Time –based strategy in distribution logistics

Gaining competitive advantages in IKEA

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Abstract

Distribution logistics plays a critical role in international companies that want to have more competence in the complex and global market. Today, most customers care more about whether the products can be in hand of them within expected time instead of how company delivery the products. Hence, time can be significant measurable indictor in distribution logistics. This thesis is to describe the effects of time based strategy in distribution logistics and how IKEA can gain competitive advantages by the utilization of time based strategy. The authors identify key elements in distribution logistics and find competitive advantages through researching the single case study-IKEA, and they are: speed, dependability and flexibility. Besides, the authors would provide some proposals to IKEA in order to optimize time-based strategy and gain competitive advantages.

Key words: distribution logistics, time-based strategy, IKEA.
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1. Introduction

1.1 Background

In the international trade environment, Logistics management plays a key role in the organizations. Logistics is the integration of materials management and distribution (Rushton et al., 2010). Currently, some of the most significant trends in logistics include collaboration along the supply chain, reducing costs, shorter lead time, cross docking, direct delivery and the like (Water, 2004). Customers do not care much about how company gets the order and delivers the product. Customer’s satisfaction is primarily determined by receiving the products within expected time. In the distribution logistics perspective, organizations use the traditional distribution system. However, in order to gain competitive advantages in the global market, organizations can change the distribution system based on time. Time based strategy applied in the company can reduce costs, improve efficiency and increase customer services, even create much values for the organization (George, S, JR & Thomas M, H., 1990). Our interest lies on the effective management of time in logistics. This thesis presents effects of time based strategy in IKEA throughout distribution logistics. It would mention distribution system, warehousing management, supplier locations, supplier relationship, inventory level and so forth. Regarding the competitive advantage, it should be contain something relevant to TQM performance objectives, such as: speed, cost, flexibility, dependability and quality. According to the purpose of the thesis, we focus on speed, flexibility and dependability as our main emphasis. There must be some visible or invisible connection between companies and those TQM five performance objectives, we are going to figure it out via analysing IKEA as case.

1.2 IKEA

The first IKEA was opened in 1958 in Sweden, it was founded by Ingvar Kampard when he was 17 years old and now it is an international home furnishing company with great reputation all over the world. The company is controlled and owned by a Dutch corporation, and the name of that corporation is “INGKA Holding B.V” (Oddou, 1998). IKEA expanded
dramatically into new market in 1980s gradually; of course the company never stops the steps but keeps forward for becoming the king of retailer. Today it is the largest furniture retailer in the world, and it is famous for its products’ design and products’ low price. The company always tries to provide a wide range of well designed, functional home furnishing within a low price so that as many people as possible will able to afford them (IKEA annual report, 2010). Especially, the characteristic of IKEA’s product is called “self-assembled”, it means that customer can delivery and assemble products by themselves totally. It is not only save the cost but also improve the efficiency. IKEA already has about 280 stores in 26 countries; most of those stores are built in Europe, Asia, North America and Australia so far. During 2010, and the IKEA group opened 12 new stores in 8 countries. Besides, IKEA always tries to avoid wasting resource in response to low cost and low price. IKEA has paid attention to social problem such as child care system and living condition improvement as well, because those social issues can also affect and shape the way of working with co-workers and communicating with customers. Therefore, IKEA set Social Initiative’s holistic programmes up which refer to health, education and women’s right in India and Pakistan country sides (IKEA annual report 2010). In addition, some customers can even design what they want by themselves, the unique kitchen or living room can be existed (IKEA, annual report 2010). Thus, the product can be flexible and adaptable for any house no matter it is small or it is large. However, even through IKEA creates perfect products and service, there is still necessary to analyze how to save more time systematically based on increasing market rate in the world and more emerging demands to meet customer’s expectation under dramatically development of technology and economy.

1.3 Purpose

The purpose of this thesis is to describe the effects of time based strategy in distribution logistics and how IKEA can gain competitive advantages by the utilizations of time based strategy.
1.4 Outline
In this thesis, there are 8 parts consists of it. Section 1 tells the main purpose of thesis and provides background of distribution logistics and some brief introduction of IKEA. Section 2 is to explain the main method that we used for achieving the purpose, and the limitation is also included. Section 3 describes some literatures or previous relevant research regarding to time based distribution. Section 4 presents the result of findings based on secondary data, such as: how IKEA distribution works and the IKEA’s relationship with its supplier and its co-workers. While section 5 tells our analysis of IKEA’s distribution according to the findings of multi examples. Section 6 provides the final conclusion of this thesis and it is directly related to the purpose. In last section, all the references that we used in this thesis are listed in line.

2. Methodology
In this thesis project, we utilized literature review and empirical case study based on IKEA to research the problem. We searched various articles, journals, books and internet information that related with time-based strategies apply in distribution logistics. In the literature review part, we found valued information that includes supply chain management, warehousing management, time-based distribution, inventory management and the like. All information that we collected is to support the purpose of the thesis work. Through the literature review, we made an exposition of different perspectives that can be integrated into time-based strategy in distribution logistics. We regarded IKEA as the case study and analyzed IKEA relies on the perspectives that mentioned in literature review parts. Finally, according to the literature review and case study, we found the competitive advantages that companies can gain; they are cost, speed, flexibility and dependability.

2.1 Case approach
We selected single case study in our thesis work. We believe that it is much better for us to draw attention to the problems that learned from the case study. We can concentrate on one single case all the time and analyze it entirely. IKEA is a worldwide furniture company, the
reasons that IKEA can be successful in the global market display in many areas such as supply chain management, strategy positioning and the like. As IKEA holds about 300 stores all over the world, distribution logistics plays an important role in gaining much more competitive advantages in the market and providing better services to the customer. Relying on the six perspectives in theoretical framework, we formed the design of case study. Theoretical framework can guide us to get the description of IKEA from different perspectives. According to Yin (2004), it is theoretical proposition analytic strategy.

2.1.1 Qualitative Method
Qualitative method is to describe and analysis qualities, attributes and make distinctions. Qualitative research means to have a non-numerical data collection and make a explanation. In order to gather information, some methods can be applied such as Reflexive Journals, Field Notes, Structured Interview, Analysis of documents and materials and so forth (Walliman, 2005). We mainly used qualitative methods in this thesis research.

2.1.2 Quantitative Method
Quantitative method is to measure attributes within many objects, give statistically measurable variables. Quantitative methods are used to gather quantitative data, that is refer to the information dealing with numbers and anything that is measurable. For instance, diagrams, statistics, tables can be often used in the articles (Walliman, 2005). In theoretical framework, we applied this method distribution center perspective.

2.2 Data Collection
2.2.1 Primary data
Walliman, (2001) stated that “primary data, that is data observed, experienced or recorded closest to the event, are the nearest one can get to the truth, distortions inevitably occur as the proximity to the event decreases.” As primary data is gained directly by researcher, the data would be much accurate and reliability. However, we researched the thesis project without primary data. We just collected data from the journals, internet, books and the like to analysis the problems.
2.2.2 Secondary data

Contrast with primary data, secondary data is data that has been collected by someone other than the users. There are some forms can be illustrated including articles that published, writings in books, newspaper reports and so forth. Secondary data can be valuable as the data can be collected from different background of sources and gained much more viewpoints. We use secondary data to research our thesis. Because there are much sources that we can find from books, journals, internet and the like. We analyzed IKEA from global market, and it is large company in the world. In this case, it is easier to collect the data from internet. We think that is enough for us to research the problems without interviews.

2.2.3 Validity

Although we did not use primary data for researching the thesis work, we are cautious to collect secondary data. There are many related journals to support one perspective in theoretical framework. All the data are from published journals and official websites. When we used the data in the thesis work, we have checked them carefully to make sure they are validity.

