SUPPLY CHAIN STRATEGY AS PART OF CUSTOMER SATISFACTION

Case: S-Market Metsäkangas

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Ilia Stefanov
Tuire Blanco

Lahti University of Applied Sciences
Degree Programme in International Business

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ABSTRACT

This thesis deals with the supply chain management in the grocery retail business and the output of logistics processes-the customer service. The case study is about S-Market Metsäkangas' value chain and its performance from the customer perspective. The aim of the study was to clarify how the supply chain of S-Market Metsäkangas affects its customers' satisfaction. For that reason a profound observation of the logistics activities and parties involved in the logistics chain was needed and in addition to that a study about the customers' perceptions of the store performance had to be carried out.

The character of our study demanded sufficient knowledge of three topics: supply chain management, customer service and satisfaction, and research methods. Literature dealing with all these issues was acquired in order to understand how we could incorporate and link more effectively the evaluation of customer satisfaction and the impact of the supply chain activities on it, during the various stages.

Data for the first part of the empirical study was acquired by interviews and observation on different levels of the supply chain of S-Market Metsäkangas. The role of the three main parties involved in the grocery retail business of S-Market, the wholesaler Inex, the chain management of S-Hämenmaa and the retail outlet in Metsäkangas, was examined. The second part of the empirical section consisted of two customer satisfaction surveys. One was carried out in S-Market Metsäkangas and the other was mailed to the S-bonus card holders who lived in the area of Metsäkangas. We collected altogether 454 responses from the both surveys.

The analysis of the results and the recommendations represented the third part of our study. The study results indicate that the residents of Metsäkangas are satisfied with the shop's performance and service level it offers. That means that the supply chain of S-Market Metsäkangas works at efficient level bringing benefits for both its customers and the retail chain itself. The customers stated some wills regarding the service counters, product assortment and others. Recommendations are made in order to improve the customer satisfaction concerning the above mentioned issues.

Key words: supply chain, customer service, grocery retail business, retail chain, S-Market Metsäkangas

Lahden Ammattikorkeakoulu
Degree Programme in International Business

BLANCO, TUIRE & STEFANOV, ILIA

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TIIVISTELMÄ

Tämä opinnäytetyö käsittelee toimitusketjun hallintaa päivittäistavarakaupan alalla ja logististen prosessien tulosta – asiakaspalvelua. Tutkimuskohteena on S-Market Metsäkankaan arvoketju ja sen suoriutuminen asiakkaiden näkökulmasta. Työn tarkoitus oli selvittää miten S-Market Metsäkankaan toimitusketju vaikuttaa asiakastyytyväisyyteen. Tätä tarkoitusta varten logistiikan toimintojen ja toimitusketjuun kuuluvien osapuolten perusteellinen havainnointi oli tarpeen ja lisäksi oli toteutettava tutkimus kaupan suoriutumisesta asiakkaiden näkökulmasta.

Työn luonteen vuoksi tarvittiin tarpeeksi tietoja seuraavista aiheista: toimitusketjun hallinta, asiakaspalvelu ja asiakastyytyväisyys ja tutkimus menetelmät. Kaikista näistä aiheista oli hankittava kirjallisuutta, jotta ymmärtäisimme miten voisimme paremmin yhdistää asiakastyytyväisyys arvioinnin ja sen vaikutuksen toimitusketjun hallintaan ja eri toimintoihin.

Empiirisen tutkimuksen ensimmäisen osan tiedot saatiin haastattelujen avulla ja S-Market Metsäkankaan toimitusketjun toimintoja havainnoimalla. Kolmen tärkeimmän S-Market Metsäkankaan toimitusketjuun kuuluvan osapuolen, tukkuliike Inex, ketjun ohjaus S-Hämeenmaa ja liike itse, rooli toimitusketjussa selvitettiin. Empiirisen tutkimuksen toisen osa koostui kahdesta asiakastyytyväisyyskyselystä. Kyselyistä toinen toteutettiin myymälässä ja toinen postitettiin S-ryhmän Metsäkankaan alueen kanta-asiakkaille. Vastauksien määrä oli yhteensä 454.

Tulosten analyysit ja suositukset muodostivat opinnäytetyömme kolmannen osan. Tulokset osoittivat, että S-Market Metsäkankaan asiakkaat olivat tyytyväisiä myymälän suoritus- ja palvelutasoon. Tämä puolestaan osoittaa, että S-Market Metsäkankaan toimitusketju toimii tehokkaasti, tuottaen hyötyjä sekä kaupan asiakkaille että ketjulle itselleen. Asiakkailla oli toiveita liittyen muun muassa palvelutiskeihin ja tuotevalikoimaan. Suositukset perustuvat asiakastyytyväisyyden parantamiseen edellä mainituissa asioissa.

Asiasanat: toimitusketju, asiakaspalvelu, päivittäistavarakaupan ala, vähittäiskauppaketju, S-Market Metsäkangas

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1. INTRODUCTION

1.1 The purpose of the study

The purpose of the study is to find out how the supply chain management and logistics strategy decisions affect the customer service and satisfaction. Under supply chain strategy we mean the three decision phases in the supply chain, the supply chain design, planning and operations. Our goal is to explore the real issues and factors that lie behind the success, the market share grow and cost-effective operations of grocery stores and in particular S-market Metsäkangas. Since the customer service is a result of a host of different but critically interrelated logistics activities we will describe every link from the supply chain, its interaction with the other processes in the logistics and its impact on the customer service as well.

In order to have the whole picture of the successfully and profitably managed supply chain it is important to consider the views of both retailers and consumers and likewise their cooperation in improving the supply chain management. The benefits from that cooperation are cut expenses for the retailers and lower prices and better service for the customers, which increase the level of satisfaction among the both parties.

1.2 Methodology

Having chosen the topic of our study, the next step was to find the right literature for building up the theoretical part and guiding us in the empirical section of the study. In the beginning we chose about fifty books and graduation works from the libraries in Lahti and other Finnish polytechnics' databases. After reading, sorting out and analyzing the useful information we ended up with thirty books which we could place in the references. The thematic contents of the books, we used in the study, covered three main issues: customer service and satisfaction, supply chain management and research methods. Other sources of information needed for the realization of the study, consisted of articles published in the newspapers and specialized magazines. As a last source of information for the project we used articles from the Internet and other electronic databases.

Quantitative and qualitative research methods were used to fulfill the study. The empirical part of the work consisted of S-market Metsäkängäs' supply chain report (qualitative study) and customer satisfaction survey (quantitative). The report was fulfilled by observation of the above mentioned retail store's logistics operations and interviews with the marketing manager of S- market Hämeenmaa, the executive manager of S-market Metsäkängäs and the logistics manager of INEX. The level of satisfaction among the customers of S-market Metsäkängäs was measured with a quantitative survey. By using these research techniques we could find out how the supply chain management affects the customer service and satisfaction, with emphasis on the grocery retail business.

1.3 Structure and limitations

As we were not allowed to measure the supply chain performance and the internal logistics activities of S-Market Metsäkangas' point of view, due to the high competition in the grocery retail market and other confidential issues, we had to put a limitation on our study. We decided to evaluate and measure the supply chain performance of the store from the customers' perspective. The questionnaire was designed to the requirements of our contracting party, S-Hämenmaa, which made a request for carrying out a customer satisfaction survey in the S-Market's newest outlet in Metsäkangas. They wanted us to explore the opinion of the local residents and their perception about the store and to obtain more detailed information about the demography and consumption behaviour of their customers. We based our recommendations on the customers' satisfaction survey with an emphasis on the internal logistics performance of the store. Some issues in the survey were skipped since they did not suit our objectives in the study. However, these questions were of significant importance for the retail chain management of S-Hämeenmaa and S-Market Metsäkangas.

The second chapter deals with the general view of the supply chain and each process involved in it in order to give clear idea about activities and how their management affect the customer service. Also it served us as a framework for building up our conception of the grocery supply chain, we dealt in chapter three. In the third chapter we observe the grocery retail market in Finland and focused on the specific features and main characteristics of the supply chain of grocery stores. In the same chapter we also describe the meaning of customer satisfaction and the ECR, the efficient consumer response strategy, designed especially for the grocery retail market. The chapters four and five consist of empirical findings and comprehensive description of the supply chain of S-Market Metsäkangas and the role and operations of the parties involved in it. In the chapter six we deal with the customers' satisfaction survey and the analysis of the result and recommendations based on the customers' evaluation can be found out in chapter seven.

