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SUPPLY CHAIN MANAGEMENT IN FINNISH RETAILING COMPARISON TO WORLD-CLASS COMPANY. CASE SEVEN-ELEVEN JAPAN.CO AND WALMART

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ABSTRAK:
The subject for this resech is Japanese and Finnish retail industry supply chains. Inspiration for this subject came from an article by Hau L. Lee titled The Triple-A Supply Chain. In the article Lee picks up one world-class company that has excelled in designing its supply chain to meet the three points that make supply chains effective according to Lee. Those three are the long- and short-time flexibility and interest group commitment. The example company he uses is Seven-Eleven Japan, largest single actor in Japan's retail industry. Seven-Eleven has received worldwide recognition as a company that has gained tremendous growth in both sales and income, but at the same time managed to decrease its logistic costs. Seven-Eleven Japan uses many interesting solutions in its supply chain design, for example very advanced electronic inventory tracking system. The goals of this resech are to examine the two case companies and their supply chain solutions, and to find possible similarities and differences between them. Subjects of particular interest are the operation of logistic chains and the use of electronic tools in managing them. The chosen case companies are Seven-Eleven Japan for the Japanese perspective and Walmart. Qualitative research will produce written descriptive data that allows observed. This qualitative approach adopts a descriptive method to obtain, explain, and analyzing current status phenomena through various techniques (Satriadi, 2014). Data collection mainly uses secondary data collected from existing data by selecting several. sources in the form of: text, where the researcher will analyze the data later. seven-eleven japan.co with warmarlt as the subject of this research which has a source of information. Walmart has the largest information technology infrastructure of any private company in the world, and it is this state-of-the-art technology and network design that allows Walmart to accurately forecast demand, track and predict inventory levels, create highly efficient transportation routes, manage customer relationships, and service response logistics. The purpose of this research was to find out how the supply chains of Japanese and Finnish retail companies are different or similar with each other, how can Finnish retail companies improve their supply chains and what kind of electronic tools are used in retail supply chains. The scope of the study was limited to the supply chains of grocery retail business in Finland and Japan, and in particular Seven-Eleven Japan and walmart. The current situation of the grocery retail industry in Finland and Japan and the main trends of the grocery retail markets in both countries were described. Seven-Eleven Japan has developed an extensive franchise network and performs a key role in the daily operations of this network.

Kata Kunci: Supply chain management; company; seven-eleven japan.co; Walmart.

INTRODUCTION

The subject for this thesis is Japanese and Finnish retail industry supply chains. Inspiration for this subject came from an article by Hau L. Lee titled The Triple-A Supply Chain. In the article Lee picks up one world-class company that has excelled in designing its supply chain to meet the three points that make supply chains effective according to Lee. Those three are the long- and short-time flexibility and interest group commitment. The example company he uses is Seven-Eleven Japan, largest single actor in Japan's retail industry. Seven-Eleven has received worldwide recognition as a company that has gained tremendous growth in both sales and income, but at the same time managed to decrease its logistic costs. Seven-Eleven Japan uses many interesting solutions in its supply chain design, for example very advanced electronic inventory tracking system.

Originally this thesis was only meant to describe this renowned Seven-Eleven Japan logistic system, but after some research questions arise. How were the same logistic solutions handled in Finnish environment? Could the same effective methods also be used in Finland? Finnish retail industry has lately gone through challenging times, with growing competition from both domestic and international players combined with ever growing efficiency and costumer needs. This has forced the sector to concentrate even more in improving and developing their supply chains so the questions above are very valid.

Wal-Mart is one of the biggest retailers in the world which based on Arkansas, United States and China is a mega trader nation and also an emerging market for multinationals. Wal-Mart and China have been strong relationship since 1996, when the biggest retailer entered the biggest population country for the first time. China is one of the most important countries for Wal-Mart because China is an emerging market and also the center of its supply chain, while Wal-Mart is also important for China because Wal-Mart is China's five biggest trading partner.

As globalization and ever developing information technologies have changed the way business is done in retail industry, the concept of efficient consumer response (or ECR in short) has received large interest from many retail companies over the past few years. ECR is a supply chain management strategy initiative developed particularly for the needs of fast-moving consumer goods retail. It was introduced originally in the United States in the early 1990's by large grocery retailers and branded manufacturers (Corsten, D. & Kumar, 2005, 90) ECR was brought out as a response and counterforce for the intensifying competition that traditional retail was experiencing from alternative retail stores and formats such as discount and convenience stores. (Kurnia, et al. 1998, 130). Since its introduction, ECR has developed and is now one of the most important frameworks for managing various issues related to retail supply chain. It could be described as the competence to meet efficiently on individual consumer demands through integrated product management, assortment management and business logistics. ECR is designed to increase the competitiveness of traditional retail industry, especially against low-cost retailers. In essence, ECR aims to cut out inefficiencies and improve performance throughout the retail supply chain. (van Weele, 2002, 317-318).

Besides providing a strategic approach for traditional retail to face new challenges, ECR is also used on developing supplier-retailer relationships with a goal of creating competitive edge. The idea is that the retailers and the manufacturers all need to work together more closely and use efficiently all sales information in order to meet this objective. The idea is to work together to fulfil customer wishes better, faster and at less cost. The aim is to have a win-win situation for all involved parties. By sharing 12 knowledge and information from different sources and using it in the right way all parties can benefit. (van Weele, 2002, 317-318).

ECR implies that retailers should develop an intensive commercial policy per product category tailored for specific consumer segment and that they should communicate this policy with their partners in the supply chain. This should result in optimized logistics and materials flows, much better communication and better sales results from jointly developed promotional and advertising campaigns. ECR should be considered as an integrated business concept which focuses on improving both

commercial and logistics activities of all partners in a specific supply chain. In doing so, companies involved should work several improvement areas such as automatic ordering, optimized promotions and so on.(van Weele, 2002, 317-318).

ECR has been criticized for lacking a solution on providing a true win-win situation. ECR is widely considered to significantly benefit retailers, but suppliers who are required to put in a major effort are often left with little benefit. Usually suppliers put in more investments while retailers take home the major benefits, which can create a sense of inequality in a collaboration relationship (Corsten & Kumar, 2003, 22-23).

ECR has existed in the industry and research for roughly two decades. Ever since its introduction, it has been under considerable discussion and scrutiny both from a professional and from an academic perspective. Even though having been in the spotlight for some time, ECR doesn't seem to be a temporary fad, and seems to be here to stay. Things like electronic payment systems and customer loyalty cards provide insight into purchasing regularity, composition of the consumer's daily shopping basket and the customer's address. Scanning gives the retail buyers a direct insight into the actual sales in their stores and the stock situation in the distribution centres. Space management enables them to stimulate display layouts, based on detailed cost information, so that the optimal return can be gained. With ECR the buyer's role in progressive retail companies evolves from just a buyer to a product group or category manager. (van Weele, 2002, 317-318).