2.2.4 Reliability

The principles and methods in the thesis are based on the published books and journals. They have been applied in the companies and get effective results. Especially the supply chain management model, porter generic strategy and warehousing management have been approved and developed in many years. So, we confirm that our thesis research is reliable.

2.3 Limitation

One of the limitations is that we just collected the secondary data to support this thesis. We used IKEA as the only one case study to analyze time-based strategy. The information about IKEA is from the internet or literatures. In order to get much specific data about distribution logistics in IKEA, we have been to the nearest IKEA and asked the staff work there. We left the contact way to the logistics manager in IKEA, because of time limitation, the interview
with logistics manager cannot be achieved finally. In addition, we mentioned six perspectives in theoretical framework related to time-based strategy in distribution logistics. However, we are not able to find the specific data about inventory level of IKEA from its website or official documents.

3. Theoretical Framework

Time is the equivalent of money, time based strategy is the way to lead companies manage time in production, sales and distribution (George, S, JR & Thomas M, H., 1990). Following six perspectives can be concerned in time based strategy in distribution logistics and help companies offer the products and services at lower costs, and with good delivery performance than other competitors.

3.1 Porter’s generic strategies

Most firms are seeking a sustainable competitive advantage; the porter’s generic strategies just can be guide for firms to define the strategy direction. It is as simple as that--“the most profitable competitor in any industry sector tends to be the lowest-cost producer or the supplier providing a product with the greatest perceived differentiated values.”p.4 (Christopher, 2011)

Porter generic strategies consist of three strategies that are used in the organizations to achieve and maintain competitive advantages. The three general strategies are cost leadership strategy, differentiation strategy and market segmentation strategy (focus or strategic scope) (Porter, 1980). Organizations must choose one strategy from these three as the primary strategy. Either company can form the differentiation from the products or services, in order to provide more values compared with other competitors in customer perspective, or company takes up with serving the particular market segmentation, particular types of products or particular geographical range. The structures of three strategies are widely different; company needs different resources and techniques for implementing strategies successfully. Due to the confusion of culture in firms, conflict of excitation mechanism and the like, the enterprises
that do not have the definite strategy or stuck in the middle would probably suffer huge losses. The following diagram Figure 1 shows Porter’s generic strategy:

Figure 1: Porter’s generic strategies (Porter, 1980)

### 3.1.1 Cost leadership strategy

This generic strategy can also be known as low cost strategy is that the firm offers the lowest price to achieve a profit than that of rivals, or wins the market share by reducing the average industry prices. The firm can maintain profitability while the competition suffers losses in the event of price war. The firm can produce cheaper products in order to earn a profit in a long run as the industry matures and prices declines. The cost leadership strategy usually targets a broad market. This generic strategy can be summarized into the following types (Porter, 1980):

- simplify products or services
- improved design
- materials saving
- labor costs reducing
- innovative manufacture and automation
Firms that can be success in cost leadership strategy usually have the internal strengths as following (Porter, 1980):

- Access to capital that requires making a significant investment in the production assets and this investment is a barrier for other firms that cannot overcome.
- Skills in designing products for efficient manufacturing, for instance, the fewer or small components that shorten the assembly process, limited the amount of models produced that ensure large production runs.
- Lower operating costs which including outsourcing, distribution, R&D and advertising.
- High level of expertise in manufacturing process engineering.
- Efficient distribution channels.

3.1.2 Differentiation strategy

This generic strategy refers to the products and services are distinct different from that of rivals. The firm provides unique attributes that are valued by customers and customers perceive to be better that the competitors bring. In this case, the price would be a little bit higher that other products that competitor offers. However, it is difficult for customers to find the substitute products easily. There are four basic channels for differentiation strategy:

- Products differentiation, including, reliability, design, consistency, working performance and the like.
- Services differentiation, including, delivery, install, customer training, consulting and the like.
- Human resource differentiations.
- Image differentiations.

3.1.3 Focus strategy

The focus strategy concentrates on market segment with a narrow scope and based on the cost leadership strategy or differentiation strategy. The firm focuses on a target market, specific customer groups or some parts of the products line. This generic strategy can be divided into product line concentration, customer concentration, area concentration and low occupancy concentration. This strategy can help firms to obtain high customer loyalty. Because of the
narrow market, the volumes of products are low; therefore bargaining with supplier is less as well.

The combination of generic strategies cannot be applicable. Firms must choose one of the strategies to achieve the competitive advantages in the market. Porter argued that enterprises are able to be succeeding at multiple strategies often if enterprises create separate business units for each strategy. However, there is one risk for firms to be stuck in the middle, as different policies and cultures exist in separating different strategies into different business units.

3.2 Distribution Center

Warehouse is a critical room for buffering materials or products in the recent past. However, the role of warehouse has changed due to the demand of people and global competition. In current time, warehouse is used for developing productivity, decreasing processing costs and so on. Besides, there are many kinds of warehouse management information system (WMS) arising which are necessary prerequisite to reach better service performance efficiently (Faber et al., 2002). The effectiveness of a company will be affected by warehousing management through receiving, transporting, packing directly as well as its quality and service performance (Rafele, 2004).

3.2.1 Traditional distribution system

There is a large number of companies have their own local distribution center or warehouse which are close to raw materials and customers geographically. It is called “traditional model” that means it has been exploiting for a long time. It used some power system which includes GIS and real-time device to measure load flow situation, and those devices can also improve the entire distribution system operation and planning process (Parikh & Nielsen, 2009). No one was willing to change this traditional distribution structure because those effects were uncertain, and it might bring some negative influence on cost savings, raw material supply and customer service. It is still be used until last decades. But as time changes, some new
structure is created. A few years ago the traditional distribution model is broke by some Swedish companies, which it means that those companies do not use many warehouses anymore and most of those companies got success with one or two centralized warehouse (Abrahamsson, 1993).

Go back to the old distribution pattern; most of logistical structures are designed based on the distance between producer and customer. However, the new distribution system pays more attention to the lead time instead of physical distance, for instance, the distribution structure transfers from decentralized model to centralized model. It means that the distribution channel only contains one or two warehouses which could guarantee the whole supply chain or distribution route work smoothly. Besides, the centralized system is able to provide more benefits for company. In Mat’s study tells that three big Swedish companies (Atlas Copco Tools AB, Sandvik Coromant AB, ABB Motors AB) have already proved how new distribution system works (Abrahamsson, 1993). The proper sourcing strategies from different types of suppliers who located in low-cost countries is a critical factor that increase the system complexity (Rollins et al, 2003) when centralized distribution is concerned. Moreover, the appropriate sourcing strategies can help company to reach supply chain competitive advantage as well (Kumar & Samad, 2008).

3.2.2 Centralized distribution system

Atlas Copco Tools AB used to use traditional distribution system, but the delivery performance was rather low, and the average lead times were also longer. In order to stop this phenomenon occurring again and again, the company introduced DDD (Daily Direct Distribution) system. All of products delivered from single warehouse which close to the whole European customers in Sweden. And most of shipments are only by truck for reducing transportation costs and making sure of delivery performance.

There were two large central warehouses in Sandvik Coromant AB’s distribution system, and there were many other smaller warehouses in the world. Even though it is convenient for customers if there are many warehouses existing, but on the other hand, it would make
transportation become more complicate and increase the lead time. After company use DDC (Direct Delivery to Customer) in 1984, the cost efficiency is enhanced obviously. The central warehouses which build in Sweden and Holland are charge of shipping goods to response customers’ order by air or truck (Abrahamsson, 1993).