2. SUPPLY CHAIN MANAGEMENT IN GENERAL

2.1 Introduction to supply chain management

A supply chain consists of the whole flow of goods, raw materials, capital and information from manufacturer to end user and it also includes all parties involved in the process, such as manufacturers, suppliers, transporters, warehouses, retailers and customers. Customer service, marketing, operations, new product development, distribution and finance are also included in the concept of supply chain. (Lambert & Stock & Ellram 1998, 2-5.)

The main purpose for the supply chain's existence is to fulfill customers' needs and requests and at the same time generate profits. According to many logistics books the supply chain processes begin when a customer places an order and end when satisfied customer has paid for the particular product or service. As a matter of fact the supply chain concept is a much wider and spreads in both, vertical and horizontal ways. When a customer need is defined it triggers the supply chain activities which are trying to solve the existing problem-the satisfaction of the customer need. Then the processes are continuing with the search and finding of the right manufacturers that can produce the needed product or service at the lowest price without deteriorating its quality, go through the distributing channel decisions and end not with the customer's transaction, but with his satisfaction, which in many cases is foreordained by the product's endurance and operations. In case of product defect or malfunction the same sequence of activities is starting but in the opposite direction, known as reverse logistics. (Chopra&Meindl 2004, 4-6)

The supply chain involves various stages. These supply chain stages consists of customers, retailers, wholesalers/distributors, manufacturers and component/raw material suppliers (Fig.1). The term supply chain means the movement of goods, information and funds from suppliers to manufacturers to distributors to retailers to customers along the chain and back. A simple supply chain may be formed only from one player in each stage. However, in reality it is more likely that each stage

implies numerous parties. It might be that several suppliers provide a manufacturer with raw material, who on the other hand supplies several distributors with a particular product. It may occur that the process continues to other manufacturer who needs this product for assembling the finished product and then again is distributed to several wholesalers. The wholesalers may have as a client a number of different retailer chains that serve different customers situated in specific territory- a neighbourhood, a town, a district, or a country. At this way, many supply chains actually represent a network system, which is not linear as it can be seen from the figure below, but expands in two dimensions. (Chopra&Meindl 2004, 5.)

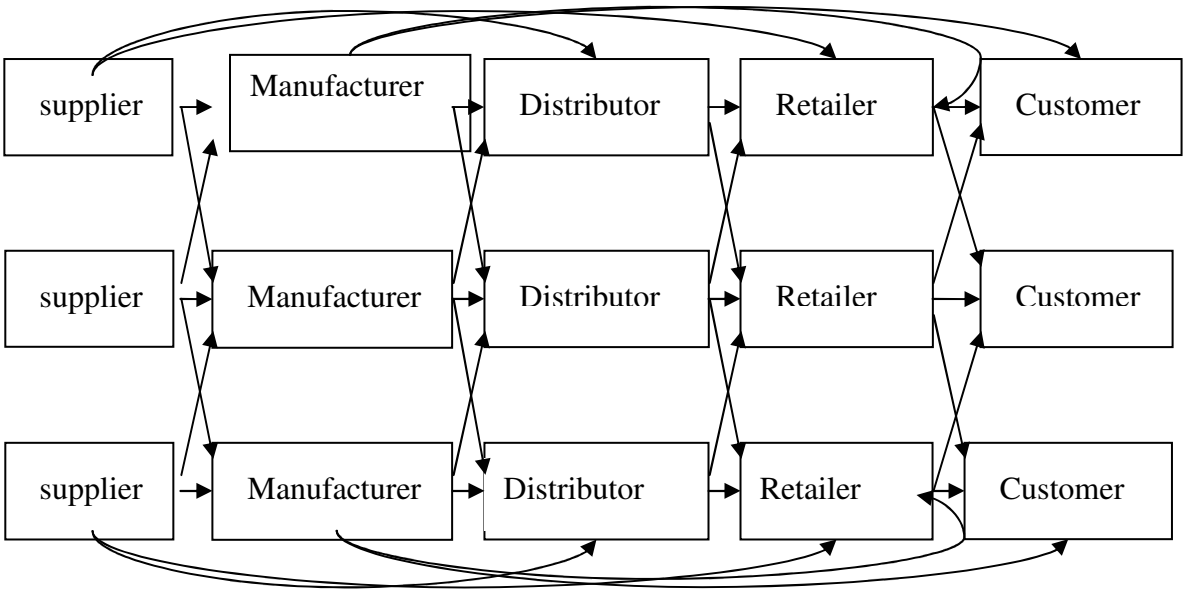

Figure 1. Supply Chain Stages (Chopra & Meindl 2004, 5.)

Typical examples of expanded supply chain networks are the food industry (grocery retail business) and automobile industry. In the food industry, for instance, the manufacturing of margarine consists of several production stages, from raw material selection (crops, oilseeds, fish oils and animal fats) through the extracting and refining process to the production of the final goods-the refined oils can be bottled and used as a food ingredient itself or further processing can be performed in order to produce margarine or spreads, which can be used as a final

product but they might be used as an ingredient in many other products as well, for example, breads, cakes and biscuits. The manufacturer and the supplier might be different in every stage. The different raw materials can be provided by different suppliers, different manufacturers can refine the different types of oil that can be distributed to different margarine manufacturers who on the other hand are distributing their products to different bakeries and so on. The same example applies to automobile industry where different raw materials are provided for manufacturing of different parts of the car, which later are distributed and assembled in different assembling sites around the world.

The main objective of every supply chain is to maximize the overall generated value or in another words profitability. The profit a supply chain generates can be presented as a simple mathematical operation: the difference between the price that customer pays for the product and all the efforts (time, money and labour force) needed for its production. Supply chain profitability means the total profit accumulated across all supply chain stages. The higher the supply chain profitability, the more successful the supply chain is. It should not be forgotten that the success of supply chain is measured in terms of profitability of the whole integrated logistics activities included in the supply chain, but on no account in terms of profits at an individual stage. (Lambert& Stock 2001, 54-56.)

The appropriate management of cost generating flows in the supply chain, information, product and funds, has a key importance for its success. The term supply chain management involves the integration of the above mentioned flows, their management and their coordination and supervision between and among every stage of the supply chain and between all the parties that have an affect on it. Only thus the supply chain's profitability can be maximized. (Chopra & Meindl 2004, 5-18.)

In order to be a prosperous supply chain, many important decisions are required to be undertaken by its management. These decisions concern the flow of information, product and funds, as well as the time and labour needed to keep this flow going. The decisions also can be categorized according to the company's

ambitions, how and to what extend it wants to gain a customer base and how it wants to be perceived by the customers. The company's strategy reflects on its supply chain strategy or design. There are three different phases or categories concerning the decision making process of the supply chain: supply chain strategy or design, supply chain planning and supply chain operation. (Chopra & Meindl 2004, 7.)

During the supply chain strategy (or design) phase, a company makes decisions concerning the long term structure of their supply chain. The company should determine the overall strategy of their supply chain, for example the company should define the processes that each stage should perform and the allocation of resources. Company's decisions about the supply chain strategy include the location and production capacities of its manufacturers and warehousing facilities, what products are manufactured or stored and in how many locations, the transport modes to be used, and selection of information system. During this phase the company should ensure that its objectives and supply chain design support each others. Usually decisions regarding the supply chain strategy are made for the long term, a period of at least 5-10 years, and it is extremely expensive to make changes on them, especially when the company is running out of time. However, the companies should take into consideration the possible changes in market conditions and they should try to anticipate and predict, if possible, the factors of uncertainty that may occur. (Chopra & Meindl 2004, 7-9.) (Ballou 1999. 31-36.)

Supply chain planning requires decisions that concern the company's activities for a short period of time, usually from 3 to 12 months. Companies usually start this particular phase by estimating the demand in different markets for the following year. During this phase the company should decide about their inventory policies, marketing channels and distribution policies, and the schedule and the size of their marketing campaigns. The company should also examine issues concerning the uncertainty in demand, exchange rates, and competition over the pointed time. The supply chain strategy creates borders within which the planning should be done. It is possible that the planning policies may interfere or do not correspond with the company's strategy. Therefore the flexibility of the supply chain design is

of a great importance which can enable the companies to incorporate easier the decisions taken during the planning stage to fit the company's strategy. The forecasting process at this stage is facilitated by the fact that the decisions taken cover a shorter period of time compared to the previous stage, which enables to optimize the supply chain performance. The decisions of planning stage affects the companies' set of operating policies which companies are determining in order to manage short-term operations- the next phase of the supply chain decision making process. (Chopra & Meindl 2004, 7-9.) (Ballou 1999, 33.)