LITERATURE REVIEW

Theory portion is based on literature and is includes descriptions for supply chain management (SCM), Triple-A Supply Chain and efficient consumer response (ECR). Company descriptions give basic financial information and explain the operations of the logistics in the companies. The structure of the thesis is portrayed in figure 1.

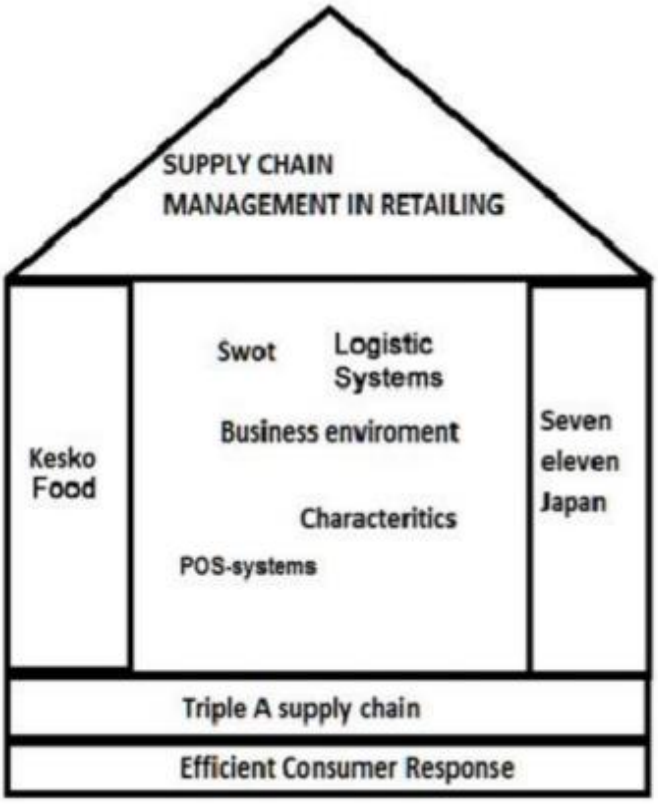

Figure .1 Structure Supply Chain Management Company.

Point of sale information systems

One crucial aspect of efficient consumer response is the point of sale (or POS) information systems. They are used the measure the sales, demand, cost, and profitability information of various products and product groups. POS-systems universally work on various barcode-based product indexation schemes, such EAN (European Article Number) in Europe and UPC (Union Product Code) in the U.S.A. These barcodes can be read with handheld sized device, and they usually contain detailed information concerning the product. Every costumer purchase is registered in the POS-system, which enables retail companies to find profitable or non-profitable products and predict future sales, which then can be used for efficient order sizes and quantities. Figure.2 shows and example of a point-of-sale information system. The retailing industry is one of the main users of POS terminals. (Kautto 2004, 28-30)

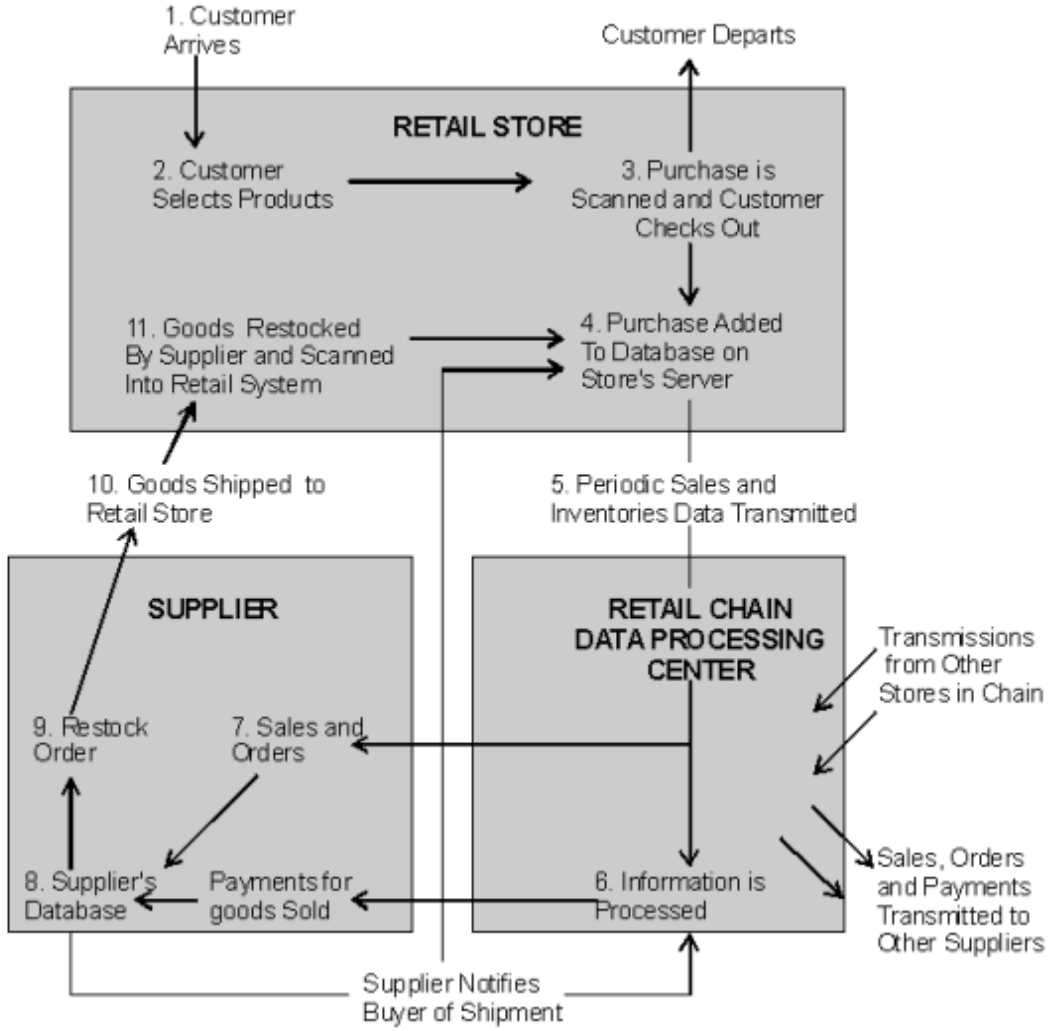

Figure .2 Point of sales system integrated using electronic transmission (Burt et al. 2003, 189)

Automatic Data Acquisition

Automatic data acquisition is operative activity where the target is to simplify the collection of data into information systems. It is a vital part of a precise and real-time data collecting that is necessary in ECR. It reduces change for errors and speeds up work. Several identification techniques have been developed to implement automatic data acquisition, which include barcodes, RFID-tags and machine vision. (Pastinen, 2003, 113).

