinn & Bowersox, 1988).

We intend to suggest a similar redefinition and repositioning of P/S strategies and CODP respectively for the three categories of products that SIBA deals in, and the basis for these above decisions would be the profile of the products and the problems face by them.

4.8 CODP for Product category A

For product category A, it is Logistics postponement that appears to have congruity. We thus suggest Logistics Postponement for this category. The reason being high uncertainty in customer demand for these products and products in this category are in the stages of maturation or growth. For this products category, it is value addition or customization that the customers demand. Also for this category, service (and not costs) is the order winning criteria. Products in this category are standardized and frequency of delivery and sales is higher with shorter lead
times. The above reasons force us to consider Logistics Postponement for this category. This will help move the CODP of this category upstream (Olhager, 2003) at the point of assembly (Fig 4-8) whereas earlier the CODP was lying at the point of distribution. The movement of CODP upstream (as a result of postponement application) will enhance the operational flexibility agility in the SIBA chain (Yang & Burns, 2004; Christopher, 2000). Now, the products can be stored in a modular form and can be assembled as and when a customer order arrives. Also, the products can be stored under make-to-stock system with centralized inventories. This will have a positive effect on the supply chain. Different configuration of products will now be available to cater different demands out of the standardized modules. This will reduce the risk of products being out-of-stock or overstocked. Also, the risk of lost sales will be addressed adequately. Figure below explains the above strategy.

Figure 4-8: New CODP position for product category A (Adapted: Yang & Burns, 2003, pg. 476; Rudberg & Wikner, 2005, pg. 215).
4.8.1 CODP for Product category B

We suggest Logistics Postponement for this category as well. These products have a narrow product range, large economies of scale and low monitory density of products. For this products category (as in the category A), customers seek value addition or customization. The order winning criteria for this category of products is service (and not costs). Shorter Lead times, standardized products and higher delivery frequencies and sales volumes characterize this category of products. The basis for suggesting Logistics postponement, for this category also, is the above associated product category features. Logistics Postponement would affect the CODP in this category (which was earlier lying at the point of distribution) to move upstream (Olhager, 2003), to the point where product assembly is performed (Fig. 4-9). The result of this upstream movement (which is due to the application of postponement) will enhance the operational flexibility agility in the SIBA chain (Yang & Burns, 2004; Christopher, 2000). Products (in modularized forms) can now be stocked and assembled to fill a customer’s order as and when this order arrives. Thus, a centralized inventory and a make-to-order system can be practised, which will affect the supply chain positively. Standardized modules can now be used to provide different configuration of products will to fill various customer demands. This will enhance availability of products, and the risk of overstocking and out-of-stock situations will be reduced. This will adequately address the problem of lost sales. Figure below explains the above strategy.
4.8.2 CODP for Product category C (personal computers)

From our analysis we concluded that SIBA is already practicing Logistics Postponement in this category. Personal computers are the only category for which there is some kind of customization that is being offered by the company (Kent Johansson, personal communication, Manager, 21st of April, 2010). SIBA is correct in following Logistics Postponement as product range is wide and customers demand high level of customization. Also, products are in their final stages with high monetary density and demand density. The above characteristics make this category a fit case for Logistics Postponement. Thus we suggest that SIBA continue with this policy and not move its CODP from its current position (Fig. 4-10).
4.9 Benefits of the proposed strategies

SIBA faces the problems of increased cost, demand uncertainty, loss of inventory and sales and low profit margins because of a speculative approach. As forecasting is heavily relied upon in SIBA, a high uncertainty in demand is faced. This affects SIBA’s whole supply chain. There are under and over-stocking situations due to differences in forecasted and actual demand, which increases SIBA’s cost by about 7-8% roughly (Kent Johansson, Manager, 21st of April, 2010). When a customer asks for customization or rejects an available product, this problem gets aggravated and results in 6-10% loss in customer base. Moreover, changing trends and demands for variations from customer further add to the problem (Pagh & Cooper, 1998) as SIBA depends mainly on the safety stocks in their centralized warehouse to leverage economies of
scale and to reduce their costs. This practice increases the costs of holding inventories and inventories in the stocks just wait for customer orders and thus add no value to the chain.

We explored the relationship among the concepts of postponement, supply chain flexibility and agility in the frame of reference chapter and concluded that postponement of activities leads to supply chain flexibility (Yang & Burns, 2004) and agility (Christopher, 2000). Analyzing the above inherent problems in the SIBA supply chain we thus suggested postponement in all the three categories of products. SIBA will, using postponement, be able to attain responsiveness and agility (i.e. a flexible supply chain) (Yang & Burns, 2004) by separating standard components from differentiated components. But mass customization is an important activity (Yang & Burns, 2003) that SIBA must promote to attain this flexibility in its chain.