During the supply chain operation – phase, the company makes decisions regarding its individual customer orders. This is the last level of the supply chain decision making process. At this level the supply chain's strategy is fixed and the planning policies are specified. The time frame used in this stage is quite short, usually only from one day to one week. The objective of this stage is to find the best possible way to handle the customer orders and other related daily operations, to take advantage of the decrease of uncertainty and as a consequence to optimize to maximum the performance. During this stage a company allocates inventory or production to individual orders, sets due times of order fulfillment and delivery schedules of its modes of transportation and place replenishment orders. (Chopra & Meindl 2004, 7-9.)

All these three phases, concerning the building and managing of the supply chain, have a great impact on the companies' prosperity and well-being. All supply chain activities are consolidated and managed according to the company's chosen policies during each phase. The management and integration of these activities as well as other operations regarding the supply chain and in particular the supply chain of grocery industry will be examined next in our study.

2.2 Inventory control and warehouse and storage management

Keeping inventory is a large and expensive investment. Therefore every company has a strict view on issues concerning the inventory decisions and management. There is no doubt that better management of the aggregate inventory that a company keeps all over across the supply chain, will improve the cash flow and increase return on investments. On the other hand an inappropriate management or lack of inventory control will cause the customer service levels to drop. (Lambert & Stock & Ellram 1998, 112-120.)

There are numerous reasons why companies keep inventory. Firstly, inventory enables a company to achieve economies of scale in manufacturing, purchasing and transportation. When producing a large quantity of products the plant utilization is greater due to the long production runs and few line changes which leads to reduction of manufacturing costs per unit. Large volume purchases helps to save time and administrative costs in addition to the lower product price negotiated in the contract. In transportation, costs are reduced because of the full utilization of load space which effects in lower per unit shipping costs. (Lambert & Stock 2001, 228-243.)

Inventory is needed in the supply chain due to the fact that in many industries the demand does not correspond to the supply and vice versa. The purpose is to assure the product availability at time when a customer wants it. Keeping inventory acts as protection from uncertainties and reduces the situations of stockout. In case of variability in demand and in replenishment cycles a company can use the stored inventory in order to keep the level of customer service at the desired rate assuring smooth flow of supply. (Lambert & Stock & Ellram 1998, 112,148.)

Inventory may represent a significant portion of a company's assets. Large product quantities require large storage space which presumes the need of sufficient warehouse facilities. In addition to that, some products' inventory turnover is not stable or it might be at inappropriate level which causes increase in the inventory costs. Therefore, in case of excessive inventory levels the company profitability

decreases. Out-of- pocket costs occurs with holding inventory. Insurance, taxes, storage, obsolescence and damages increase, in addition to the out-of-pocket costs, the value of the inventory and consequently decrease the company's profitability. These inventory costs should be classified in order to achieve better transparence on the issues that affect the company's profitability with regard to inventory control. Inventory carrying costs usually are associated with the amount of inventory stored and may represent one of the highest costs of the logistics. These costs can be categorized into the following groups: capital costs, inventory service costs, and inventory risk costs. Capital costs are connected to the money tied up in products or bank loans used to finance the inventory levels and handling. This capital could be used for other types of investments from where the company may acquire better figures and opportunities in terms of return on investments or interest gained from other financial operations. (Lambert & Stock & Ellram 1998, 148-152.)

The inventory service costs are accumulated from personal property taxes and fire and theft insurance. Inventory risk costs consist of charges for obsolescence, which can arise in cases when the product is going out of fashion, its life cycle declines and it cannot be sold at regular price. Also product obsolescence may occur in cases of damage incurred during shipping or at the warehouse, or shrinkage from lost in weight or spillage, and relocation of inventory from one place to another in order to avoid obsolescence and stockouts. (Lambert & Stock & Ellram 1998, 152-155.)

There are different types of inventory according to their location in the supply chain and the purpose they are used for. Depending on the place the inventory is situated in the logistics chain it can be classified as supplier inventory, raw materials inventory, in-process inventory, in-transit inventory, finished goods inventory at plant, and finished goods inventory in field. (Lambert & Stock 2001, 230.)

The supplier inventory may consist of raw materials or ready products which are needed in the further production processes. Raw materials inventory on the other

hand might be accumulated in excess by the manufacturers, for example, in order to support the production or if the management expect price increasing or uncertainties in the supply. In- transit inventory represents the products or raw materials that are en route from one place to another. Work-in-process inventory is situated and used at the plant between manufacturing operations in order to avoid production lines' shutdowns in case of machinery break-downs. After the manufacturing process is completed, the ready goods are placed in the storage facilities waiting to be shipped to the destinations where they are needed. This type inventory is called finished goods at plant inventory. Further on the inventory is transformed into finished goods in field inventory; the goods are shipped to public warehouses, distribution centers or straight to the shops with the goal to enable customer purchase, increase availability and serve as a customer satisfaction level regulator. (Lambert & Stock 2001, 230.)

According to the purpose and the role the inventory performs, it can be categorized as a cycle stock, safety or buffer stock, seasonal stock, dead stock and speculative stock. Cycle stock is inventory formed from the replenishment of sold or used in production goods and materials. This type inventory is used in cases when the demand and replenishment times are predictable and steady. Safety or buffer inventory is held in excess when the variability of demand and other conditions of uncertainty is high. Safety inventory is held as a buffer all over the supply chain to support critical interfaces' (usually situated away geographically from each other) activities as supplier-purchasing, procurement-production, production-marketing, marketing-distribution, distribution-intermediary and intermediary-consumer/user operations. Seasonal inventory is used to balance the supply and demand kept when the product demand and supply of raw materials are changing and do not match during the year. (Lambert & Stock 2001, 232.)

Dead stock is formed from the products for which the demand has been decreased with fast temps and high rates to the point that these products cannot be sold anymore. In these cases transshipment to other locations is needed in order to avoid the penalties from the obsolescence. Speculative stock is gathered with the

purpose to influence the price of some products and raw materials on the stock exchange and the markets. This kind of inventory is not customer oriented but in some cases might turn out to be profitable for some companies depending on the line of business they operate in. (Lambert & Stock 2001, 235.)

The connection between inventory and warehousing is inevitable. Inventory has to be stored safely all over the supply chain until it is required and the place the storage mainly is happening is the warehouse. Another logistics process closely related to warehousing is material handling. How the goods are unloaded and moved across the warehouse, where they are placed and stored and how they are loaded again to be shipped further. The warehouse is the link that connects the manufacturers and retailers. It also supports the reverse logistics by providing temporally storage for products that are to be disposed or recycled.

The functions of the warehouse are to smooth the fluctuations between the demand and supply by storing the flow of raw materials and finished goods in order to avoid interruptions in productions. Also warehouse facilities ensure the provision of goods at the seasonal demand and their storage at seasonal supply, and facilitate economic batch productions and economies of scale. Warehousing activities add value to the goods by breaking bulk, sorting, consolidating, blending, sampling, packaging and pricing. They provide information transfer about the receiving, storage (inventory levels), transfer, order selection and picking, cross-docking and shipping of the goods, needed for the better administration of the warehouse and thus for the efficient management of the supply chain. Accurate information, regarding customer data, inbound and outbound shipments and facility space utilization, is needed as well. (Lambert & Stock 2001, 390-396.)

Warehouses can be categorized according to their location in the supply chain and the ownership. The warehouses can be situated at the place the raw material is extracted, at the production plant or at field, where the goods are sorted and consolidated to be distributed to the retailers. It is also possible that final customers can obtain their goods straight from the warehouse. According to the

ownership the warehouse types are public, leased or rented and company-owned (private) warehouses. The type of the warehouse a company should choose for using has a great influence on the supply chain costs, level of service and consequently company's profit. (Lambert & Stock 2001, 395.)

Plant warehouse costs are mainly fixed. However, additional costs may occur with the throughput, amount of product that enters the facility and moves out, and they are connected with the handling the product but not with the inventory stored. Public warehouses charge for product handling, inventory turns, and for storage (based on some time period) as well. Rented or leased warehouses charge for the amount of space rented. The costs usually do not vary when they are changes in the inventory level, if it does not require more space. Though, some additional expenses can occur caused by equipment operating costs and labour and connected with the throughput fluctuations. The costs of the company owned warehouses are considered as fixed, because do not rise with the change in the quantity of inventory, although they might vary with the labour and material handling operations. The company should take strategic decisions also on the location of the warehouses and their number. These decisions have impact on the transportation economies and also set the customer service levels. (Lambert & Stock 2001, 395.)