Barcodes are machine-readable representations of data, which contain information about items origin, destination, type and so on. In logistics, barcodes are used to help to identify, track, process and deliver items and materials. Barcodes can be used to in various parts of the production and distribution chains. They are used to

ensure the accuracy of stored data, speed up input of new data and deliver an easy and affordable way to read information. (Pastinen, 2003, 113-114).

Barcodes are used in retail industry to collect data about sale types and quantities. At the same time inventory is kept up to date. When stock of an item is starting to run out, an automatic order can be sent to the supplier. . (Pastinen, 2003, 113-114) .

RFID (Radio Frequency Identification) is a radio wave-based data acquisition method. RFID-system consists out of data reading handset and a RFID-tag. RFID tags contain two parts: an integrated circuit that stores and processes information, modulating and demodulating a radio-frequency (RF) signal, and an antenna for receiving and transmitting the signal.(Pastinen, 2003, 115-116).

RFID has many applications. For example, it can be used for costumer identification in public transportation or in enterprise supply chain management to improve the efficiency of inventory tracking and management. The main advantages of RFID system compared to barcodes is that it enables the reading of multiple products at the same time, the reading is automatic and does not require manual handling, and the electronic chips can contain much more information. Radio Frequency Identification systems are predicted to replace barcodes in the future. (Pastinen, 2003, 115-116).

In addition to RFID, machine vision can be used for data acquisition. For example in manufacturing machine vision is used to identify barcodes and the shapes of cartons. (Pastinen, 2003, 115-116).

RESEARCH METHOD

The author chooses a qualitative approach to explain the comparison with world-class companies, with a case study, seven-eleven japan.co and warmarlt. the phenomenon of seven-eleven japan.co and warmarlt that is, the supply chain of Japanese and Finnish retail companies is different or similar to each other, how Finnish retail companies can improve their supply chain, what kind of electronic tools are used in the retail supply chain. Qualitative research will produce written descriptive data that allows observed. This qualitative approach adopts a descriptive method to obtain, explain, and analyzing current status phenomena through various techniques (Satriadi, 2014) Data collection mainly uses secondary data collected from existing data by selecting several. sources in the form of: text, where the researcher will analyze the data later.

seven-eleven japan.co with warmarlt as the subject of this research which has a source of information. Therefore, the data sources come from academic literature, news portals, and journalistic articles aims to interpret the related issues more precisely and have a comprehensive analysis. Data and information will be reviewed and analyzed to obtain an explanation of the phenomenon who can obtain answers to the problems studied and encourage conclusions based on important points.

RESULT AND DISCUSSION

Company History and Profile

Both Ito-Yokado and Seven-Eleven Japan were founded by Masatoshi Ito. He started his retail empire after World War II, when he joined his mother and elder brother and began to work in a small clothing store in Tokyo. By 1960, he was in sole control, and the single store had grown into a $3 million company. After a trip to the. United States in 1961, Ito became convinced that super_stores were the wave of the future. At that time, Japan was still dominated by mom-and-pop stores. Ito's chain of superstores in the Tokyo area was instantly popular and soon constituted the core of Ito-Yokado's retail operations.

In 1972, Ito first approached the Southland Corpo_ration about the possibility of opening Seven-Eleven convenience stores in Japan. After rejecting his initial request, Southland agreed in 1973 to a licensing agree_ment. In exchange for 0.6 percent of total sales, South_land gave Ito exclusive rights throughout Japan. In May 1974, the first Seven-Eleven convenience store opened in Tokyo. This new concept was an immediate hit in Japan, and Seven-Eleven Japan experienced tremendous growth. By 1979, there were already 591 Seven-Eleven stores in Japan; by 1984, there were 2,001. Rapid growth continued (Table 3-3), resulting in 16,086 stores by 2014.

On October 24, 1990, the Southland Corporation entered into bankruptcy protection. Southland asked for Ito-Yokado's help, and on March 5, 1991, IYG Holding was formed by Seven-Eleven Japan (48 percent) and Ito_Yokado (52 percent). IYG acquired 70 percent of South_land's common stock for a total price of $430 million.

In 2005, Seven & i Holdings was established through a stock transfer combining Seven-Eleven Japan, Ito-Yokado, and Denny's Japan. In 2013, convenience store operations from Seven-Eleven Japan and other subsidiaries in North America and China contributed.

TABLE 3-3 Stores and Annual Sales for Seven-Eleven Japan

Year	Number of Stores	Annual Sales (billion yen)
1974	15	0.7
1979	801	109.8
1984	2,299	386.7
1989	3,954	780.3
1994	5,905	1,392.3
1999	8,153	1,963.9
2004	10,826	2,440.8
2005	11,310	2,498.7
2006	11,735	2,533.5
2007	12,034	2,574.3
2008	12,298	2,762.5
2009	12,753	2,784.9
2010	13,232	2,947.6
2011	14,005	3,280.5
2012	15,072	3,508.4
2013	16,086	3,781.2

Figure .3 Source: John C. Stevenson, "Downtown Fixture," Business, November 6, 2006, pp. 1, 8–9.

37.4 percent of total revenues from operations and 76.1 percent of operating income for the Seven & i Holdings Company (see Table 3-4 for details). The relative perfor_mance of convenience stores within Japanese operations was even more dominant. The discrepancy between Tables 3-3 and 3-4 results because Table 3-3 reports sales at both company-owned and franchised stores, whereas Table 3-4 reports revenues for only Seven & i.

Seven-Eleven Japan.Co

Seven-Eleven Japan is a Japanese convenience store chain and currently Japan's largest retailer in terms of operating income and number of stores. Established in 1973 and headquartered in Tokyo, it employs about 4,800 people. With gross profit margins of 30 %, it is also one of the most profitable retailers in the world. (Chopra, 2005, 1-3). In the last 20 years have been period of phenomenal growth for the company. Between 1985 and 2006, the number of Seven-Eleven stores has gone up from 2,299 to 11,310, sales has increased from 386 billion Yen to 2498 billion Yen and net income has improved from 9 billion Yen to 119 billion Yen, while simultaneously it has decreased its inventory relative to sales. This success story is attributed primarily to the companies supply chain design and management ability (Chopra, 2005, 1-3)

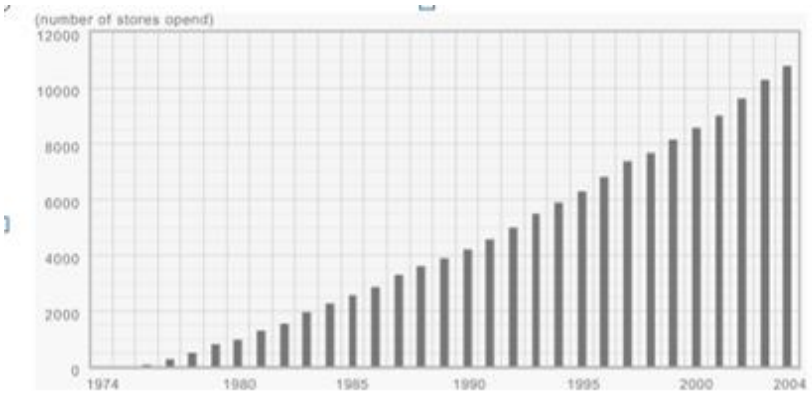

Figure .4 Growth of Seven-Eleven Japan (Datamonitor 2005, 5).