Postponement also relates to the CODP in that it moves the CODP up and down the chain depending on the combination of the P/S strategy. It helps move the CODP from standardization to customization. For SIBA to be flexible, it needs move its CODP upstream (and thus use postponement). SIBA’s CODP will be upstream if it has to address its customers’ needs of customization, but the same CODP will be downstream if SIBA intends to practice lean principles and enjoy scale economies. High flexibility can be incorporated into the SIBA supply chain by the application of postponement (Yang & Burns, 2004). SIBA has a centralized warehousing and a centralized inventory distribution system which is itself a logistics postponement approach but because SIBA practices speculative approach at its retails, it faces uncertainty in demands and those losses in the forms of sales and customers. For the personal computers category SIBA provides customization but there is a need for more customization to compress lead times and decrease holding costs of inventories. This can be achieved by the application of postponement strategy. Boon et al. (2007) state in this regard that postponement has a dual benefit in that it not only satisfies customer demands but also reduces costs. SIBA, by having its CODP at the initial stages can incorporate postponement in its chain and reap the above benefits. Following benefits of postponement application are expected to be accrued to SIBA:

**Improvement in the visibility of and responsiveness to customer demand**

One of the reasons that companies are applying postponement strategy is the need to address customer demands van Hoek (2001) and Boone et al. (2007) aptly state that growth in postponement depicts increased demand for customized products. Application of forecast
driven activities, as used by SIBA, do not satisfy customers due to lack of flexibility and responsiveness in addressing their needs and specifications. In order to achieve the above flexibility and responsiveness and to reduce this risk of uncertainty, SIBA should apply postponement (Christopher, 2000), which delays activities to a point where actual customer orders are received (van Hoek, 2001). This improves the visibility of the customer orders (Sheu et al., 2006).

By having the CODP upstream, SIBA would be able to move itself from standardization towards customization (Olhager, 2003) and hence will be able to be responsive to its customers’ requirements by having more visibility in customer demands and inventory availability (Sheu et al., 2006). Also with the reductions in lead times, SIBA’s responsiveness will enhance (Sun et al., 2008).

Maintain the appropriate level of inventories

The level of inventories matters SIBA as we saw from the problems that the company is encountering due to high storage cost of unsold inventories which are a result of speculation strategy. Postponement, by improving responsiveness, helps retailers in reducing inventory, transport, warehousing and obsolescence costs (Yang et al., 2004). Having too much inventory based on forecasts costs the company space, capital and storage costs. Using postponement as a business strategy will help SIBA to maintain an appropriate level of inventories.

Obtaining the high level of sales

Postponement as a strategy has helped, for instance, Benetton, Hewlett Packard, etc in achieving the maximum profit and addressing adequately the customer demands (Dapiran, 1992; Waller et al., 2000). Provided that customer requirements and specifications can be fulfilled adequately and responsively, SIBA can retain customers and increase sales. Increasing sales and reducing costs by moving the CODP upstream, SIBA can have the best possible level of sales.

Flexibility in operations

By having the CODP at the initial stages and suspending some of the activities until a customer demand arrives, SIBA hold the prospects of enough flexibility in its operations. This conforms to what Yang and Burns (2004) commented about the movement of the CODP. The authors
state that as a consequence of postponement, the CODP moves upstream and the effectiveness and flexibility of the supply chain gets enhanced.

**Reduction in wastage**

With the application of postponement, there will be less need of stocks of pre-manufactured/pre-fabricated inventories (Dapiran, 1992). This will lower the instances of a customer rejecting a product because it doesn’t match his requirement. This would lower the occurrences of wastages in SIBA.
5 Conclusion

This chapter represents the final conclusions by answering the research questions and the discussion for future research.

5.1 Conclusion

During the Frame of reference chapter we treated many important concepts and tried to bring to the fore the underlying connections among them. We explored the concepts of postponement, supply chain flexibility, agility and Customer Order decoupling Points. These concepts are closely related to one another and it has been shown that as the depth of postponement increase from right to left in the CODP continuum the CODP changes its position, moving along the CODP continuum from right to left and towards the upstream (Yang & Burns, 2003; Rudberg & Wikner, 2005). With this movement, the flexibility and agility in the chain increases. Also, the performance of the retailer improves with reduction in wastages that occur due to over stocking of inventories, loss of sales due to shortages in inventory of certain products or due to unmet customer requirement, and loss customers.