Warehouses differ also in size and product mix stored. Factors that affect the size of the warehouse are closely related to the materials handling equipment used. In addition to that, other matters that determine the size of the warehouse are the company's market, the number, size and volume of the goods stored, throughput rate, production lead time, economies of scale, stock layout, aisle requirements, types of racks and shelves used, and office area in the warehouse facility. The warehouses can be classified also according to the variety of products stored and the market it serves. There are warehouses that store only one product or product type which facilitate the material handling, storage and other warehouse activities. In order to use the benefits of this type of warehouses a company should trade with high-turnover items. Other type of warehouse includes warehouses that store full-line line of products for speciffic market or geographic territory giving the

customers' opportunity to collect the full order from a single warehouse.

2.3 Material handling and packaging

The purpose of material handling management is to maximize the utilization of the space within the warehouse and accelerate the materials flow, loading and unloading processes, during the product movement across the supply chain. The managers should evaluate and decide the use of different material handling systems. They should calculate the trade-offs between automated, but more expensive, or manual, but not so efficient, alternatives. (Johnson & Wood & Wardlow & Murphy 1999, 131-148.)

The materials handling systems and equipment are determined according to the product characteristics -weight, size and material density and viscosity, and the way they are packed. For example bulk materials (sand, coal, oil and others) are loose compared to the packed materials and therefore they are handled by pumps, shovel devices, conveyor belts and excavators. The point is to place the bulk materials into more convenient form, like containers, in order to facilitate their transportation. Once they are put into different containers' types, they are examined not as bulk materials but as container packages, which require totally different devices for material handling (dock cranes, forklifts) and transportation modes (truck trailers, railcars, ferries). (Johnson & Wood & Wardlow & Murphy 1999, 131-148.)

The objectives of the material handling is to remove human labour, wherever it is possible, to decrease travel distances, to minimize products in process and to decrease the losses from waste, spoilage, breakage and theft. Materials handling generates costs (labour, time, machinery and their usage) without bringing additional value to the product, therefore the task of logistics managers is to keep these operations at minimum level. If material handling is managed poorly, it can lead to production delays, lost or damaged products and consequently decreased level of customer satisfaction. On the other hand appropriate materials handling can reduce level of inventory, lower costs and increase productivity. (Johnson & Wood & Wardlow & Murphy 1999, 159-164.)

During the handling process the product characteristics or quality can be changed. For example, gases are usually handled within pipeline systems. But there is an exception, natural gas is liquefied after cooling and compressing into special tanks in order to decrease its volume and to enable the overseas transportation. Other examples are rice grains, which can be broken during transportation phase when they are poured into tank or containers, this requires special handling and facilities during the loading and unloading process, so that the grains never drop more than a few 60 centimeters at any time. (Johnson & Wood & Wardlow & Murphy 1999, 161.)

The role of packing and packaging activities is to organize, identify, protect and preserve the product while raising interest, providing information about the product and attracting customers. In other words, the package of the product performs tasks with logistics (packing) and marketing (packaging) purposes at the same time. More widely described, the functions of packing are:
- To enable bulk products' containment in order to facilitate their distribution.
- To reduce the industrial production to a manageable and convenient for the consumer size.
- To allow primary packages to be unitized into secondary packages, for instance placed inside a corrugated case, in order to reduce the number of times a product must be handled.
- To give sufficient information about the requirements of product's handling and to facilitate its identification during distribution.
- The protection of contents does not have for a purpose only to protect the products from damage but to avoid environmental pollution as well. (Lambert & Stock & Ellram 1998, 328-331.)

This logistics activity is closely linked to warehousing and material management and transportation activities. Well designed and managed packing process can improve the warehousing effectiveness and efficiency and raise productivity. Good package facilitates the material handling process, which on the other hand can increase the overall service level and decrease the costs. It is obvious that when packing a product the package takes up space and adds weight. For that

reason special attention should be given to the weight, size and material of the package, since light packages with appropriate size enable cutting transportation costs optimizing space utilization of warehouses and transport equipment. (Lambert & Stock & Ellram 1998, 328-331.)

More attention should be given also for the protectiveness of the packing, which makes possible to reduce damages and requirements for special material handlings. When designing the package, the environmental issues should be also taken into consideration, environmentally conscious package enables savings in disposal costs and reduce waste of products, and at the same time it can give favourable image for a company. Minimum and returnable packing containers reduce costs and they are also beneficial for the environment. (Lambert & Stock & Ellram 1998, 328-331.)

More comprehensively described, the functions of packing are to enable bulk products' containment in order to facilitate their distribution. To reduce the factories output to a manageable and convenient for the consumer size. To allow primary packages to be unitized into secondary packages, placed inside a corrugated case, in order to reduce the number of times a product must be handled. (Lambert & Stock & Ellram 1998, 330.)

2.4 Procurement and order processing

Procurement consists of acquisition of materials and services which have a key importance on the effectiveness and efficiency of logistics and manufacturing activities. It forms an important part of the supply chain, since companies are depending, on some level, on materials, products and services provided by other companies. Procurement includes versatile activities, such as supplier selection, price and timing determination, quality control and others. The uncertainty factors, such as fluctuations of availability and price of the materials, have increased the importance of procurement in the supply chain. (Dobler & Burt, 2000, 12, 17-26.)

The terms purchasing and procurement do not have the same meaning, even though they are used many times interchangeably. Purchasing refers only to the actual buying process, when procurement is much wider concept, it includes not only the buying process, but also traffic, warehousing and receiving of inbound materials. The primary objective of procurement is to provide companies with the materials and services needed in order to keep the efficiency of their operations at high level. Appropriate and accurately managed procurement process, helps to keep the inventory and loss at minimum level. Another objective is to obtain the materials and services needed at lowest price possible and with the quality that fulfill the company's requirements. One of the most important objectives of the procurement is to find and development a competent collaboration with the suppliers. Properly managed procurement can improve company's competitive position in the market. (Lambert & Stock 2001, 478.)

One of the most important goals of procurement is to find and select the most appropriate supplier among a huge number of suppliers that can provide a company with the products or materials they need. Many factors should be considered before establishing a contract with a supplier. A company should evaluate how well the supplier can adjust to their requirements, for instance, in terms of lead time, price and quality. Also the supplier should be evaluated carefully in terms of its experience, reputation and reliability. (Lambert & Stock 2001, 480.)

Quality control of materials and products is also an important part of the procurement process. Usually the supplier determines the quality level, but it is buyer's responsibility to secure the quality of supplied materials and products. The quality should meet the commercial standards and requirements. Sometimes companies are engaged in forward buying of materials and products. Forward buying means that materials and products are acquired in advance of the time they are needed. Usually forward buying is used in two different situations. First, if the price of the materials or products have to be increased, the company might buy an exceed quantity of the specific product in order to avoid the increasing price of the supplies. Secondly, forward buying is also used in the situations when the material's resources are scarce, such as oil, in order to secure the availability of materials also in the future. Forward buying presents also some risks, since the price of materials usually varies in extend, because of competition or technological developments, company may actually purchase the products at higher price than necessary. Also forward buying increases inventory carrying costs, because of holding excess inventory. (Lambert & Stock 2001, 487.)

Just in time purchasing, JIT, has reached a lot of popularity in the recent years. The basic idea behind the JIT concept is to cut lot sizes, which reduces ordering and inventory carrying costs. JIT purchasing strategy requires frequently placed orders and deliveries. In this strategy the number of suppliers used is small and the agreements are made for a long term. The aim of JIT is to create stable and long term agreement which ensures the efficient flow of materials. Because of frequent deliveries, the transportation costs can rise, this is why buyers usually use nearby suppliers, which enables reducing transportation costs. Another benefit of JIT, is that product defects are detected fast, due to the frequent deliveries. Of course, the use of JIT strategy requires that company's demand is predictable and steady. (Lambert & Stock, 2001, 489-491.)