About last two decades, ABB Motors had six production units in Europe. But it could not satisfy all marketing demand; and human resource could not be used completely because of limited local warehouse and poor distribution system until “prime move system” be used in 1988. At that time, the company set Germany as a big central warehouse. Thanks to new system, the lead time and distribution cost are getting reduced.

<table>
<thead>
<tr>
<th>Atlas Copco Tools AB</th>
<th>Sandvik Coromant AB</th>
<th>ABB Motors AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced inventory by 1/3.</td>
<td>Reduced inventory by $80,000,000.</td>
<td>Reduced total distribution costs from 35% to 20% of sales.</td>
</tr>
<tr>
<td>Reduced variable distribution costs by $ 4,000,000 annually.</td>
<td>Reduced tied-up capital by $16,000,000 annually.</td>
<td>Reduced fixed and variable distribution costs</td>
</tr>
<tr>
<td>Reduced average lead time from 2weeks to 24~72hours in Europe.</td>
<td>Reduced lead time from10-30 days to 24hours In Europe.</td>
<td>Reduced lead time from 2~4 weeks to 24-72hours</td>
</tr>
<tr>
<td>Increased delivery performance from 70% to 93%.</td>
<td>Increased delivery performance from 90% to 99%.</td>
<td>Increased delivery performance from 50% to 95%.</td>
</tr>
<tr>
<td>Reduced number of employees from 40 to 23.</td>
<td>Reduces 55 employees.</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: The identified effects of centralization of international companies (Abrahamsson, 1993)
Thus, as Table 1 indicates that based on those three international companies’ experience, the fact indicates that the world is changing. Each company should keep developing its own strategy or distribution system according to the fact. Nowadays, “time” is the main issue for business. In a word, saving time means saving money. Somehow the time could be a kind of weapon or competitive advantage for company. Company must focus on some new approaches which could reduce time and improve service performance at the same time; otherwise company might lost more than money. Therefore, time-based distribution is necessary.

In Abrahamsson’ study shows that the centralized distribution will provide many benefits, such as: reduced costs for warehouse and administration; shorter lead time; increased flexibility and decreased inventory costs and so on, see Table 2. Somehow the time-based distribution is more like a revolution that improves both logistics cost leadership and buyer values. Usually, some companies just produce standardized goods and the number of their customer is large. The most efficient way for company is to build one or a few central warehouses in the distribution system, it leads the total cost reduced. The distance to the customer is one of the most important factors to form distribution cost, however, delivery lead time is becoming a key successful element gradually. More and more companies would prefer time as competitive advantage.

<table>
<thead>
<tr>
<th>Logistics cost leadership</th>
<th>Reduced cost for warehouse administration (Alan C, 1989)</th>
<th>Reduced inventory costs (Maister, 1976)</th>
<th>Centralized control of the materials flow (Bowersox et al., 1989)</th>
<th>Reduced time to introduce new product to market (Stalk et al., 1990)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics buyer value</td>
<td>Reduced lead time for all markets and for all products (Stalk et al., 1989)</td>
<td>Improved delivery performance (Maister, 1976)</td>
<td>Increased flexibility (Gadde et al., 1992)</td>
<td>Customers can get product information faster</td>
</tr>
</tbody>
</table>
In terms of globalization, time-based distribution has provided great effect on logistics costs leadership and buyer values. As a conclusion, time-based distribution may hold inventory and save cost so that provides appropriate service for customers and get progress for the company in emerging market.

### 3.3 Supply Chain Management

To cover the scope of Supply Chain Management, there are four perspectives that are necessary.

- **Upstream**, as purchaser that deals with supplier
- **Downstream**, as supplier that deals with customer
- **Static network**, as auditor in the position of the supply chain network, it consists of several supply chains, and this perspective provides a static and comparative view.
- **Dynamic network**, as strategist, to seek new opportunities for improving firm’s position in the existing network or creating a new network, and this perspective provides a strategic, dynamic and long run view (Mills, 2004).

Some risks can be created in the supply chain, such as product availability, distance from source, labor markets, industry capacity, demand fluctuation and so forth (Giunipero & Eltantawy, 2004). Distance increasing can lead to more uncertainties to supply stability by longer lead time and potential transportation disruption. The capacity constraints of supplier can cause the inability to supply the required demand by purchasers. Fluctuation in demand probably gives the supplier much burden if supplier does not have enough ability because of insufficient utilization equipments or employees (Lee et al., 1997). Supplier needs to have enough technology update by long run development in order to reach the demand level by purchasers and get a competitive price in the market (Giunipero & Eltantawy, 2004). In order
to reduce the risks in the supply chain, closer relationship between purchaser and supplier is necessary. Buying firms expect suppliers to provide solutions and compliment so that they can heighten the core competencies (Giunipero & Eltantawy, 2004). Williams and Stemper (2002) reported collaboration between supplier and buyer can help increase product reliability and reduce risks of production introduction.

Upstream perspectives concerns on the structure of supply base and the relationship between buyer and supplier. According to the risks in the supply chain mentioned above, firms need to pay attention on the selection of suppliers, supplier development, and relationship with suppliers. Due to the utilization of Just-in-time (JIT) production and purchasing concept, firms consider the relationship between buyers and suppliers that can change into partnership rather than an independent relationship (Mills, 2004). Both supplier and buyer can gain the benefit from each other, and reach win-win effect. Downstream perspective is based on the demand side. The “distance” between supplier and buyer can make their interaction much complicated (Hillebrand & Biemans, 2011). There is one phenomenon that called bullwhip effect can influence downstream customers. That is “orders to the supplier tend to have larger variance than sales to the buyer (i.e. demand distortion), and the distortion propagates upstream in an amplified form (i.e. variance amplification)” (Lee et al., 1997). Supplier should focus on finding the right customers in the market. Some literature from the supplier’s perspective focuses on logistics issues, such as customer satisfaction, forecasting systems and the like.

SCM can help the company to mention the issues in higher level in strategic parts. Analyzing the strengths and weaknesses of the company and find the problems in the current situation of the company. In this case, Companies can develop further and take a sustainable position in the market. Especially more new competitors come into the market, they can have the competitive advantage to against competitors. To improve the relationship with supplier, it can reduce the cost of raw materials. Because SCM focuses on the long run profitability of servicing customers, so it must mention about market predict in the process. In this case, if increasing the ability of market predict, it would decrease the inventory cost. By decreasing the
inventory, it can reduce the management fees, storage fees and the transportation fees. SCM integrates wholesalers and retailers to reduce the cost in the process of sales. It definitely reduce cost of sales as well.

SCM promotes the co-operation among suppliers, purchasers and customers. And SCM integrates IT systems. Therefore, SCM has speed advantage. With the development of information technology, the firm can solve the orders efficiently. And the firm can contact with manufactures on time to produce the products that meet the customers’ needs. Suppliers can also deliver the products in time. SCM can enhance the relationship with customers, and improve the competence to satisfy the requirements of market. SCM is good at collecting information to have a good market positioning and to draw up production plan.

3.4 Warehousing management
As known, the entire warehousing plays an important role in distribution system. A proper warehouse management has become a key element to get competitive advantage through shorter lead times (De Koster, 1998). In order to outperform the competitors and follow the complex international trend, the time-based distribution is essential for the entire world. Hence, many industrial enterprises only have one or two central warehouse for reducing costs and saving lead times. But different regions may have different logistics or different distribution system, for example: Swedish companies would rather concentrate more on West Europe area, while Finnish companies pay a lot attention on Eastern Europe (Hilmoda & Lorentz, 2010).