Following conclusions have been drawn as we try to answer our research questions:

*How is Postponement influencing the SIBA in achieving flexibility and enhancing agility and what are the major determinants for Postponement?*

The ever changing needs and requirements of the consumers and the desires for individual solutions have made standardization an obsolete strategy for the consumer electronics retailers. Owing to the above ongoing trends, life cycles of products have shrunk, paving the way for a strategy called mass customization (Hart, 1995) wherein products are tailored on a grand scale to meet the needs of an individual consumer. Mass customization seems to be the right strategy to meet the fast changing needs of the markets today. Mass production (and reaping scale economies) no longer seem to work and have been rendered obsolete, as not only cost (which is the primary guiding principle behind mass production strategy) but also service, quality and in time services are crucial elements of retail business. Uncertainty in demands, Lead times, frequency of delivery, consumer’s desire for customization and their tolerance for wait times, etc,
are some factors that retailers must analyze before embarking on a plan for applying a strategy of postponement. Retailers should focus on, among other things, the requirements that the customers need. We found in our present study that consumers have different needs and demands for different product categories. Thus, the supply chain structure (i.e. the position of the CODP) and the postponement decision should be made on the basis of the requirements of the customers (Pagh & Cooper, 1998).

We suggested logistics postponement for two categories of products out of three, at SIBA. This, according to our observations, leads to reductions in wastages and at the same time enhances the flexibility and agility of the SIBA chain at the same time by moving the CODP upstream from its current position. As SIBA is a giant in the industry, the results may very well be considered to be working for others as well.

**How do postponement strategies help SIBA in reducing the degree of uncertainty, increasing customer orientation, agility and flexibility enough to meet customer demand?**

Consumer electronics industry faces rapid developments in technology. Consumers force retailers for low cost, high quality and short delivery times, high frequencies of deliveries, customized products at the right place and time. The margin of tolerance for wait times is low. Unpredictability in consumers’ demands and changing consumer behaviors have had their effects on the retailers’ profit margins in that speculative approaches and forecasting have been rendered obsolete due to uncertainties introduced by continuous changing trends. Stockpiling inventories (the traditional approach of retailers) do not seem to work as retailers are unable to exactly meet a customer’s demand out of their inventory due to the changing patterns of consumer demands (Fernie & Johnson, 2004). To keep the customer base intact and to have high sales volume, the need of the hour is to have the CODP at some initial stage of the supply chain so that value-addition and customization can be facilitated which will strengthen competitive position in the market. The effects of this positioning of the CODP will increase the depth of the postponement, which in turn, will enhance the flexibility and agility of the supply chain and will result in performance improvements, responsiveness towards customers and waste reductions (by way of reductions in inventories which will lead to a reductions in transport costs as well). Also, the chances of catering to the exact needs of the customer, and earning a high margin of profits due to customer satisfaction will be higher.
Within the electronic industry, we observed, consumers’ preferences, requirements and demands differ. This is very well reflected in the words of Kent Johansson, who remarked, “In some categories of products they (our customers) need very little or no customization while in others such as computers they have a high demand for customization and for differing features of the product” (Kent Johansson, personal communication, 14th & 19th of April, 2010, Jönköping). Such a pattern is suggestive of different CODP positioning and different retailing P/S strategies for different product categories which lead us to accepting the fact that consumer requirement are the crucial determinants when decisions regarding P/S strategies and CODP position needs to be taken. Benefits of applications postponement have dawned upon companies, which indicate that there will be more of mass customization and increased variety as use of postponement increases. The percentage estimate of organizations that benefit from postponement strategies has been cited to be 80% (Can, 2008; Mike Kilgore, 2008).

5.2 Discussions for Future Research
The application of postponement in electronics retail industries, especially for Swedish electronic retailers is of great importance for their competitive advantage. In this paper we have applied a model adapted from Yang and Burns (2003, pg. 476) and Rudberg and Wikner (2005, pg. 215) in order to conduct a detailed study of strategies applied by electronic retailer and to carry out our analysis. To determine the P/S strategy used by the retailer (SIBA), we modified a model from Pagh and Cooper (1998, pg. 26). The profile analysis provided us with the right direction in conducting this thesis. We believe that, in future, different retailers can use our approach in defining the retailing strategies. In fact our research has been conducted in limited time and was specific to SIBA.

Theoretical Implications
As this thesis is a case study of SIBA and was done in relation to a single company, the result of this thesis is not generalizable for other retailers. Moreover, we tried to address some of the important issues that would enhance the flexibility and agility of the retailer, reduce demand uncertainty and increase visibility but at the same time there are a lot of aspects that have not been grasped. This opens opportunities for future researchers on issues related to postponement in other retailing industries. Also, as stated in the limitations of the findings of this research that the context of the supplier relation to the case company has not been considered, we will outline some recommendations for future research (with regards to supplier relationships) in the field of
Postponement in retailing industry. The future research can be based on the relationships of the retailers to its different suppliers and how these relationships affect postponement implementation in this particular supply chain. Factors related to suppliers and suppliers’ suppliers and other environmental factors, too, should be a focus for future research and how these factors can have a positive bearing on the supply chain flexibility and agility of the chain.