Order processing includes all the activities that are needed for order fulfillment, from the point when a company receives an order until the point when the goods or materials are shipped to the customer. Order cycle refers to the time used in

order processing. The order cycle, from the seller's point of view, starts from the time the order is received and ends when the goods are placed in customer's storage. From buyer's point of view, the order cycle starts when the order is sent out and ends when the goods or materials are received. In the case, when the goods are needed on regular basis, the order cycle is called order replenishment. Order cycle consist of different stages, including preparation and transmittal of order, receipt and entry of an order, order processing, order status reporting and continues through the warehousing picking and packing, transportation and delivery to customer and unloading of the goods or materials. (Johnson & Wood & Wardlow & Murphy 1999, 101-104.)

Typically the order process begins when the buyer needs a certain product and places an order. The manufacturer receives the order and enters it to the order processing system. At this stage the manufacturer should check if the needed products are available in the storage and in the case, there are no desired items in the storage, the manufacturer should determine the time table for production of these items. Also customer credit situation should be checked at this stage. After this the invoicing information is given to accounting, acknowledgements of the order are sent to the customer. After that picking and packing information regarding the products is given to warehouse as well as the shipping documents. Hence, the products are taken out of the inventory and timetable for transportation is determined. After that the invoicing is proceed forward to the customer. (Lambert & Stock 2001, 148-151.)

In recent times the majority of companies place their orders using electronic interfaces instead of the traditional way to place orders by phone and fax machines or even in some cases by post. Electronically placed orders enable faster and more accuracy transitions and entries of orders, which on the other hand enable to reduce inventories, without decreasing the level of customer service. Customers can also benefit from these prompt order entries, in the form of reduced order cycle times and reduced inventories. (Lambert & Stock 2001, 149.)

The main purpose of order processing systems is to provide uninterrupted information flow between manufacturer and customer. When selecting the order transition system issues concerning time, costs, consistence and accuracy, should be taken into consideration. In comparison to manually managed order systems, electronically managed order processes save time and reduce risk of human errors. (Lambert & Stock 2001, 151.)

2.5 Traffic and transportation

Transport activities are aimed at increasing customer satisfaction by changing the geographic position of goods or people. In many cases raw materials are transported from the place of extraction to the place of manufacturing. Later on these goods are moved to another place where they might be used in the final product assembly which after that is transported further to the warehouse or distribution centre from where it is again transported to the retail shops. Transporting goods is one of the most costly logistics activities in terms of money and time. Inbound and outbound transportation costs can account for 20-50 % of the product price, depending on the product. Effective traffic management can achieve significant improvements in profitability. For that reason transportation matters require good understanding, strategic thinking and accurate evaluation. . (Lambert & Stock 2001, 312-314.)

The transportation process does not halt here but it may continue with the transportation of the purchased goods to the final customer's premises or home. For instance many furniture shops offer as a service delivery to the customer's door. Thus, transportation processes may occur many times connecting each link of the supply chain until the product is delivered to the right recipients. On the other side, the transportation has as a task to take care of bringing the customers to the places where the services are situated. This is the way how the transport creates the utility of space and contributes to time utility, setting free human and product resources from places where they have small utility potential to places where their full utility can be realized. (Lambert & Stock 2001, 313.)

The transportation process should answer the following main questions:
What will be transported- the characteristics of the load- people, livestock or other consumer goods and commodities. If it is commodities, then what type of commodities, their size, weight, and volume? The next question is how it will be transported. The management should consider the modes of transportation that are available for the transportation of the load and the consolidation of shipments and how they will affect the transportation costs and delivery time, choosing the most appropriate alternative. Routing and scheduling are the following issues that should be decided upon. Route problems that management has to resolve, regard to infrastructure (roads, bridges, traffic jams, facilities and equipment), political issues (threat of war, riots or piracy) and customs and environmental matters. (Lambert & Stock 2001, 350.)

Achieving effective traffic and transportation operations is possible only with full interaction between other links of the supply chain and activities that even can spread beyond the logistics areas. These activities include accounting (freight bills), engineering (packaging, transportation equipment, computer technology); legal (warehouse and carrier negotiations and contracts); manufacturing (just-in-time deliveries); purchasing (expediting, supplier selection); marketing/sales (customer service standards); receiving (claims, documentation); and warehousing (equipment supply, scheduling). (Benson & Whitehead 1994, 1-2, 158-163.)

Nowadays, most of the companies outsource their transportation duties, using third parties' services that specialize especially in this line of business. Many logicians claim that it is cheaper and more effective to give this part of the distribution process into to the hands of transportation companies that have more experience than holding own transportation fleet. For that reason, the good relationship and sufficient communication with the carrier can be of substantial matter for the successfully management of the transportation process.

Sometimes the material flow has to pass across additional links in the supply chain, where big consignments are unloaded, sorted and consolidated. These links are called terminals. The terminal is a place where traffic and goods can interchange

vehicles or mode of transportation continuing their way to the aimed destination. The functions of the terminal are to allow access to vehicles which operate on a specialized way. Another task of the terminal is to make possible easy interchange between vehicles, sometimes of different modes of transportation operating on the same way, and to assist the consolidation of traffic. At some terminals, goods will arrive in mixed loads for sorting, before individual consignments are consolidated with others bound for common destinations. (Benson & Whitehead 1994, 45-49.)

The size of the terminals varies, depending on their location and purpose, from a simple roadside bus stop facility to a huge complex of buildings grouped together for convenience, efficiency and economy. Terminal equipment may be different according to the different forms of transport, product characteristics and the volume of traffic. The goods need suitable mechanical handling equipment to make the loading and the unloading, sorting and stacking processes easier. The design and layout of the terminal also should be carefully considered in order to avoid congestions or over-stowing and at the same time to ensure better expedition and efficiency of the operations. (Benson & Whitehead 1994, 45-49.)

2.6 Demand forecasting

Demand forecasting serves as a basis for management strategic and planning decisions with regard to supply chain. Demand forecasting is of high importance for companies that perform pull or push strategies. Companies that use push strategy, produce materials or products in anticipation, before receiving customer request, whereas for companies of pull view the production is based on the real customer demand. For pull strategy, demand forecasting is needed to determine the availability of production capacity and inventory. In push strategy the demand should be forecasted in order to define the production quantities. (Chopra & Meindl 2004, 171-178.)

The demand forecasting is needed to ensure the efficiency and profitability of company's future operations. So, the purpose is to forecast the demand in the long

term in order to plan in advance company's activities concerning material acquisitions or production quantities, production capacity and level of inventories and resources (labour, transport) needed. Demand forecasting of mature products, that has stable demand, such as milk, is easier to forecast than the demand of the goods with variable demand, such as fashion and high-tech goods. Forecasting the demand of variable demand goods is of high importance, due to the fact that their life cycle is relatively short. There is always a high risk that too small or too big quantities are produced. (Pouri 1997, 87-89.) (Chopra & Meindl 2004, 171-178.)

There are many forecasting methods available, but it should be remembered that they are always wrong to some extent. Future developments are always difficult to forecast due to the fact that there are many unpredictable factors of uncertainty in the market that have influence on the demand, such as economic and price fluctuations, new competitors and new product developments. When forecasting the demand, it should be remembered that short term forecasting is usually more accurate and gives opportunity to respond faster to changes in the environment and other conditions, than long term demand forecasting (Pouri 1997, 87-89.) (Chopra & Meindl 2004, 171-178.)

The forecasting methods roughly can be categorized into four different groups: qualitative, time series, causal and stimulation methods. The qualitative method is used when there is very little historical information about demand available. So called qualitative methods, such as judgments, surveys, intuition or benchmarking are used to forecast the future demand. This method can be used when forecasting the demand of a new product or new technologies. Time series forecasting is based on historical demand information. The basic idea of this method is that the demand history is reliable indicator of future demand. This method should be used for products with stable demand that are not subject to trends or seasonal demand variations. The time series forecasting method is reliable for time periods of less than six months. (Chopra & Meindl, 2004, 174-179.) (Ballou 1999, 277-281.)

The causal forecasting method is based on the idea that demand forecasting is related to another factor, for example an environmental factor such as interest

rates and other economic conditions. Customer service level or pricing are examples of demand related factors. For instance, the customer service can increase the sales and if the customer service level is known the future sales can be forecasted. This forecasting method may be problematic to use since finding the right causal variable is not so easy. Another forecasting method is stimulation, which is a combination of time series and causal forecasting methods. Stimulation, predict the customer behavior, based on historical data and the aim is to predict how customer reacts on certain changing factors. For instance, if there is price promotion, the aim of stimulation method is to forecast how customer's behaviour and demand will change. Many airline companies use this method, for instance if certain flights of low fair airlines are full-booked, other airline companies may raise the flight ticket for the particular flight. (Chopra & Meindl, 2004, 174-179) (Ballou 1999, 281.)