Seven-Eleven Japan has developed an extensive franchise network and performs a key role in the daily operations of this network. The Seven-Eleven Japan network includes both companies owned stores and third-party owned franchises. To ensure efficiency, Seven-Eleven Japan has based its network expansion policy on a market_dominance strategy, meaning it builds clusters of 50-60 stores when entering new market areas. This gives the company a high-density market presence and enables an efficient distribution system. As part of this strategy, Seven-Eleven Japan has opened the majority of its new stores in areas where it already has presence, which means that the company has surprisingly limited presence in many parts of Japan.(Chopra, 2005, 2-3).

Established by Ito Yokado in 1973, Seven-Eleven Japan set up its first store in Koto-ku, Tokyo, in May 1974. The company was first listed on the Tokyo Stock Exchange in October 1979. On September 1, 2005, Seven & i Holdings Co. Ltd., was established as the holding com_pany for Seven-Eleven Japan, Ito-Yokado, and Denny's Japan. As a result, detailed financial results for Seven_Eleven Japan have not been available since then and are reported only as the convenience store portion of Seven & i Holdings. Seven-Eleven Japan realized a phenome_nal growth between 1985 and 2013. During that period, the number of stores in Japan increased from 2,299 to more than 16,000. Globally, the firm had more than 53,000 convenience stores by June 2014 and was the world's largest chain in terms of retail outlets. Global revenues for Seven & i from convenience store opera_tions were 1,899 billion yen in 2013 with an operating income of 221.7 billion yen. The firm was present in 42 of Japan's 47 prefectures and planned to open 1,500 stores in Japan in 2014. Customer visits to Seven-Eleven outlets averaged more than 1,000 per store per day in 2013.

The Convenience Store Industry and Seven-Eleven in Japan

The convenience store sector was one of the few busi_ness areas that continued to grow during the prolonged.

TABLE 3-4 Financial Figures for Seven & i (2011–2013)

For Fiscal Years Ending February 28/29	2011	2012	2013
Total revenues (billion yen)	5,119.7	4,786.3	4,991.6
Total operating income (billion yen)	243.3	292.1	295.7
Convenience store revenues (billion yen)		1,662.7	1,899.5
Convenience store operating income (billion yen)		215.9	221.7

Figure 5. Source: Data obtained from Seven Eleven Japan Annual Report 2013

The Seven-Eleven Japan Franchise System Seven-Eleven Japan developed an extensive franchise network and performed a key role in the daily operations of this network. The Seven-Eleven Japan network, included both company-owned stores and third-party– owned franchises. To ensure efficiency, Seven-Eleven Japan based its fundamental network expansion policy on a market-concentration strategy. Entry into any new market was built around a cluster of 50 to 60 stores supported by a distribution center. Such clustering gave Seven-Eleven Japan a high-density market presence and allowed it to operate an efficient distribution system. Seven-Eleven Japan felt that its market-concentration strategy improved distribution efficiency, brand aware_ness, efficiency of franchise support services, and adver_tising effectiveness. It also served as an effective deterrent to competition.

Adhering to its dominant strategy, Seven-Eleven Japan opened the majority of its new stores in areas with existing clusters of stores. For example, the Aichi pre_fecture, where Seven-Eleven began opening stores in 2002, saw a large increase in 2004, with 108 new store openings. This represented more than 15 percent of the new Seven-Eleven stores opened in Japan that year.

By 2014, Seven-Eleven had stores in 42 of 47 of the prefectures within Japan. With an increased demand for "close-by, convenient stores" when there were fewer small- and medium-size retailers in a given area, seven_Eleven felt that besides bringing stores to new areas, it could also continue to open stores in densely populated urban areas such as Tokyo, Nagoya, and Osaka.

With Seven-Eleven franchises being highly sought after, fewer than one of 100 applicants was awarded a franchise (a testament to store profitability). The franchise owner was required to put a significant amount of money up front. Half this amount was used to prepare the store and train the owner. The rest was used for purchasing the initial stock for the store. In 1994, 45 percent of total gross profits at a store went to Seven-Eleven Japan, and the rest went to the store owner. The responsibilities of the two parties were as follows.

Seven-Eleven Japan responsibilities:

- Develop supply and merchandise
- Provide the ordering system
- Pay for the system operation
- Supply accounting services
- Provide advertising
- Install and remodel facilities
- Pay 80 percent of utility costs

Franchise owner responsibilities:

- Operate and manage store
- Hire and pay staff
- Order supplies
- Maintain store appearance
- Provide customer service

Store Information and Contents

Seven-Eleven had more than 16,000 stores in Japan by January 2014 (see Table 3-3). In 2004, Seven-Eleven Japan changed the standard size of new stores from 125 square meters to 150 square meters, still significantly smaller than the size of most U.S. 7-Eleven stores. In 2013, daily sales at a store averaged 668,000 yen (about $6,528 in March 2014 at an exchange rate of about 102 yen to a U.S. dollar), which was almost twice the aver age at a U.S. store.

Seven-Eleven Japan offered its stores a choice from a set of 5,000 SKUs. Each store carried about 3,000 SKUs on average, depending on local customer demand. Seven-Eleven Japan emphasized regional merchandising to cater precisely to local preferences. Each store carried food items, beverages, magazines, and consumer items such as soaps and detergents. The relative sales across product categories in 2012 for Seven-Eleven Japan are given in Table 3-5.

The food items were classified into four broad cats_egories: (1) chilled-temperature items, including sand_wiches, delicatessen products, and milk; (2) warm-temperature items, including box lunches, rice balls, and fresh bread; (3) frozen items, including ice cream, frozen foods, and ice cubes; (4) and room_temperature items, including canned food, instant noodles, and seasonings. Processed food and fast-food items were big sellers for the stores. In 2012, processed and fast foods contributed about 53 percent of the total sales at each store. More than 1 billion rice balls were sold in 2004; this amounted to each Japanese citizen eating approximately eight Seven-Eleven rice balls a year. The top-selling products in the fast-food category were lunch boxes, rice balls, bread-based products, and pasta. By 2013, Seven-Eleven Japan had 171 daily production facilities and 158 distribution centers across Japan.