3.4.1 Warehouse location
The meaning of warehousing is becoming more and more distinctly important due to the integrated economy. Europe is a big marketing that has an invisible potential. Therefore how to choose an appropriate location of warehouse is another key problem for European companies. Warehouse operation has to concern about increasing cost which refers to reduce the time to market (Cogliano et al., 2010). In all three survey year (year 2006, year 2009 and year 2010), low distribution costs was the first criterion for selecting warehouse location in
first survey, but things changed during the second survey in 2009, the road transportation replaced of distribution costs, however, distribution costs became the top one once again in 2010 (Hilmoda & Lorentz, 2010). There were other factors which were considered as well, such as: assembly plants nearby, maritime transportation connection (and other transportation modes: road, air), labor issues, etc, however those items were despised. People thought those items were less important than distribution costs or road network while made decision about location of warehouse. But those items will keep on playing role absolutely. According to surveys, there is no one could give guarantee that what is the most important factor in forthcoming years.

### 3.4.2 Warehouse unit size

In addition to location of warehouse, questionnaires regarding warehouse size were also launched to both Swedish companies and Finnish companies by internet during the same survey years. The respondents were asked to estimate the warehouse size based on the information from the past to current situation and future predictability (Hilmoda & Lorentz, 2010). Thereafter, a picture based on data collection was drawn to reflect what the real situation was. As a conclusion, warehouse size would keep increasing in the future, especially in Sweden. And small and medium size can keep exist in forthcoming years as well. Furthermore, during next decades other European countries no matter East or West must be influenced by increasing warehouse unit size and they will also follow this trend in order to response the attractive business temptation and try to obtain any profit from it. Along with internet technology development, warehouse is also confronting more frequent, smaller quantity orders (Szgenda, 1999), even though increased shipments will cause higher transportation cost (Mason et al., 2003). However a warehouse with large volume and space is quite necessary.

### 3.4.3 Warehouse management system

As mentioned before, there are kinds of WMS (warehouse management system) exist and function in today’s warehouse system. Somehow WMS offers the necessary information to manage and control the flow of products from receiving period to shipping period (Napolitano,
In addition to this, WMS could also be used for order management and consolidation, “as well as for comprehending the continually exploding list of product stock-keeping unit (SKUs) due to customers’ requirements for mass customization.” p.123 (Mason et al., 2003). WMS must make communication with other management systems. Figure 2 shows that how WMS contact with surrounding management system.

Figure 2: The interaction between a WMS and its surrounding management systems (Faber et al, 2002)

WMS contains two branches, one is named standard WMS, and another is tailor made WMS, see Faber et al, (2002). Due to different WMS has different function, which WMS is more suitable for a warehouse should be considered seriously. The wrong choice may lead to a big mistake. Many warehouses implemented tailor made more often than standard, however according to standard WMS can provide some competitive advantage which tailor made cannot, for instance, reduced total costs; shorter lead times, etc. Standard WMS is accepted well by more warehouses (Randall, 1999). Nonetheless, in which case it is more useful to adopt standard or tailor made it is still a problem and nobody can give the right answer.

Finally, four propositions are given, see Table 3. After research and hypothesis, it is proved
that the number of daily orderliness and number of SKU are the key factors of warehouse complexity. Besides, it is more reasonable for a complex warehouse to implement a more specific planning and control structure. And on the other hand, a simpler warehouse should implement standard WMS instead of tailor made, because standardized structure will bring such advantages to warehouse, for instance, reduced working time and total costs (Faber et al., 2002). Furthermore, an efficient management of supply chain management can be made by the integration of WMS and TMS (Gilmore & Tompkins, 1997). TMS stands for transportation management system, it is a software system designed to handle transportation operations (Wisner et al., 2008). The integration of WMS and TMS will not only provide an affordable price for suppliers and end customers, but also reduce overall costs and shorten lead times which it means minimize lead-time variations (Mason et al., 2003).

| 1. The number of daily order line and the number of SKUs are main reasonable variable of warehouse complexity. |
| 2. It is better to have a specific planning and control structure for a complex warehouse. |
| 3. It is better to have a standardized planning and control structure for a simple warehouse. |
| 4. The more the design of a new-to-build warehouse is consistent with the design of planning and control structure and consider the limitation and possibility of standard WMSs for a new-to-build warehouse would result in the warehouse is more competitive or not. |

Table 3: The propositions of warehousing management (Faber et al 2002)

**3.5 Inventory Management**

There are two strategic decisions that firms would face in the supply chain, they are lead time and inventory level (Kristianto, 2011). To increase responsiveness and lower the inventory cost, there are four types of collaboration that can be classified by the level of integration, the capability of integration of supply chain planning, forecasting and replenishment (Christiansen et al., 2007). But the collaboration is difficult to apply in the supply chain that is global and order based, as it has constrains including uncertainty, complexity, location
diversity and control limitation (Holweg et al., 2005) & (Christiansen et al., 2007).

Firms hold the inventory to reduce costs or increasing return to sales, predict variability and uncertainty (Li, 1992). In order to reduce production lead time when firms compete with speed on delivery, it is necessary to hold inventory. Li (1992) reported that if the production lead time is long enough, holding inventory can be the reason for realizing early sales. Firms need to take account of the characteristics of customers, when the customer is impatient, it is better to have inventory to reduce customer waiting time and increase sales. For the purpose of competing with other rivals in the market, firms also need to consider the utilization of inventory. Holding inventory is one strategy that company can choose to submit products on time instead of increasing production capacity, when rival firms are supposed to compete on the delivery speed or services.

The availability of inventory can help firms to decrease uncertainty and reduce lead time. However, a customer may not receive what they order for several reasons. The seller probably has run out of the products because of an inaccurate forecast or the supplier delivers the products with the wrong size or favor. The stocks may be unfit due to damage or an expired shelf date. As a result, the seller has inability to track the stock in their stories or distribution centers accurately. Dooley (2005) reported that to avoid shortfalls or stockouts, the extra inventory that firms carry can be known as safety stock. With more customer services provided, firms can predict the sales that can be increased. However the logistical costs could be increase significantly. Holding too much inventory in firms can cause some problems, such as hide operational problems or low inventory turnover. For instance, if firms carry to much inventory, they would probably not discover the problem that the supplier is frequently late with delivery time.

Inventory level can directly influence the flexibility in the supply chain. Volume flexibility is “the ability to effectively increase or decrease aggregate production in response to customer demand” (Cleveland et al., 1989). Sa´nchez & Pe´rez (2005) stated that volume flexibility needs the help of closer coordination between manufacturer and its suppliers, and particularly
confront with increasing demand. Supply chain’s performance can be influenced by volume flexibility directly, such as prevent stockouts that are sudden in high demand and prevent obsolete stocks.

3.6 Supplier Locations and Relationship

The supplier location selection issue has been studied in recent years, along with the globalization market. Each company has to concentrate on those problems because it has significant impact on distribution system. As known, an efficient distribution system is able to increase companies’ flexibility and remain competitive so that companies can satisfy customer needs rapidly and face any unexpected challenge at any time (Tanonkou et al., 2006). Furthermore, a relationship with appropriate supplier is indeed cooperated with supply chain for containing costs by improving flexibility to meet customer expectation and reducing lead time at different stages of distribution network (Kumara et al., 2003). Thus, supplier selection is also an important problem.