The demand forecasting has impact on marketing, production, finance and personnel. The demand foresting helps to determine marketing strategies on promotion, sales force efforts, pricing and marketing research. In addition to that forecasting the demand enables to decide in advance the production timetables, material acquisition and purchasing strategies and inventory levels. (Chopra & Meindl 2004, 174-179.)

2.7 Facility site selection

By facility site selection we mean the location of plant, warehouses, terminals and stores. Location decisions are a crucial part of the supply chain strategy and influence the level of customer satisfaction to a great extent. Deciding where a company will locate its facilities constitutes a large part of the design of a supply chain. The basic issue for the company here is how to make the desired trade-offs or in other words whether to centralize the locations of warehouses, plants or terminals in order economies of scale or decentralize them in order to become more responsive by being closer to the customer. Companies must also consider a host of issues related to the various characteristics of the local area in which the facility may be situated. These include macro-economic factors, quality of workers, cost of workers, cost of facility, availability of infrastructure, proximity to customers and the rest of the network, tax effects, and other strategic factors. (Ballou 1999, 437-439.)

Companies must also decide upon the facility's capacity which is related to its intended performance. A large amount of excess capacity allows the facility to be very flexible and to respond to wide fluctuations in the demands placed on it. Excess capacity, however, costs money and therefore can decrease efficiency. A facility with little excess capacity will likely be more efficient per unit of product it produces than one with a lot of unused capacity. The high utilization facility will, however, have difficulty responding to demand fluctuations. Therefore, a company must make a trade-off to determine the right amount of capacity to have at each of its facilities. (Ballou 1999, 437-439.)

The geographic placement of the stocking points and their sourcing points create an outline for the logistics plan. Fixing the number, location, and size of the facilities and assigning market demand to them determines the paths through which products are directed to the marketplace. The proper scope for the facility location problem is to include all product movements and associated costs as they take place from plant, vendor, or port location through the intermediate stocking points and on to customer locations. (Ballou 1999, 439.)

2.8. Salvage and scrap disposal and return goods handling

In every production process there is a certain number of by-products that cannot be used for production of any other product, so they become waste products that must be disposed. The efficient handling and transportation of waste products or materials, have impact on the overall performance of the supply chain. The waste products must be transported to adequate places or if they are recyclable they can be remanufactured. (Lambert & Stock 2001, 25, 281.)

The aim of the materials disposal is to categorize by-products that can be reused and by-products that are hazardous and must be disposed. Earlier the materials disposal was not considered as important part of logistics activities, but as the general awareness of environmental issues have increased and governments have tightened their regulations concerning the environment, the importance of materials disposal have increased significantly. A lot of by-products can be reused or sold to other companies or manufacturers. (Lambert & Stock 2001, 25.)

The return goods handling is often called reverse logistics, since the return goods go in the opposite direction in the supply chain, from consumer to the manufacturer. Goods are returned to the manufacturer for several reasons, for instance if the product presents some defect or it is spoiled, or in case of wrong delivery (wrong address or wrong product). (Lambert & Stock 2001, 25, 231.)

The reverse logistics' costs are usually much higher than the costs of normal material flow. The costs of reverse logistics can be even nine times higher compared to the costs incurred in the supplying the goods to the store. In many industries the costs increase because of customers return goods for warranty repair or they want replace their goods or recycle them. Another reason for higher costs is the fact that most of the companies have not developed efficient return goods channels, for instance they may lack suitable handling equipments. Also the transportation, storage or handling of return goods may not be so flawless, which on the other hand requires more financial and labour resources and increases costs. For these reasons the development of reverse logistics channels have became more

and more important for companies, from financial and operational perspectives. (Lambert & Stock 2001, 231.

2.9 Distribution communications and parts and service support

Communication has a central role for the supply chain management. In order to operate efficiently companies should develop an accurate communication system that provides sufficient information flow between each party involved in the supply chain. That means that companies, their suppliers and customers should keep in touch without any interruption during all the processes in the supply chain. The aim of the communication system is not only to link together the participants in the value chain but also to assure the required information flow between and within the supply chain activities (warehousing, transport, inventory, customer service and others) and company's departments, such as marketing, logistics, production and accounting. Companies can build their communication network using computerized managed information systems (MIS) or just as simple as word-of mouth information distribution methods between parties involved. (Lambert & Stock 2001, 21-22.)

Manually managed information systems are very slow and there is a high risk of potential errors. The manually managed information systems do not serve very well the integration of logistics activities, because it takes a lot of time and there are frequent information delays and inconsistency. Possible errors occur especially in pricing and determination of available inventory, as a consequence of these, errors can occur in invoicing causing order and payments delays. Inadequate communication systems make obstruct the efficient management of the whole supply chain. (Lambert & Stock 2001, 22.)

On the other hand computerized information systems provide accurate, clear, fast, and convenient information flow between different parties among the supply chain. Efficient information systems provides the managers with the right information at the right time that enables them to make more appropriate strategic

decisions concerning selection of transportation modes and providers, plant and warehouse site selection, establishing an efficient customer service level and selecting suitable order processing system. The management also can benefit from up-to-date electronic systems by obtaining and analyzing information about the company's status, performance and future development planning. (Lambert & Stock 2001, 21-22, 152-154.)

Supply chain activities do not end when the goods are delivered to the customers. The customers are provided with after-sale services in the form of part and service support. The purpose of the part and service support is to provide customer with spare parts and reparation services in the case of product breakage or malfunction. The challenge of part and service supports is to provide their customers with the spare parts and reparation services when and where needed. (Lambert & Stock 2001, 23.)

2.10 Customer service and satisfaction – the output of logistics activities

Every company does business in order to serve customers and make profit. Customer service is the final objective, the output of the logistics and therefore it is situated on the top of the logistics chain of activities. For logistics, the customer is any delivery destination. That means that customers might be ordinary consumers, wholesalers or just a companies' manufacturing plants and warehouses, which appear to be customers of their suppliers The level or standards of customer service a company offers, determines how many of the existing customers will remain customers and also how many potential customers will become actual customers. (Ballou 1999, 80-81.)

The profit margin is just a reflection of the level of customer service provided and also how successfully a company has implemented the services across the supply chain. For that reason every single element in the logistics systems has a significant role in the forming of the customer service level and customer satisfaction, which are set up by the circumstances whether a company can deliver

the right product, at the right costs, at the right place and time and in the right condition. Customer service can be defined in three ways- as an activity that has to be managed, e.g. order processing, invoicing, product returns' handling; as performance measures (how fast a company can handle a particular number of orders); or just as an element in the company philosophy. (Rosenbloom 1999, 409-411.)

For instance, well planned order processing enables a decrease in order cycle times and total logistics costs. When ordering, information about inventory status, expected shipping, delivery days and back-order status are extremely useful for the customers. With regard to transportation, the main service characteristics that have influence on the customer service level are consistency of service and time-in-transit, market coverage, flexibility, loss and damage performance and the ability to provide more complex services. If some product is not available at the exact time and place when it is needed it can lead to loss of sales, customer dissatisfaction and production downtime.If the customer is dissatisfied from the slow delivery or the damaged product his first reaction will be to stop buying the company's product. The reliability of the company can decrease sometimes without its fault. For that reason, to find a suitable deliverer partner can be a matter of vital importance for the business. (Stock & Lambert 2001, 146.)

When stockouts occur the customer can be kept by arranging product substitutes. If it is not possible, the other alternative to maintaining customer goodwill is expediting the shipment when the product is received in stock. In this case there will be additional costs because, for instance, the mode of transportation has to be changed but on the other hand customer satisfaction will be maintained. In case of too often stockouts' situations and failing to provide substitute products or fast supply and delivery to the final destination, the company will face loss of market share and profits as a result of the decrease of the customer service level.
(Stock & Lambert 2001, 228-232.)

The warehouses are necessary to maintain a source of supply and to support the company's customer service policies as well. For example, at time of unexpected

demand, excess inventory can help the company to manage the desired level of customer service by providing quick delivery to the customers and thus avoiding stockouts situations. If the company wants to provide a 24-hour delivery standard to satisfy customer needs then it will require a number of field warehouses. The more warehouses around the country, the faster delivery time is achieved. (Stock & Lambert 2001, 391.)