TABLE 3-5 Sales by Product Category in 2012

	Percentage of Total Sales
Processed foods	26.6
Fast foods	26.0
Fresh/daily foods	12.3
Nonfoods	35.1

Figure 6. Source: Data obtained from Seven Eleven Japan Annual Report 2012.

Other products sold at Seven-Eleven stores included soft drinks, nutritional drinks, alcoholic bever_ages such as beer and wine, game software, music CDs, and magazines. Seven-Eleven was focused on increasing the num_ber of original items that were available only at their stores. In 2004, original items accounted for roughly 52 percent of total store sales. In 2007, Seven & i launched Seven Premium private brand products for sale at its stores. By February 2010, Seven Premium offered 1,035 SKUs; this number was expected to grow in the future. Private brand products were sold across all store for_mats and were viewed by the company as an important part of the expansion of synergies across its various retail formats.

Store Services

Besides products, Seven-Eleven Japan gradually added a variety of services that customers could obtain at its stores. The first service, added in October 1987, was the in-store payment of Tokyo Electric Power bills. The company later expanded the set of utilities for which customers could pay their bills in the stores to include gas, insurance, and telephone. With more convenient operating hours and locations than banks or other financial institutions, the bill payment service attracted millions of additional customers every year. In April 1994, Seven-Eleven Japan began accepting installment payments on behalf of credit companies. It started sell_ing ski-lift pass vouchers in November 1994. In 1995, it began to accept payment for mail-order purchases. This was expanded to include payment for Internet shopping in November 1999. In August 2000, a meal delivery service company, Seven-Meal Service Co. Ltd., was established to serve the aging Japanese popu_lation. Seven Bank was set up as the core operating company for Seven & i in financial services. By 2013, virtually every Seven-Eleven

Japan store had an ATM installed, with Seven Bank having almost 18,000 ATMs. The company averaged 111 transactions per ATM per day.

Other services offered at stores include photo_copying, ticket sales (including baseball games, express buses, and music concerts), using multifunc_tional copiers, and being a pick-up location for parcel delivery companies that typically did not leave the parcel outside if the customer was not at home. In 2010, the convenience stores also started offering some.

Government services, such as providing certificates of residence. The major thrust for offering these services was to take advantage of the convenient locations of Seven-Eleven stores in Japan. Besides providing addi_tional revenue, the services also got customers to visit the stores more frequently. Several of these services exploited the existing Total Information System (described later) in the store.

In February 2000, Seven-Eleven Japan established 7dream.com, an e-commerce company. The goal was to exploit the existing distribution system and the fact that stores were easily accessible to most Japanese. Stores served as drop-off and collection points for Japanese customers. A survey by eSBook (a joint venture among Softbank, Seven-Eleven Japan, Yahoo!Japan, and Tohan, a publisher) discovered that 92 percent of its customers preferred to pick up their online purchases at the local convenience store, rather than have them delivered to their homes. This was understandable, given the fre_quency with which Japanese customers visit their local convenience store; 7dream hoped to build on this prefer_ence along with the synergies from the existing distribu_tion system.

In March 2007, Seven-Eleven Japan introduced "Otoriyose-bin," or Internet shopping. The service enabled customers to buy products that were typically not available at the retail stores. Customers were allowed to order on the Internet with both pick-up and payment at Seven-Eleven stores. No shipping fee was charged for this service. The company built Seven Net Shopping, its Internet site, aimed at combining the group's stores and Internet services. In April 2007, "nanaco" electronic money was offered in Seven_Eleven stores. The service allowed customers to prepay and use a card or cell phone to make payments. The service was offered as a convenience to customers making small purchases and was also a reward system offering one yen's worth of points for every 100 yen spent by the customer. By 2013, 21.45 million nanaco accounts had been issued.

Given Japan's aging population and an increase in the number of women working outside the home (Seven_Eleven estimated that in 2009, more than 70 percent of women in their 40s worked outside the home), Seven_Eleven wanted to exploit its "close-by convenient stores" to better serve its customers. The company attempted to do this by increasing the number of high daily consump_tion rate products from 500 to 900 and by bolstering its Seven-Meal service for home delivery.

Seven-Eleven Japan's Integrated Store Information System

From its start, Seven-Eleven Japan sought to simplify its operations by using advanced information technol_ogy. Seven-Eleven Japan attributed a significant part of its success to the Total Information System installed in every outlet and linked to headquarters, suppliers, and the Seven-Eleven distribution centers. The first online network linking the head office, stores, and vendors was established in 1979, though the company did not collect point-of-sales (POS) information at that time. In 1982, Seven-Eleven became the first company in Japan to introduce a POS system comprising POS cash registers and terminal control equipment. In 1985, the company, jointly with NEC, developed per_sonal computers using color graphics that were installed at each store and linked to the POS cash reg_isters. These computers were also on the network link_ing the store to the head office, as well as the vendors. Until July 1991, the head office, stores, distribution centers, and suppliers were linked only by a traditional analog network. At that time, an integrated services digital network (ISDN) was installed.

Linking more than 5,000 stores, it became one of the world's largest ISDN systems at that time. Sales data gathered in each store by 11:00 p.m. were processed and ready for anal_ysis the next morning.
The hardware system at a 2012 Seven-Eleven store included the following:

- Graphic order terminal: This was a handheld device with a wide-screen graphic display, used by the store owner or manager to place orders. The store manager/owner walked down the aisles and placed orders by item. When placing an order, the store manager had access (from the store computer) to detailed analysis of POS data related to the particular item. This included sales analysis of product categories and SKUs over time, analysis of waste, 10-week sales trends by SKU, 10-day sales trends by SKU, sales trends for new products, sales analysis by day and time, list of slow-moving items, analysis of sales and number of customers over time, contribution of product to sections in store display, and sales growth by product categories. The store manager used this information when placing an order, which was entered directly into the terminal. Once all the orders were placed, the terminal was. returned to its slot, at which point the orders were relayed by the store computer to both the appro_priate vendor and the Seven-Eleven distribution center.
- Scanner terminal: These scanners read bar codes and recorded inventory. They were used to receive products coming in from a distribution center. This was automatically checked against a previously placed order, and the two were recon_ciled. Before the scanner terminals were intro_duced, truck drivers waited in the store until the delivery was checked. Once they were introduced, the driver simply dropped the delivery in the store, and a store clerk received it at a suitable time when there were few customers. The scanner terminals were also used when examining inven_tory at stores.
- Store computer: This linked to the Seven_Eleven network, the POS register, the graphic order terminal, and the scanner terminal. It com_municated among the various input sources, tracked store inventory and sales, placed orders, provided detailed analysis of POS data, and main_tained and regulated store equipment.
- POS register: As soon as a customer purchased an item and paid at the POS register, sales and other data (such as the age and sex of the customer) were stored and transmitted to headquarters through the store computer.