Of course, considering supplier selection is not merely about the distance between supplier and customer, but also includes supplier’ service, quality, cost, risk, and other things (Kirytopolos et al., 2008). Indeed, those elements are crucial variables of supplier selection. The analytic hierarchy process (AHP) is an essential technique that has been using for supplier selection (Chris et al., 2010), it is “a multi-attribute decision making process which enables decision makers set priorities and deliver the best decision when both quantitative and qualitative aspects of a decision must be considered” p.78 (Chris et al., 2010). It is developed by Saaty (1980) and is absolutely useful in logistic field. Some people thought that the companies should focus on qualitative factors when set plant location (MacCormack et al, 1994); and Ferdows (1997) suggested the plant should be located in foreign countries; another concluded that the plant location must be congruent to companies’ mission and capabilities (Khurana & Talbot, 1998). Those different personal views may have some invisible connection with supplier location option. After all, the distance cannot be the unique factor affect supplier location alternative.
The efficient supply chain would be achieved once a good relationship between supplier and customer built, for instance, trust is quite essential prerequisite to the partnership (Sahay, 2003). In the past, people always thought that building trust must depend on manager’s characteristics, such as honesty, reliability, credibility and others. However, Laeequddi and Sardana (2010) indicated that knowledge; level risk and level of tolerance of customer (or supplier) could also be the main reason that can judge if the relationship is good or is not. On the other hand, a sustainable relationship can bring long-term benefits, including improved product quality, enhanced competitive and developed market share (Kanna & Tan, 2006). Therefore the relationship between supplier and customer is significant equally with a right supplier.

4. Findings

4.1 About IKEA

As known the company is the largest furniture retailer in the world, and it is famous for its products’ design and products’ low price, that is why customer would like to prefer it as best furniture choice. IKEA wants to provide well-designed, functional products with lower price so that most people are able to afford them. The IKEA group consists of three business functions: product & range development, sales and global purchasing, these three different parts also integrate as distribution. Product & range development is charge of new product development; sales is responsible for connection with customers, the typical example is IKEA catalogue which is printed as 131 million copies; while the global purchasing concerning about everything relevant to supplier (Larsson & Qviberg, 2004). On the other hand, IKEA has its own industrial raw material group: they are Swedwood and Swedspan which belongs to IKEA supply chain (IKEA, annual report 2010). Until October 2010, IKEA already have about 280 stores in 26 countries, most of those stores are built in Europe, Asia, North America and Australia as well (See Figure 3), during 2010, the IKEA group opened 12 new stores in 8 countries.
To achieve financial stability, independence and flexibility, IKEA made the main financial principles, for instance, the company is going to plan new land or building it uses; the fix asset will be keeping growing along with investment in new stores, factories and retail centers and so on. Overall, during last a few years, the interest of IKEA has increased with global expansion, and thanks to those sustainable profitability gives company more resource to go further. IKEA is not only focus on how much profit they can obtain, they also consider the environment impact when they are designing their product. There is one endless list for IKEA, it illustrates all perspectives that IKEA can update and improve. IKEA has IWAY (IKEA code of conduct) standard of behavior, such as safety, environment and respect of people in different age level. IWAY set the lowest requirements for IKEA’s suppliers and shows IKEA’s promise to suppliers. IKEA forbid suppliers to employ child labor or to have any forced working. IKEA proposes specific requirements on work conditions, local laws and chemical products. The employees in IKEA regularly leave for the fieldworks, examine the operation of suppliers that meets the standard of IKEA. IKEA takes all its effort to help supplier to enhance the responsibility.

4.1.1 IKEA cost leadership strategy
From Porter (1980), the concepts of generic strategies are cost leadership, differentiation and focus. Porter (1996) mentioned that the strategy for IKEA is cost-based focus as it has narrow
customer group and IKEA's focus is based on the needs of a customer group. IKEA targets the customer group who is young furniture buyer and pursues low costs. The customers that IKEA serves are glad to trade off service for cost. The following Figure 4 shows the activities system in IKEA that is still utilized in current situation.

Figure 4: Activity system in IKEA according to Porter, (1996)

Compared with the typical furniture store that has a sales associate trail customer around the store, IKEA applies a self-service model for the customers to display the furniture. The typical furniture store would like to use a third-party manufacturer to relay the order and deliver to the customer in about several weeks with a high cost, however, IKEA not only relies on third party manufacturers, but it also designs its own modular or ready-to-assemble furniture to fit its positioning with a low cost (Porter, 1996). In a huge store, IKEA can display the products in a decorated room for selling; it is much convenient and clear for customer to know how to put pieces together without any decorator to help them. There is one warehouse section nearby the furnished showrooms; customers can pick up the products that they buy in the boxes on pallets. So as to pickup and delivery the products by customer themselves, IKEA can sell a roof rack to the customer for their car that customer can return a refund in the next visit. Customer can choose to rent a van and take it home with the local delivery company as
well. Customers can rent immediately if vans are available, if not, customer can make a reservation for it in a future time (IKEA Tempe Services). For meeting the needs of target customer who is young, not wealthy, likely to have children without nanny, IKEA also have some extra services that are uniquely aligned with the needs, such as in-store child care and extended hours (Porter, 1996). People can also make order by phone instead of going to the store, take an example of phone orders in America. If customers would like to delivery in Washington or Alaska, IKEA Seattle can provide Phone Orders for in-stock items. There are three methods for shipping including Home Delivery, UPS or freight. All IKEA does is to provide the best way to send customer’s order (Phone orders).

4.1.2 IKEA Product

There are approximately 10,960 products in the total IKEA product range, each store just carries a selection of all products depending on store size. But the core range is the same all over the world (FAQ of IKEA). The characteristic of IKEA’s product is called “self-assembled” or “RTA furniture”, this is totally different from other company’s product. Those kinds of products can bring many advantages for customers, for instance, the “flat pack” is more convenient to ship or delivery by customers themselves, meanwhile it can save more space and the price is rather cheaper. The way IKEA run is brand new concept which is called as “democratic design”; it means that the style of company’s product is some kind of integration approach that consists of design and manufacturing (Haig, 2006). Now the product range is expanded from furniture to house, food, and toy. Most of products are standardized for global market. Further, IKEA is good at implementing economics of scale, meaning that the company is not only able to predict which raw material will be suitable in recent years but also create unique manufacturing process. In 2010, IKEA introduced a new approach-Sustainability Product Score Card in order to response the sustainable product needs. Thanks to those new technology and process, IKEA can keep cost low and make sure material is sustainable. Besides, IKEA implements many appropriate strategies to remain its competitive advantage, for example: it is mentioned before that to use self-assembly products to reduce operational and delivery costs; focus on individual marketing rather than mass marketing; segmented marketing or country specific management style; diversity products
and standard retailer selection.

4.2 IKEA Supplier chain

4.2.1 Supplier

IKEA has more than 2,000 suppliers in over 50 countries that manufacture products (FAQ of IKEA). As stated before, Swedwood and Swedspan are fully integrated international industrial group of IKEA, those two groups are responsible for producing and distributing wood based furniture and controlling all the value chain from the management and connection with forests operation to sawmill, components and furniture production (Swedwood, website). Swedspan was separated from Swedwood, it was formed as a spin-off from IKEA’s in-house furniture maker Swedwood in March 2008. Swedspan’s main products are lightweight particle boards and decorative high-density fibreboard for furniture design. Swedwood commits to social and environmental obligation and tries to increase cost-effective efforts at the same time, therefore Swedwood’s business range is larger than Swedspan, which it means that Swedspan mainly provides technique for IKEA or Swedwood while Swedwood can serve more business area (Swedspan, website). Both group mentions that their main goal is to cut down costs, stay competitive, keep on running environment friendly process, increase efficiency and try to give many benefits to IKEA’s customers. Actually, the integration of these two groups indeed creates a lot of benefits, such as effectively reducing costs and manage input resource, and the most important thing is that their basic operation can be matched with IKEA’s purpose, for instance, “To run the production efficiently so that competitive prices and good delivery performance are achieved (Swedwood, website).” As Figure 5 shows that the plant of Swedspan is located in Bratislava. While Swedwood set a lot of plants in East Europe, such as in Russia, Latvia, Poland (Swedwood, website).
4.2.2 Co-workers