The location and the transportation links to the warehouse are also issues of great importance. Some of the big retail stores have a warehouse within their own facilities. They store products which are taking too much space and cannot be exposed all. However these kinds of products might have a fast turnover cycle. If there was no any storage space within or very near the store it could lead to unrealized sales and lost customers. Most of the warehouses are accessible only by road transportation. Depending on the product they store, some warehouses can be situated at the airports or harbors with railway and motorway accessibility at the same time. Some products are seldom transported by air, for example cars, but if the customer pays and wants the delivery urgently then a warehouse situated near an airport will have an advantage in increasing the customer service level. (Stock & Lambert 2001, 409-410.)

Procurement or purchasing in the narrower meaning has an essential role in building good customer service. It also has a great impact on the formation of the product price. Therefore it is very important to make the right selection of suppliers, supply source locations, timetables of purchasing, quantity and price determination and to execute quality control during the procurement activity. The procurement management should provide the best possible flow of materials at the most appropriate price in order to enable continuous product availability to the customers. Some other objectives of purchasing activity are to keep the inventory investment and loss at minimum (Just-in-Time purchasing has enabled to fulfill that requirement), provide adequate quality standards, and to find from where the items can be purchased and delivered at the lowest price. In order to build a good customer service level, the company should plan well the process of purchasing/production. The company should try to achieve lowest possible

procurement costs but still maintaining the quality standards it has set up, and keep the promised timetables of orders and account settling to retain the suppliers, in order to build up and maintain a good customer service. (Stock & Lambert 2001, 493.)

Once a customer is gained the company should do everything possible to keep him as a customer in the future as well. This is the objective of the parts and service support activity. Since every product gets broken or needs parts replacement the company should provide the customer with service after the sale at the right time and at the right place. Only the existing of this kind of activity in the company gives a customer a psychologically satisfaction and confidence in the company's product. Also the package of the product has a great influence on the customer satisfaction, especially when product is ordered from abroad and has to be shipped to a distant destination. The customer wants that his product is packed in a protective manner so no damages can occur. (Stock & Lambert 2001, 23.)

3. GROCERY INDUSTRY IN FINLAND

3.1Grocery retail market in Finland

Grocery retail business covers all purchases that happen on a frequent basis and includes goods needed in everyday life- groceries, cleaning and hygienic products. There are new trends in the Finnish grocery industry which bring significant changes in the retail market. Finnish grocery retail business is focused on cooperation with international retail companies, which enables to increase the volume of purchases and consequently gives them possibility to negotiate better conditions and lower prices. This gives a competitive advantage to the Finnish suppliers and wholesalers. For example, every Finnish wholesaler, Inex Oy, Kesko Oyj and Tuko Logistics, has Europeans grocery retail chains as partners when making their procurements from the manufacturers. (Pastinen & Mäntynen & Koskinen 2003, 26.)

In Finland the retail market is very centralized. The three biggest retail companies (SOK, Kesko Oyj and Tradeka) comprise 80 % of the whole grocery retail sales in Finland. For comparison, only Sweden, Denmark and Norway have more centralized retail sales. On the other side are countries like Holland, Germany and Spain where the market share of the three biggest retail companies accounts for less than 60 %. (Finne & Kokkonen 2005, 19-27, 48-53.)

The integration of HOK (Helsingin Osuuskauppa) S-Group's cooperative enterprise, and Elanto was one of the most significant arrangements in the grocery retail business during the last years. It helped S-Group to raise their market share considerably in the capital area. Elanto's stores were quickly linked as a part of S-Group stores' chain and the hypermarket brand of Elanto, Maxi, was taken out of use. In that way S-Group has managed to acquire plots with good locations which have turned to be very successful tactic to attract more customers. Regional community activities are also strengths of the cooperative enterprises. (Finne & Kokkonen 2005, 25.)

Another interesting company arrangement in retail market was the consolidation of Tradeka and Wihuri. After the integration, Wihuri's chains, Sesto, Etujätti and Ruokavarasto, disappeared from the market and their stores were converted into Siwa, Valintatalo and Euromarket. At the same time new adjustments took place in the Finnish wholesalers' organizations. Inex Partners Oy, which used to be owned by S-Group and Tradeka, was entirely acquired by S-Group, and Tuko Logistics became Tradeka's supplier. This transformation of logistics channels is a great challenge for both parties since their volumes of goods accounted for approximately 10 % of Finnish grocery retail market. As a result of this new reorganization Inex own brands were taken out from Tradeka's product range and Tuko logistics brand as Eldorado and First Price came instead. (Finne & Kokkonen 2005, 25-26.)

Price competition in Finland has tightened remarkably in the last years and the main reason for that has been the appearance of the discount chain, Lidl, which brought up a new trend in the grocery retail market. As a response to that Kesko has launched its own discount store chain, Cassa, without significant success until now. Also S-Group has introduced its own pricing strategy regarding S-Market retail chain outlets. This price strategy is based on "everyday low pricing, EDLP"-model, which means that instead of special offers or product discounts, the price level is kept on steadily low level. The customers can rely on the fact that the prices are always the same and it is not worthy to visit many different shops in order to find the best offer. (Finne & Kokkonen 2005, 30-31, 119.)

The Finnish grocery retail companies have not been a passive player in the internationalization process. It is understandable that in the Finnish retail market, the companies cannot reach significant sales volumes due to the fact that there are only 5 million potential customers, the whole population of Finland. For instance, this is only the population of St. Petersburg in Russia. Therefore Finnish grocery retailers are planning or have already expanded their activities abroad, mainly to Baltic countries and Russia, where there are good prerequisites for market growth and development. S-group has built four Prisma-stores in Tallinn, Tradeka has

opened three Siwa outlets in St. Petersburg and Kesko Oy has numerous outlets in Estonia and Latvia under the Rimi-brand. (Finne & Kokkonen 2005, 33-37.)

The emergence of shops' private labels came as an answer to the tightening price competition in the Finnish market. The share of own labels among store's product range is growing constantly. Examples of private labels in Finnish grocery industry are Kesko's Pirkka, Euroshopper, Costa Rica and Rico; Inex's Daily, Rainbow, X-tra and Pouta and Tuko Logistics' Eldorado and First Price. In 2004, the market share of private labels accounted for 10% of the whole grocery market in Finland. The share of private labels has grown relatively quickly in Finland in the last years, but the share is still quite small in comparison to other countries, for example in Switzerland the share of private labels account for 40 % of the whole grocery market. Also the market share of private labels varies a lot from one product to another, for example among hygienic products the share of own labels is significant, over 80 %, whereas among some grocery products the private labels account only for few presents of the whole sales of the product range. (Finne & Kokkonen 2005, 47.)

The main reason for the expansion of private labels is the aim to increase the number of loyal customers and distinguish its own product range from the competitors. This is also a way how the stores can strengthen their market position and attract more customers. On the other hand own labels strengthen stores' negotiation power in the value chain. Store chains are responsible for forming their product ranges and setting the prices for their products and they can also determine the visibility of the products and strore' layout. The marketing costs of private labels are very low or there are no marketing costs at all, which enables the stores to sell them at lower price. According to the research of AC Nielsen (2003), the prices of private labels in Finnish grocery stores are approximately 34 % lower than the prices of mega brands. (Finne & Kokkonen 2005, 48-50.)

In order to succeed in the retail market, the stores should take into consideration the changes in their customer base and consumer behavior. The customer needs may vary to some extent from time to time, creating new trends, which have an

influence on the behavior of the customers. Nowadays the family life is very different in Finland than few decades ago. As both parents work, they have very little time to spend on shopping and cooking. In addition to that it should be mentioned that peoples' cooking skills have abated and families eat very seldom together. Therefore popularity of convenience or so called tertiary processed food has grown remarkably in Finland. As the convenience food requires minimum preparation, usually just heating, it fits perfectly the requirements of the contemporary busy life style. The market share of this kind of food has been growing with faster temps compared to the market of grocery products. (Finne & Kokkonen 2005, 53.)

There are also some changes in the consumers' shopping behavior, for example people go shopping more seldom, little bit less than four times a week per household. For comparison just six or seven years ago Finns were shopping in average 4,6 times per week (Pastinen & Mäntynen & Koskinen 2003, 125). At the same time the average amount of money spent on groceries daily, has increased remarkable, being now 17 euros. These new patterns in the change of consumers' behavior can be explained with the continuously increasing number of hypermarkets and shopping centers, where people are buying bigger amounts of products at once. (Finne & Kokkonen 2005, 55-56.)