The analyzed and updated data were then sent back to the Seven-Eleven Japan stores via the network each morning. All this information was available on the graphic order terminal with the objective of improving order placement. The information system allowed Seven-Eleven stores to better match supply with demand. Store staff could adjust the merchandising mix on the shelves according to consumption patterns throughout the day. For example, popular breakfast items were stocked ear_lier during the day, and popular dinner items were stocked later in the evening. The identification of slow and nonmoving items allowed a store to convert shelf space to introduce new items. About 70 percent of the items sold at a Seven-Eleven store changed in the course of a year. About 100 new products were intro_duced each week. When a new product was introduced, the decision whether to continue stocking it was made within the first three weeks. Each item on the shelf contributed to sales and margin and did not waste valu_able shelf space.

Seven-Eleven's Distribution System

The Seven-Eleven distribution system tightly linked the entire supply chain for all product categories. All stores were given cutoff times for breakfast, lunch, and dinner ordering. When a store placed an order, it was immedi_ately transmitted to the supplier as well as the distribu_tion center. The

supplier received orders from all Seven-Eleven stores and started production to fill the orders. The supplier then sent the orders by truck to the DC. Each store order was separated so the DC could eas_ily assign it to the appropriate store truck using the order information it already had.

The key to store delivery was what Seven_Eleven called the combined delivery system. At the DC, deliveries of like products from different suppli_ers (e.g., milk and sandwiches) were directed into a single temperature-controlled truck. There were four categories of temperature-controlled trucks: frozen foods, chilled foods, room-temperature processed foods, and warm foods. Warm and chilled foods were delivered three times daily, whereas room-tempera_ture products were delivered once a day. Frozen prod_ucts were delivered three to seven times a week, depending on the weather. Each truck made deliveries to multiple retail stores. The number of stores per truck depended on the sales volume. All deliveries were made during off-peak hours and were received using the scanner terminals. The system worked on trust and did not require the delivery person to be present when the store personnel scanned in the deliv_ery. That reduced the delivery time spent at each store.

This distribution system enabled Seven-Eleven to reduce the number of vehicles required for daily delivery service to each store, even though the delivery frequency of each item was quite high. In 1974, seventy vehicles visited each store every day. By 2006, only nine were necessary. This dramatically reduced delivery costs and enabled rapid delivery of a variety of fresh foods.

As of May 2013, Seven-Eleven Japan had a total of 171 daily production facilities throughout the country that produced items were distributed through 158 DCs that ensured rapid, reliable delivery. None of these DCs carried any inventory; they merely transferred inventory from supplier trucks to Seven-Eleven distribution trucks. The transportation was provided by Transfleet Ltd., a company set up by Mitsui and Co. for the exclusive use of Seven-Eleven Japan.

7-Eleven in the United States

Seven-Eleven had expanded rapidly around the world (Table 3-6). The major growth was in Asia, although the United States continued to be the second largest market for Seven-Eleven. Once Seven-Eleven Japan acquired Southland Corporation, it set about improving opera_tions in the United States. In the initial years, several 7-Eleven stores in the United States were shut down. The number of stores started to grow beginning in 1998. Historically, the distribution structure in the United States was completely different from that in Japan. Stores in the United States were replenished using direct store delivery (DSD) by some manufacturers, with the remaining products delivered by wholesalers. DSD accounted for about half the total volume, with the rest coming from wholesalers.

TABLE 3-6 Global Store Distribution for Seven-Eleven in December 2013

Country	Stores
Japan	16,020
United States	8,155
Taiwan	4,919
Thailand	7,429
South Korea	7,085
China	2,001
Malaysia	1,557
Mexico	1,690
Canada	486
Australia	595
Singapore	537
Philippines	1,009
Norway	157
Sweden	190
Denmark	196
Indonesia	149
Total	52,175

Figure.7 Source: Data obtained from Seven Eleven Japan website
http://www.sej.co.jp/company/en/g_stores.html

With the goal of introducing "fresh" products in the United States, 7-Eleven introduced the concept of combined distribution centers (CDCs) around 2000. By 2003, 7-Eleven had 23 CDCs located throughout North America, supporting about 80 percent of the store network. CDCs delivered fresh items such as sand_wiches, bakery products, bread, produce, and other per_ishables once a day. A variety of fresh-food suppliers sent product to the CDC throughout the day, where they were sorted for delivery to stores at night. Requests from store managers were sent to the nearest CDC, and by 10:00 p.m., the products were en route to the stores. Relative to Japan, a greater fraction of the food sold, especially hot food such as wings and pizza, was pre_pared in the store. Fresh-food sales in North America exceeded $450 million in 2003. During this period, DSD by manufacturers and wholesaler delivery to stores also continued.

This was a period when 7-Eleven worked very hard to introduce new fresh-food items, with a goal of competing more directly with the likes of Starbucks than with traditional gas station food marts. 7-Eleven in the United States had more than 63 percent of its sales from non-gasoline products compared with the rest of the industry, for which this number was closer to 35 percent. The goal was to continue to increase sales in the fresh-food and fast-food categories with a special focus on hot foods.

In 2009, revenue in the United States and Canada totaled $16.0 billion, with about 63 percent coming from merchandise and the rest from the sale of gasoline. The North American inventory turnover rate in 2004 was about 19, compared to more than 50 in Japan. This, how ever, represented a significant improvement in North American performance, where inventory turns in 1992 were around 12.

Seven-Eleven Japan's integrated store information system

Seven-Eleven Japan has been developing its own system involving its vendors. The first step for developing the system started with the reforming of its distribution and logistics system. It resulted in a reconstruction of the delivery system for multiple frequent and small-volume items. The new system included a new electronic ordering and collaborated logistic systems, intensified relationships with vendors and introduced a new point of sales information system. (Fujimoto 2006, 28-29).

In the second step Seven-Eleven Japan made alliances with manufacturers in merchandise categories of daily foods. Fresh lunch boxes, rice balls and sandwiches were included in these merchandise categories. These alliances have brought a decrease of inventories, a reduced loss of sales opportunities and new product developments and assortments in response to consumers needs. These were achieved mainly with information sharing with manufacturers and suppliers. (Fujimoto 2006, 28-29).