In addition, IKEA is keeping on studying from its supplier, co-workers, and customers in other countries, because learn something good from others and then add those good things into your own products are as important as Swedish way IKEA operates. As stated before, unity and togetherness for a company or an organization is very important, IKEA close working relationship with its suppliers and co-workers that have already proved their strong strength to improve role of customer to choose, select, transport and assemble their products. And the whole process maybe quite lean which claims that each apartment must work closely and similarly so that co-workers can transfer their skill or experience from one place to another internal IKEA in order to offer them personal and professional developmental opportunities. Improved supply chain can be regard as one strong contributor to lower prices in IKEA. More and more products can be directly delivered to the stores and IKEA phased out wooden pallets during shipping. In this case, trucks and containers can be filled more efficiently. IKEA constantly redesigns products in order to get less space. It can bring the benefits not only on cost saving, but also care about environmental problems. During the year 2010, CEO of IKEA, Michael Ohlsson has visited many places worked for IKEA and many markets. Michael got the opportunity to listen and learn from suppliers, co-workers and customers, NGOs, politicians and the like. He also took the responsibility to describe and promote IKEA's vision.
and thoughts that develop IKEA in the future consistent with people’s real lives and society. (2010 annual report)

Co-workers contribute much in transforming IKEA vision into reality, and they help IKEA to develop business in the world. In 2010 annual report stated that IKEA had 127,000 co-workers in 41 countries in 2010. IKEA would like to encourage their co-workers to get development, both as individuals and in their professional roles. The goal for working together is to create a better life for IKEA’s customers and themselves. IKEA transmits on the ideas and values to co-workers and co-workers can have the ability to make into reality. IKEA keep co-workers to stay, grow and to be succeed with them together, IKEA tries them best to meet each co-worker’s needs through the different phases and be able to change situations in life.

As IKEA would like to grow more into new markets and countries, the company needs to spread the cultural concepts and values to build a conscious leadership. Backpacker Journey is a one year development adventure that started in spring 2010. Any potential co-worker can have the chance to apply for and the participants would travel to two different countries for six months. They can work in different fields that they are used to. Participants can go through the business all over IKEA in order to learn on the job, get coached by IKEA’s best leaders. When the journey is finished, participants will take leadership responsibility to grow and form the pool of highly skilled IKEA managers of the future. IKEA will keep this journey twice a year in the next four years. Although IKEA had highly skilled co-worker, they still want to develop a more systematic approach to manage them due to IKEA are expanding quite quickly. IKEA believes that colleagues are the best coaches and customers are the best teachers, so IKEA makes a decision that move even more from learning the classroom to learning on the job in order to improve business competence. (2010 annual report)

What is worth mentioning is that IKEA is listed as one of the top 50 most attractive employers in 2010 from co-worker satisfaction surveys. IKEA run purchasing and retail operations in 41 different countries and these are led by country managers of 14 different nationalities. There
are about 40% are women in the 200 top managers in IKEA. The Table 4 provides some details about IKEA and it means that IKEA is growing smoothly during 2010.

<table>
<thead>
<tr>
<th>The IKEA group</th>
<th>The IKEA Group had operations in 41 countries – 29 Trading Service Offices in 25 countries and 27 Distribution Centers and 11 Customer Distribution Centers in 16 countries.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The industrial group</td>
<td>Swedwood group has 15,500 co-workers and 41 production units in 9 countries; Swedspan group has 500 co-workers and 5 production units in 5 countries.</td>
</tr>
<tr>
<td>The number of suppliers in 2010</td>
<td>IKEA has about 1,074 suppliers in 55 countries.</td>
</tr>
<tr>
<td>Products</td>
<td>The product range is expanded to 9,500 approximately.</td>
</tr>
<tr>
<td>Visitors</td>
<td>The IKEA stores have approximately 626 million visitors and IKEA websites has 712 million visitors.</td>
</tr>
<tr>
<td>Co-workers</td>
<td>Purchasing, distribution, wholesale, range &amp; other: 14,500 Retail: 96,500. Swedwood: 15,500, Swedspan: 500. And there are 8,000 co-workers in Asia&amp; Australia, while 15,500 in North America and 103,500 in Europe.</td>
</tr>
</tbody>
</table>

Table.4: achievement of IKEA in 2010 (IKEA annual report 2010).

The vision of IKEA is “to create a better everyday life for the many people (IKEA annual report)”, in actual IKEA follows its vision step by step so that the suppliers and co-workers are also be affected in this way. Fortunately, IKEA has attracted many employers who have good skill and long working experience to join IKEA and inspired them to achieve company’s target by unity. There is no doubt that unity is a quite critical factor that makes great contribution to IKEA’ success, for instance every employer can get some help no matter it comes from inside or outside. Anyway, IKEA will think about customer all the time, thus, how to provide reliable furniture, how to give people a comfortable life style will always be the goal that the company chase after.
4.3 IKEA Distribution and logistics

As a biggest furniture retailer in the world, IKEA has approximately 1,600 suppliers to manufacture products and delivery those products to 186 stores all over the world. In general, the transportation process is often controlled by IKEA’s 28 center warehouses and distribution centers in 16 countries. The distribution center is used for gathering the products or goods from all over the world and then dispatching those goods to other areas where it is needed. Usually, one country just has unique distribution center because it is believed that it would be more efficient in this centralization way (Abrahamsson, 1993). On the other hand, there are more challenges will be predicted after distribution scale becomes larger and larger. It indicates that a distribution center has to serve more markets over next 5 years (IKEA website). IKEA is operating a holistic view of the whole supply chain from supplier to customer, the company has to reduce total delivery cost, secure product quality and keep environment impact low at the same time (Larsson & Qviberg, 2004). According to Larsson and Qviberg’s theory, IKEA is able to increase transport efficiency and reduce delivery costs; the company can take chance to improve forecast quality so that the capacity planning and utilization can also be improved; communication and information within distribution process can be key element meanwhile; but the main problem is higher turnover rate in supply chain flow for increasing sales. IKEA always want to create a better, clearer and more competitive guide for transport purchase and transport efficiency, what’s more, some newer approach which is relevant to IKEA distribution field that refers to distribution center size and location will be used (Larsson & Qviberg, 2004). Besides, the lead time, competitive price and efficient handling are very important for an efficient supply chain. IKEA set its global distribution network in mostly some low-cost countries (China, India or other Asian areas) with low resource cost and easy access to distribution channels.

To keep low prices on the products, IKEA needs to get goods from supplier to customer with a most direct and cost effective way, in addition, the way should have the least bad impact on the environment. This would have a close relation with how IKEA transport with trucks, boats
or trains and how IKEA handles the products in the distribution centers and stores. Take flat packs as an example, it would be easier for the products to be stackable. IKEA can use this way to transport and handle more products per trip. It definitely means to reduce CO2 emissions by fewer trucks on the road. From the moment that products leave the manufacturer to the moment the products are in the hand of customers, logistics runs through each stage in the supply chain in IKEA. It is a challenge to ensure the huge volume of products can be provided to customers in a perfect condition and at minimum cost. IKEA needs to do is that have detailed plan and flexibility in a fast-paced environment (Logistics, IKEA).

In fact, IKEA’s product are sold packed flat so that they can be delivered with great efficiency. And after then more package and goods can be transported and stored at the same time via its “saved space”. IKEA is going to delivery its products by rail within next three years in Europe. Today there are approximately 60 percent of IKEA freight is transported by road, truck; 20 percent by train and 20 percent by sea; only one percent or maybe less by air. And IKEA also estimates the number of products accurately which should be transported to customers so that it can fulfill customers’ demand. Obviously, the aim is to make sure the products can be sent to right customers at right time and right place within large volumes, low cost and less time consumption. Such a way IKEA operates can improve the efficiency and keep the price down (Distribution, IKEA).