**Managerial Implications**

We recommend managers from the retailing industries to focus on solutions proposed by us and fill the gap created by underutilization of postponement in the Swedish Retail sector (EUROMONITOR, 2010). The managers will benefit from the results of this research. The benefits that might accrue are enhanced inventory visibility leading to reduced uncertainties in customers’ demands, reductions in wastages by way of reduction in storage costs, obsolescence and lost sales, and increase in operational flexibility and agility of the chain. But the negative aspects of postponement should be considered as well, while applying this strategy.

The managers of the retailing industry may be reluctant to accept new ideas, but by rational reasoning for the application of postponement in product categories will help the firm in achieving the above enumerated benefits and improving their competitive positions.
6 References:


• Schaumburg, T. (2008). What is so bad about inventory?” Progressive Grocer, 87(7), 100


7 Appendices

7.1.1 Profile analysis of Product Category A

<table>
<thead>
<tr>
<th>Some important P/S-decision determinants</th>
<th>Generic P/S-strategies</th>
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<td><strong>Product life cycle</strong></td>
<td><strong>The full speculation strategy</strong></td>
</tr>
<tr>
<td>Stage</td>
<td>Introduction</td>
</tr>
<tr>
<td>Cost/Service strategy</td>
<td>Service</td>
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<tr>
<td><strong>Product characteristics</strong></td>
<td><strong>Standard</strong></td>
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<tr>
<td>Product type</td>
<td>Initial stages</td>
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<td>Product range</td>
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<td><strong>Value</strong></td>
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<td>Value profile</td>
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<td>Monetary density</td>
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<tr>
<td>Economies of scale</td>
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</tr>
<tr>
<td>Special capabilities</td>
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</table>

Kitchen Wares
Washing machines
Vacuum cleaners
Accessories

Kent Johansson
### 7.1.2 Profile analysis of Product Category B

<table>
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<td><strong>Market and demand</strong></td>
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<td>Delivery frequency: High</td>
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<td>Special capabilities: Yes</td>
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### 7.1.3 Profile analysis of Product Category C

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<tr>
<td></td>
<td>Special capabilities</td>
<td>Low/Med.</td>
</tr>
</tbody>
</table>

**Note:**
- **Product Category C**
- **Kent Johansson**
7.2 Questionnaire

1. How would you describe your supply chain: Responsive or Efficient?
2. How is Inventory managed in your organization? Comment briefly on the inventory management policy practiced in SIBA.
3. Give a brief description of the current business processes in your organization.
4. Comment on the present situation of efficiency level of your organization & customer satisfaction?
5. Comment on the present situation of customer satisfaction level of your organization?
6. Which is the weakest link in your supply chain?
7. How is demand forecasted in your organization?
8. What is the level of demand and lead time uncertainty faced by SIBA?
9. How does your organization cope up with this level of uncertainty?
   a. Do you maintain buffer/safety stocks?
   b. What is the level of in-transit inventory?
   c. What forecasting method do you apply?
10. Comment on the rate of stock outs faced by SIBA.
    a. How do you measure stock outs?
    b. What are the stock outs cost to the company?
    c. What are the overstocking costs to SIBA?
    d. How do you measure over-stocking costs to the company?
11. What is the length of the mean life cycle of products in SIBA?
    a. Comment on the mean shelf life of the SIBA’s products/
12. Lead Time:
    a. What is the length of SIBA CLT?
13. Supply Chain Reliability:
    a. What is the degree of your supply chain’s reliability?
    b. What is the policy and method of measuring suppliers’ performance (Delivery time or delivery frequency) at SIBA?
    c. How frequent do you face break downs in supplier performances?
    d. Comment on the area of your supply chain which needs improvements
    e. In the above question, comment why do you feel so and how do you expect performance improvement to take place?
14. Bargaining Power:
   a. Comment on the number of suppliers at your disposal?

15. Comment on the degree of uniqueness of the products that SIBA purchases.

16. Comment on the kind of third party providers used by SIBA.
   a. How many third parties are involved with SIBA?

17. Which processes and functions do you out source?

18. Comment on the degree and level of customization that SIBA provides to its customers and in which categories of products?

19. Comment on the current service level provided by your organization to its customers? A.
   a. Can you quantify your service level?
   b. How do you quantify your service level?

20. Comment on the variety of products offered by SIBA
   a. Is the variety broad or narrow?
   b. Is your product line wide/narrow?

21. Give brief comments on the following product characteristics
   a. Life Cycle,
   b. Monetary Density,
   c. Value Profile,
   d. Product design characteristics

22. How do you price products?
   a. Comment on SIBA’s pricing policy and strategy.

23. What is the level of sales volume fluctuations in your organization?
   a. Which seasons face the highest fluctuations?
   b. In times of High fluctuations how do you manage demands?

24. How do you segment customers?
   a. What segmentation strategy do you follow?

25. Which customers do you focus and target more on?