The new system has also reduced two types of risks. The first type is from the excessive holding of inventories. Japanese retailers have typically believed that the more inventories they had the better sales they would have. Retailers holding small number of inventories was seen as a sign of weak competitive powers and passive strategies. The second type of risk that was reduced was from the out-of-stock of merchandises, which means lost sales opportunities for retailers, and disappointment and dissatisfaction for customers. The basic aim of the convenience store system of Seven-Eleven Japan has been to combine the just-in-time assortments for customers and the just-in-time supplies from vendors. (Fujimoto 2006, 28-29).

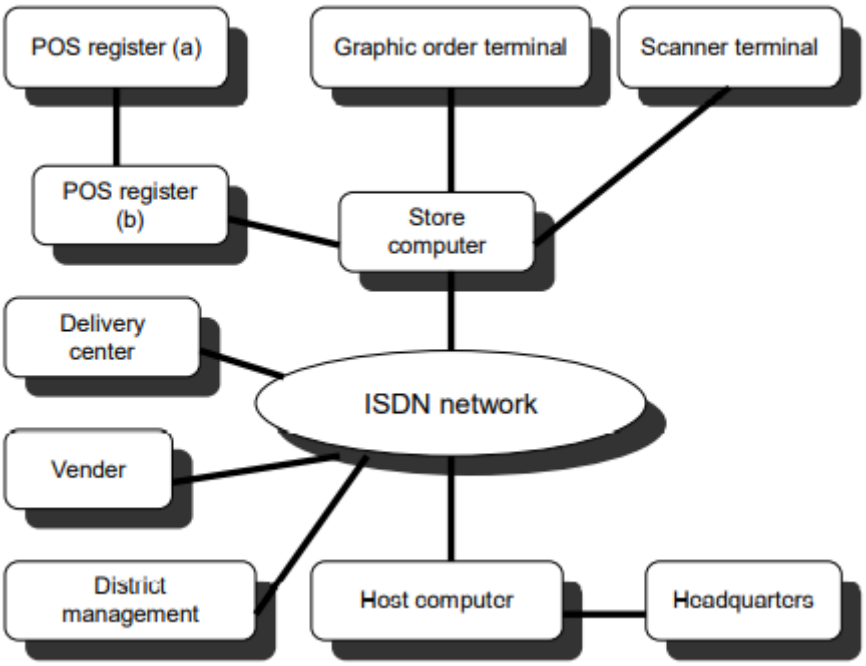

Figure 8. Seven-Eleven's information system (Ishikawa & Nejo 2002, 38)

From the start, Seven-Eleven Japan's aim has been to simplify its operations with information technology. Major part of this has been the so-called Total Information System which is installed in every store and is connected to company headquarters, suppliers and distribution centres. The high-speed online communication capabilities of the system enable Seven-Eleven Japan to collect, process and feedback point of sales information quickly. Sales data gathered in stores in the evening can be processed and used for analysis by the next morning. This information enables the company to boost their sales by continuously modifying their merchandise mix and developing new products. Seven-Eleven Japan's integrated store information system plays a key role in the company's ability to micro-match supply and demand. Figure 5 show the design of this system (Chopra 2005, 5-8).

The hardware system used by a Seven-Eleven store includes graphic order terminals for placing orders, scanner terminals for scanning incoming deliveries from distribution centres, store computer connected to the online network and point of sale registers for collecting costumer and purchase information.(Chopra, 2005, 5-8).

Walmart's supply chain management

When you drop by your local Walmart, you are witnessing one of history's greatest logistical and operational triumphs. According to Supply Chain Digest, this global retail giant operates more than 11,700 stores under 59 company names, with 2.3 million employees in 28 countries around the world while managing an average of $32 billion in inventory.

With these kinds of numbers, having an effective and efficient supply chain management strategy and system is imperative. The entire organization is committed to a business model of driving costs out of supply chains to enable consumers to save money and live better.

Over the past twenty years, Walmart has become the world's largest and arguably most powerful retailer with the highest sales per square foot, inventory turnover, and operating profit of any discount retailer. You only have to look at Walmart stock history stats to see the success and influence it has had in the retail space. In its transition from regional retailer to global powerhouse, the organization has become synonymous with the concept of successful supply chain management.

"I don't believe there is a university in the world that doesn't talk about Walmart and the supply chain," said James Crowell, director of the Supply Chain Management Research Center at the Walton College of Business. "They are just so well respected because they do it so well."

Walmart began with the goal to provide customers with the goods they wanted, whenever and wherever they wanted them. The company then focused on developing cost structures that allowed it to offer everyday low pricing. Next, Walmart concentrated on developing a more highly structured and advanced supply chain management strategy to exploit and enhance this competitive advantage and assume market leadership position.

Walmart's truck fleet of drivers continuously deliver goods to distribution centers (located an average 130 miles from the store), where they are stored, repackaged and distributed without sitting in storage. Goods will cross from one loading dock to another, usually in 24 hours or less, and company trucks that would otherwise return empty "backhaul" unsold merchandise. This strategy has reduced Walmart's costs significantly, allowing the company to pass those savings on to their customers with highly competitive pricing.

Investing in advanced inventory technology

In its relentless pursuit of low consumer prices, Walmart embraced and invested in technology to become an innovator in the way stores track inventory and restock their shelves, thus allowing them to cut costs. In 2015, the company spent a reported $10.5 billion on information technology and has also invested significantly in improving their e-Commerce capability.

Technology plays a key role in Walmart's supply chain, serving as the foundation of their supply chain strategy. Walmart has the largest information technology infrastructure of any private company in the world, and it is this state-of-the-art technology and network design that allows Walmart to accurately forecast demand, track and predict inventory levels, create highly efficient transportation routes, manage customer relationships, and service response logistics.

For example, Walmart implemented the first company-wide use of Universal Product Code (barcodes) in 1983, through which store level information was immediately collected and analyzed. Later, Walmart leveraged this now-everyday technology into a further innovation: Savings Catcher, which allows consumers to scan product barcodes on their smartphones to compare best prices. The company then devised Retail Link, a mammoth database. Through a global satellite system, Retail Link is connected to analysts who forecast supplier demands to the supplier network, which displays real-time sales data from cash registers and to Walmart's distribution centers.

Suppliers and manufacturers within the supply chain synchronize their demand projections under a collaborative planning, forecasting and replenishment scheme, and every link in the chain is connected through technology that includes a central database, store-level point-of-sale systems, and a satellite network.

What made Walmart so innovative was that it had been sharing all this information with their partners. Back in the day, a lot of companies weren't doing that, but rather using third-party services where they had to pay for the information.

Walmart's approach allows for frequent, informal cooperation among stores, distribution centers and suppliers, and less centralized control. Furthermore, the company's supply chain, by tracking customer purchases and demand, allows consumers to effectively pull merchandise to stores through demand, rather than having the company push goods onto shelves.