According to IKEA report which is published by Chinese federation logistics & purchasing (it is a comprehensive community organization that contains logistics and procurement industry and it is approved by the State Council of China), in Sweden there are 3 distribution centers and those distribution centers are connected by rail lines. Especially, one of distribution centers is called “DC008”, its capacity is approximately 8 million square meters (5 million square meters for fully automated storage, then the rest of it is for common shelf warehouse). IKEA’s global procurement and sales process are achieved by container transportation, everything can be done within 30-40 minutes if the container is used, otherwise the whole loading process must need 3-4 hours. The exchange of items in IKEA distribution centers is a critical indictor. Based on this reasonable indictor, WMS can be arranged very well for
minimizing the geographic distance and improving efficiency. Besides, IKEA’s WMS is very stable and comprehensive. In addition, goods can be classified by the speed of turnover, most goods will be exchanged in 8 weeks and those goods will be arranged close to entrance or exit as if it is possible. IKEA distribution center is also effective. For example: each stacker extracts good from warehouse that can be done in 10 seconds to 2 minutes. On the other hand, IKEA is very strict with its logistics and distribution operation procedure, for instance, here it is an example that how it works, a kind of product is sold on Monday, then the planning department will get notification via internet immediately; the next day will arrange delivery process; on Wednesday the back-up product must be shipped completely; on Thursday the product will arrive in the store where it is needed; in the end the product will appear in the store on Friday. Such speed of goods flow must be ensured that it can be achieved around the entire world (IKEA report, 2008). IKEA concentrate on the distribution to ensure the products can arrive at the right store and customer at the right time and to arrange in a good shape in the warehouse. IKEA’s stores are also warehouses. Customer can pick up the goods that they want to buy from the warehouse area. In the high-flow warehouse, IKEA utilize automatic storage and retrieval systems, in the low-flow warehouse, it is much more manual. IKEA will reorganize the distribution center structure for adapting to the future. IKEA would like to serve more markets in the world, as a big furniture retailing company; it has a large volume of products to operate every day. So IKEA consider store the low-flow range centrally for larger regions while the high-flow range can be stored in centers that close to the relevant market. Concurrently, IKEA prefer to increase the direct deliveries. IKEA faces a future challenge in distribution is to meet more demands of customers that expect to have remote shopping over phone and internet. Although customers enjoy visiting stores directly, there is a dramatically rise in internet and phone orders. Hence, IKEA still needs to think about new, quick and flexible distribution solutions for satisfying customer’s expectations (Distribution/Warehouse, IKEA). IKEA has its own system for in-store logistics, it can full control store-level inventory. IKEA can forecast inventory level at the distribution center to replenish the stock.

There are thousands of products that need to be handled daily in IKEA. Therefore each distribution center has approximately 1000 employees; the total time for work is 18 hours
every day for handling 12,000 cubic meters of companies’ goods (IKEA report, 2008). How to move the products efficiently and guarantee the products that customer seek are available all the time is a big job for IKEA’s logistics. Some work areas in logistics including receiving & replenishment, stock controlling, managing logistics and the like. The aim for receiving and replenishment is to record and monitor the orders, check the delivery notices, put the products in the right sales area and redesign the overstock locations. IKEA does not replenish during the daytime, as it has a big enough bin to cover all sales for one day, it supported by WMS data and Point of Sales data to share the information (Logistics, IKEA).

5. Analysis

5.1 Cost leadership

IKEA business strategy is focus on cost leadership, and the target group is young furniture buyer who pursues low costs. It seems a big challenge for IKEA to have efficient distribution logistics that faces lower the costs in the whole process. But just because of this strategy, IKEA sells the simplify products with self-service model in the store for the customers. Most of furniture needs to be installed by customers at home. Customer can pick up the products that they buy from the warehouse (one part of store). Products are packed flat, it can save much space and avoid damaging during delivery. Moreover, it is much easier and flexibility for customer to deliver products home. Low cost means that IKEA need to consider lower the operation costs. In this case, cost leads to efficient distribution channels because of the transportation in IKEA almost depends on road and will develop more in future. Customer can buy the products at the decorated showrooms in the store and pick up from the warehouse without any seller. Customer can also choose different distribution way to delivery home, such as themselves by car or Third Party Company. All the process can reduce the cost definitely and also can reduce trouble compared with the traditional furniture store. When customer buys furniture in the traditional store, customer just can see the samples of furniture first and wait for the products that reach home in several weeks. If the products are not meet customer’s needs, it would take much time to fix after-sale services. However, when customer visits IKEA, the process from choosing to delivery can be done in one time. It increases speed
and improves flexibility. The business strategy of IKEA and efficient distribution logistics are interdependence. Because of cost-leadership strategy, IKEA Company must decrease the cost in the operation and in order to improve the efficiency in distribution. Due to efficient distribution logistics can help IKEA lower cost on products. This is one of competence that IKEA has in the complex market.

5.2 IKEA warehouse management

5.2.1 IKEA warehouse location
There are 3 distribution centers which belong to IKEA and those distribution centers are connected by rail lines in Sweden. Therefore we can purpose that those 3 distribution centers are responsible for the whole country or other neighbor areas and transport by rail mainly. In personal speaking, 3 distribution centers are good to manager, perhaps one of them is charging for South and others are responsible for North or central, therefore IKEA can transport products rapidly so that customers can get their products very quickly. Besides, the shorter delivery time can give guarantee to its clients that the products will be safer. If IKEA built warehouse in every cities, the cost must be increase and it is hard to control all of warehouse at a same time, there is no doubt that the supply chain will be complicated. What’s worse, the terrible, complex route planning may cause time delay and decrease efficiency which makes customers upset or complains to the company. As the lead time plays a significant role in today’s distribution logistics, more and more centralized warehouse is occurring gradually. It is obvious that one or a few central warehouse can increase the speed because it can transport products faster and more flexible than competitors. Therefore IKEA only construct 3 warehouses in Sweden instead of 10 or even more. If some emergency happened during delivery period the nearby warehouse is able to provide assistance probably.

5.2.2 IKEA warehouse size
Additional, the capacity of “DC008” is approximately 8 million square meters, to be honest; it is quite huge so that it can store thousands of goods inside it. Especially, five eighth of it is for fully automated storage, it means most area rely on machine. That high technology does not
only improve efficiency but also refine working performance in such big warehouse. Usually, the integration of human skill and mechanical property can make the process faster and more flexible. Generally, a systematical management approach or some high technology machines always be used in IKEA’s warehouse, such as container and stacker. Customers may be glad to accept those kinds of products because it is reliable and dependable. It is possible that more warehouse will goes large with large capacity and space. Figure 6 is the IKEA’s warehouse in Werne, Germany, it can cover approximately 5,200 square meters.

![IKEA's warehouse in Werne, Germany](UV-system, website)

**Figure 6: IKEA’s warehouse in Werne, Germany. (UV-system, website)**

### 5.2.3 IKEA WMS

The turnover of back-up goods must be finished in one week at least, this is an excellent example that explains how effective the distribution logistics is when WMS integrates with TMS, and it totally reduces overall costs and shortens lead times. Thus, a standardized planning and control structure is more suitable for such simple and effective warehouse.

Probably some distribution warehouses are claimed to operate specific products or services if it is necessary, thus the tailor made WMS is appropriate for such kinds of warehouse. However, a few parts of IKEA distribution is to require that human resource to manage it, of course some unexpected situation could be happen during the logistics process, such as the goods is delay or missing, in case of those situations the human skills and working experiences are essential. It is better to have a specific planning and control structure in a complex warehouse.

IKEA’s WMS is very stable and comprehensive. So the standardized warehouse model is suitable for most IKEA distribution warehouses. IKEA distribution warehouse is able to
provide reliable and flexible products rapidly for customers under the assistance of appropriate WMS. However, IKEA cannot cover everything perfectly as you wish, according to personal experience: you have to wait for a few days or longer if you require IKEA to transport the products to your house, it means that IKEA cannot transport the products to customers immediately. And generally, IKEA always use big truck to transport. If IKEA arranged truck immediately when they received the transportation requirement from customer, the efficiency must be low and the truck can leave bad impact on environment. Thus, IKEA or third party companies can prepare a number of smaller vehicles and use those vehicles to fulfill the customer demand at once as a suggestion. IKEA can gain more competitive advantages based on its effective WMS, for instance, IKEA can provide more products rapidly and IKEA can be faster than its competitors, besides, IKEA also pay attention to its customer demand and try to satisfy it as possible as IKEA can. It is reasonable for us to believe that IKEA will be much stronger in the future through such flexible and dependable products service performance.

5.3 IKEA transportation

Today there are approximately 60 percent of IKEA freight is transported by road, truck; only one percent or maybe less by air. The truck is cheaper than air plane, but it is slower than air. Sometimes it might be late when transporting by road if there was any accident happening, thus by air can also be the best choice when some valuable goods need to delivery. Even though it is expensive but it is worth it as well. Because company can take less risk during transportation process while clients can receive their products in their expected time. Container is the main transportation way when delivery IKEA needs to purchase or in the sales process, by using container can save much time. However, container maybe too heavy to transport even though it can load many goods once only, and the weight and the volume of container may increase risk during transport period. Therefore if IKEA can use train to delivery container the result may be better, because it is faster than truck and the damage to goods or other risks may be reduced. And the flat pack is stackable so that it is possible to transport within a large amount per trip which leads the efficiency is improved and the
delivery time is reduced.

5.4 IKEA centralized distribution

As stated before, the traditional distribution is close to the raw material geographically because of low cost in general. However, more companies realize that the lead time is more important than distance. Hence, the centralized distribution structure is built. In addition, the centralized distribution dose provide some competitive advantages to those companies who use it, such as complete assortment in stock which leads to high available; smooth flow of products out from warehouse that causes that standardized routines for material handling; reduced costs for warehouse and administration; shorter lead time and make sure it can be reliable; increased flexibility and increased delivery performance according to Abrahamsson (1993) study.

Unfortunately, it is hard to find any information about the exact location of IKEA’s centralized distribution center, instead, all we know is there is a huge centralized distribution center set in Malaysia; it works for Asian area (IKEA report, 2008). IKEA’s distribution center has to serve more markets over next 5 years. It means that IKEA has to own big warehouse and an effective warehouse management system. Indeed, the capacity of IKEA distribution warehouse is rather huge as well as “DC008” whose capacity is 8 million square meters. And it is reasonable to purpose that there must be many daily orders to be handled, therefore the warehouse complexity will increase. Usually, the area where automated machine using is less complicate than other area which depends on human skills, because such area should be leaner and always contains high technology, for instance, all the machines just follow the order or programming and then everything will be done in an easy way. As it described before, goods can be classified by the speed of turnover, most goods will be exchanged in 8 weeks and those goods will be arranged close to entrance or exit as if it is possible.

5.5 Inventory level

IKEA has 28 center warehouses in 16 countries. It applied centralized distribution that
easier to control and forecast the inventory. So this centralized distribution can help IKEA to lower the inventory level in center warehouses and increased turnover to each store. It provides shorter and more reliable lead times for all markets and for all products. Delivery performance can be increased as well. But IKEA has a large volume of products and the store is the warehouse, IKEA cannot have low inventory level in store. It must keep high inventory level to provide the products with high demand. Otherwise it is probably out of stock. High inventory level can help IKEA reduce production lead time to improve the delivery speed. Because IKEA holds the inventory in their warehouse, customer can pick up the products in anytime. It can reduce customer waiting time and gradually increase the sales and good reputation of company. Holding some inventory help IKEA to predict the increased sales to avoid shortfalls or stockouts. As IKEA has a closer coordination with manufactures and supplier, it can have a good responsive to customer demand.

5.6 IKEA supplier location and relationships

Swedwood and Swedspan are the biggest suppliers of IKEA. The plant of Swedspan is located in Bratislava. While Swedwood set a lot of plants in East Europe, such as in Russia, Latvia, Poland. An efficient supplier distribution is able to increase companies’ flexibility and remain competitive so that companies can satisfy customer needs rapidly and face any unexpected challenge. The supplier location is in the central of Europe and it saves the cost, the most important thing is that the raw material can be transported rapidly to IKEA. It increases the speed of whole distribution logistics indirectly which cause the consuming time decrease.

If the supplier has inability to supply the products by insufficient employees or technology, it would influence the quality of products and delay the time in manufacturing products. So IKEA studies from its co-worker, supplier and customers. IKEA's CEO has visited many markets that IKEA has in the world. It is a good way to build good relationship with co-worker and supplier. Through the visit, manager can directly get the feedbacks or observe the problems. IKEA also holds a Backpacker Journey for co-workers. IKEA creates the
condition and environment for co-workers to spread the culture and values and build a conscious leadership. IKEA is listed as one of the top 50 most attractive employers in 2010 from co-worker satisfaction surveys. So it means IKEA wins the trust from their co-workers, and co-workers like to co-operate with IKEA. It can totally improve the dependability on IKEA's co-workers such as the Third Party Company. When customers buy big furniture from IKEA, Third Party Company provide good service for delivery. It is much reliable and flexibility. IKEA think from co-worker’s side and would like to meet their needs, the interaction between IKEA and co-worker keep not complicated. They can share the information in order to avoid bullwhip effect.

6. Conclusion

In this thesis paper we describe the time-based strategy that applied in Swedish Company IKEA. Through the research and analysis, time-based strategy can be consisted of different perspectives including cost leadership, supply chain management, distribution center, warehousing management system, inventory level and supplier relationship. All of them can contribute to distribution logistics in order to gain competitive advantages.

According to analyze the centralized distribution center, we conclude that distribution center should be located in core region with convenient transportation. It can transport products faster and more flexibility. Centralized distribution center can improve delivery performance and increased inventory turnover. The inventory can be controlled and forecast in order to avoid out of stock or shortfalls. The size of warehouse decides the production capacity indirectly. Manual work and mechanical work should be combined together to ensure the products more reliable. Due to the close relationship between supplier and purchaser, they have cohesion to develop together. They can share the information and the operation is visible. Take IKEA as the case study, because of cost leadership strategy, company needs to consider have efficient distribution logistics to reduce the cost. So delivery by customers themselves and plat packed can increase the flexibility in distribution channel.
This thesis emphasizes the importance of time-based distribution logistics. Distribution logistics become much significant for the global companies in order to meet the needs of customers all over the world. Time is the major factor that contributes to customer satisfaction. Hence, companies can gain competitive advantages based on time-based strategy in distribution logistics.

6.1 Further studies

There is no doubt that the time based strategy in distribution logistics is critical for global company which could design, manufacture, transport, sales service by itself to gain competitive advantages, but how can the time based strategy be applied in express company that just is responsible for delivery products to customer. Along with the development of E-business and a large number of express companies emerge to the market, customers pressure not only low price but also short delivery time. Today, shopping online is becoming so popular that express companies attempt to attract more clients to cooperate in long-term. Dose express company need time based strategy and whether it is practicable in China? Indeed, it is necessary for express company to learn time based strategy. It can be regarded as an interesting topic to discuss more.

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