In recent years, Walmart has used radio frequency identification tags (RFID), which use numerical codes that can be scanned from a distance to track pallets of merchandise moving along the supply chain. As inventory must be handled by both Walmart and its suppliers, Walmart has encouraged its suppliers to use RFID technology as well.

Even more recently, the company has begun using smart tags, read by a handheld scanner, that allow employees to quickly learn which items need to be replaced so that shelves are consistently stocked and inventory is closely watched.

According to researchers at the University of Arkansas, there has been a 16% reduction in out-of-stocks since Walmart introduced RFID technology into its supply chain. The researchers also pointed out that the products using an electronic product code were replenished three times as fast as items that only used barcode technology.

In addition, Walmart also networked its suppliers through computers. It entered into collaboration with P&G for maintaining the inventory in its stores and built an automated re-ordering system, which linked all computers between the P&G factory through a satellite communication system. P&G then delivered the item either to a Walmart distribution center or directly to the concerned stores.

And it's not just high-tech innovation that Walmart innovates on: last year, Walmart announced the trial of a new system to manage its stock, called Top Stock, in which the top shelves are utilized for more storage, freeing up back rooms. This move is designed to get products on the shelves sooner, creating more space for fulfilling online delivery orders and allowing more visibility of stock levels for both staff and customers. The move also means that customers don't have to wait to find a staff member to track down an item they don't see on a shelf.

Walmart's supply chain management strategy has provided the company with several sustainable competitive advantages, including lower product costs, reduced inventory carrying costs, improved in-store variety and selection, and highly competitive pricing for the consumer. This strategy has helped Walmart become a dominant force in a competitive global market. As technology evolves, Walmart continues to focus on innovative processes and systems to improve its supply chain and achieve greater efficiency.

A close look at Walmart's supply chain and inventory operations definitely provides valuable learning points that businesses can take and apply to their own operations. Even Army Col. Vernon L. Beatty, who commanded the Defense Distribution Depot in Kuwait, spent a year with Walmart as part of the military's Training With Industry program. Supply chain management is moving the right items to the right customer at the right time by the most efficient means," Beatty said in an article about his experience. "No one does that better than Walmart."

Financial Statements for Walmart Stores Inc.

Figure 9. contains the financial results for Walmart and Macy's for 2012. Evaluate the financial performance of each company based on the various metrics discussed in Section 3.1, such as ROE, ROA, profit margin, asset turns, APT, C2C, ART, INVT, and PPET. Can you explain the differences you see in their performance based on their supply chain strategy and structure? Com_pare the metrics for each company with similar metrics for Amazon and Nordstrom from Table 3-1. Which met_rics does each company perform better on? What supply chain drivers and metrics might explain this difference in performance

TABLE 3-7 Selected Financial Data for Walmart Stores Inc.

Year ended January 31, 2013 ($ millions)	Walmart
Net operating revenues	469,162
Cost of goods sold	352,488
Gross profit	116,674
Selling, general, and administrative expense	88,873
Operating income	27,801
Interest expense	2,251
Other income (loss)—net	187
Income before income taxes	25,737
Income taxes	7,981
Net income	17,756
Assets	
Cash and cash equivalents	7,781
Net receivables	6,768
Inventories	43,803
Total current assets	59,940
Property, plant, and equipment	116,681
Goodwill	20,497
Other assets	5,987
Total assets	203,105
Liabilities and Stockholder Equity	
Accounts payable	59,099
Short-term debt	12,719
Total current liability	71,818
Long-term debt	41,417
Total liabilities	126,243
Stockholder equity	76,343

Figure 9. Selected financial data for Walmart stores

CONCLUSION

The purpose of this thesis was to find out how the supply chains of Japanese and Finnish retail companies are different or similar with each other, how can Finnish retail companies improve their supply chains and what kind of electronic tools are used in retail supply chains. The scope of the study was limited to the supply chains of grocery retail business in Finland and Japan, and in particular Seven-Eleven Japan and walmart. The current situation of the grocery retail industry in Finland and Japan and the main trends of the grocery retail markets in both countries were described. With the help of literature and public material, the central operations and parties involved in the performance of the supply chain of both walmart and Seven-Eleven Japan was described.

Although vastly different business environments give, they own flavours to both companies supply chains, both and Seven-Eleven Japan do have many surprisingly similar solutions in their supply chain design. Both rely heavily on electronic tools on controlling their logistic and costumer data, and they both have tried to simplify their logistic chain with emphasis being on minimizing individual deliveries from suppliers to shops. Dedicated and specialized distribution centres play a major part in both companies' logistic chains. In all above-described examples, Seven-Eleven Japan has had more than 20 years head start, but walmart has recently improved steadily. Major differences occur in the companies' franchising schemes, where Seven-Eleven Japan gives the main office more control and leadership for the whole chain of outlets, while walmart style is base on more of giving the individual stores more freedom.

The finding of this thesis is that the three qualities of Triple-A Supply Chain introduced by Hau L. Lee and refined by John Gattorna are present in both companies supply chains. The use of supply chain management and electronic tools such as point of sale information systems in the grocery retail industry has had lot of benefits for both walmart and Seven-Eleven Japan. The operations in retail industries in both Finland and Japan have been made much more efficient compared to the past with the synchronization of production and distribution. This has been achieved by minimizing the physical inventories and substituting them with information. Uncertainties are unavoidable in retail industry, but

with accurate information, both companies have found it possible to deal with it without surplus inventories. At the same time, information sharing with vendors seems has become not only necessary but vital. Particularly in Japan, vendors job today seems to be monitoring the buyer's inventory levels and controlling the uncertainty of demands with he's own decision-making. In both countries the variety of merchandises in grocery retail means, that a store has to transact with multiple vendors and manufacturers. The synchronization of production and distribution will in the future be an issue of increasing importance. Particularly walmart should continue to work on this area.

Interest for future further research could be measuring and evaluating the logistics activities in the supply chains of both walmart and Seven-Eleven Japan from the company's perspective in order to fully understand and identify the stages and processes where it should concentrate to assure even more value to the customers.

Seven-Eleven Japan has developed an extensive franchise network and performs a key role in the daily operations of this network. The Seven-Eleven Japan network includes both company owned stores and third-party owned franchises and Walmart's supply chain management strategy has provided the company with several sustainable competitive advantages, including lower product costs, reduced inventory carrying costs, improved in-store variety and selection, and highly competitive pricing for the consumer.

Suggestions that can be submitted are seven-eleven japan.co and walmart must continue to adapt to changing technological dynamics and market opportunities so that it can reach various markets and can enter all countries. seven-eleven japan.co and Walmart should also try to expand their retail business globally. In the retail business sector, seven-eleven japan.co and Walmart must also keep up with the latest technology, provide other useful innovations and continue to strive to meet customer needs.

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