It is typical that the actual shopping in the store facility takes less than half of the time of the whole shopping trip. And also the longer the distance to the shop is, the more money on purchases is spent. More than half of the consumers go shopping by car. Avarage amount of money spent on grocery products accounts for 1800 euros per consumer per year and the weight of grocery products (food, beverages and non-food products) is 936 kg averagely. (Pastinen & Mäntynen & Koskinen 2003, 125-126)

More and more priority is given to product safety and safety measures have been carried out more consciously and carefully. The bird flu and mad cow disease had negative impact on the grocery industry and were reason for the decline of some products in the grocery and food market. Therefore, the Finnish suppliers have put

an accent on the safety measures of the value chain of grocery products and have undertaken considerable supervision on the products movement, from the manufacturing to the time they reach the customers. (Finne & Kokkonen 2005, 51.)

Another typical feature of the Finnish market is the increasing number of products that have special benefits or at least the harmful substances are reduced to a minimum. Nowadays people are more aware what they eat and drink and at the same time different food allergies have increased. The grocery industry have taken these factors into account and now can be seen more and more products with decreased contents of fats and cholesterol or without glutens. (Finne & Kokkonen 2005, 51-53.)

The origin of the products also has a significant importance in the success and popularity among the customers and determines the consumer attitude towards some specific food products. Finnish people look with suspiciousness especially to foreign milk and meat products. They rely more on the quality of the domestic products and in many cases they are ready to pay a higher price for them. For example, even five years after Lid came on the Finnish market there is still quite a big number of people who had avoided buying anything else from there than candies or non-food products. It was one of the reasons why Lidl increase the number of Finnish products in their assortment in the recent years. (Finne & Kokkonen 2005, 53.)

Also a loyal-customer scheme has become a very common feature of the Finnish grocery retail market. The bonus card programs have expended rapidly and they constitute very important part of grocery stores' marketing. Typical elements of bonus card scheme involve recognition of customers, customer data storage and analysis and loyal customer refund based on the value of their monthly purchases. In comparison to other bonus card programs abroad, where data is collected and analyzed on the base of each single customer's purchase, in Finland the data is analyzed only on the total value of all purchases. (Finne & Kokkonen 2005, 56-57.) (Pöllänen 1995, 31-47.)

In fact, only the collection and analysis of loyal-customer data do not bring any use and benefits for the company. The results should be utilized in different areas and processes of grocery retail business, in order to improve the management of the supply chain or to change operation procedures. For example, areas where the companies can take advantage of the analysis of customers' data are in target marketing, in the measurement of the efficiency of advertising and sales activities and in the regional assortments' planning , with emphasis on specific customer groups. The company's knowledge about its customer gives a good ground for product development and own brand design, so the company's power and influence in the market can be increased. (Finne & Kokkonen 2005, 58.)

Many companies benefit their customers with a progressive bonus based on their monthly purchases. At this way, the customers are encouraged to concentrate their purchases in a particular store chain and also to increase their consumption. In Finland the bonus percentage varies from 1 % to 5 %. In some special occasions the stores can offer double bonus for the customers' purchases. However, not every retail chain pays big bonuses in order to attract customer in their loyal-customer programs. For example, Stockmann does not pay any bonuses to its loyal-customers but reward them with special offers and product discounts. (Finne & Kokkonen 2005, 59.)

There are many regulations in the Finnish grocery retail business, which limit the stores' freedom to decide on important issues concerning their operations. These issues involve the opening hours of the stores, sales of strong alcohol (over 4.7 %) and pharmacy products and regional stores' planning. (Finne & Kokkonen 2005, 66.)

Before 2001, the shops were opened until 8.00 o'clock in the evening and after the change in the regulations they could work until 9 o'clock. It led also to the appearance of the first 24-hours grocery shops in Finland. In addition to that, small grocery stores (under 400 m2) were allowed to work on Sundays during the whole year. The supermarkets and hypermarkets got a special permit to be opened on

Sundays as well during the summer (from June till the end of August) and few weeks before Christmas. With the decision to allow the small neighbourhood stores to work on Sundays, the Finnish government tried to facilitate the position of this specific group of shops on the market and to increase their sales, which in fact brought up positive results and helped the shops to stay on the market. (Finne & Kokkonen 2005, 66-67.)

The regional development and planning decisions and regulations are of significant importance, when it comes to the establishment of new shops, which is a difficult and long-lasting process. Especially challengeable is the building of big, over 2500 m2 shops, because their foundation is limited with a purpose from the local administration. This is also a way to improve the market position of the neighbourhood stores, but it impedes the building of big supermarkets or hypermarkets on places, where it would be totally reasonable considering the size of the customer base. (Finne & Kokkonen 2005, 67.)

The most famous regulation concerning the sales of specific products is the limitation of medium and strong alcohol sales in the grocery stores. Today the maximum volume of alcohol that can be obtained from the stores is 4.7% and these products are available only until 9.00 PM, because selling alcohol in the shops after this time is prohibited by law. The reason for that is to limit to a highest degree the consumption of alcohol by minors, which has increased in the recent years and to cope with the Finnish alcohol consuming behaviour. (Finne & Kokkonen 2005, 67.)

Another controlled product area is the pharmacy products and medicines, for which no prescription is needed. The grocery retail business has tried for a long time to change the legislation and to set their sales free, so non-prescription medicines can be obtained freely in the shops as well. The limitations are explained from the aspect of better control and security, and with the possibility that the customer could get always a professional advice and guidance about the matters concerning his health. However, there is some breakthrough achieved by the representatives of the grocery retail business, since it is possible to buy today

Nicorette products (nicotine containing gum for people trying to stop smoking) freely straight from some grocery shops. (Finne & Kokkonen 2005, 67.)

Type of store	**Floor space**	**Product range**
Department store	over 2 500 m2	over 20 000 products
Hypermarket	over 2 500 m2	over 20 000 products
Supermarket	1000-2 500 m2	10 000-20 000 products
Market	400-1000 m2	2 000-10 000 products
Discount stores	400-1000 m2	600-1 000 products
Neighbourhood store	100-400 m2	1 000- 3 000 products
Small size stores and kiosks	less 100 m2	500-2 000 products
Gas station/convenience store	less 100 m2	500-2 000 products

Table 1. Store types in Finland (Finne &Kokkonen 2005, 80-81.)

In the table above are listed different types of stores in Finland and how they have been categorized, according to their floor space and product range. Department stores have a wide product range, which includes specialty and household products and the service is on a high level. Department stores are usually located in the center of the city or in regional centers. Examples of department stores in Finland are Sokos, Stockmann and Anttila. Hypermarkets, like department stores, have a broad assortment of products. Hypermarkets operate mainly on the principle of self service and grocery products account for less than half of the whole floor space of the stores. Hypermarkets are usually located in the center of the city or in shopping centers. Citymarket, Euromarket and Prisma are examples of Finnish hypermarkets. (Finne & Kokkonen 2005, 81-82.)

Supermarkets are also operating on the self-service principle and their emphasis is on grocery products. Groceries comprise more than half of the floor (selling) space of supermarkets. K-supermarket and S-market are examples of supermarkets in Finland. Markets are very similar to supermarkets, but they are of smaller size.

The product range of them varies a lot depending whether they are located in small towns or in suburb areas of big cities. In suburb areas they usually are the nearest shops and their product range is quite narrow and in small towns they may form the biggest stores in the town and offer wide assortment of products. Examples of markets in Finland are K-market, S-Market and Spar. (Finne & Kokkonen 2005, 80-82.)

Lidl and Cassa are examples of discount stores in Finland. Very narrow product range, self service and low prices are typical characteristics of discount stores. In addition to groceries the product assortment of discount stores includes specialty products, such as clothes and electronic equipments. The amount of private labels in discount stores is high. The neighbourhood stores are usually small stores with floor space between 100- 400 m2. Due to their small size, they are allowed to operate also on Sundays. Alepa, K-extra, Sale and Siwa are examples of neighbourhood stores in Finland. Small size stores and kiosks are very small size grocery retail stores with floor space of under 100 m2. The product range of kiosks is extremely narrow, but unlike other stores, they have a freedom to decide upon their opening hours. Pikkolo, R-kiosks, Spar and Express are typical examples of these kinds of grocery stores and kiosks. Convenience stores usually operate in connection with gas stations, located typically by the side of big traffic routes. Examples of convenience stores are ABC and Pikkolo, which usually is operating as a cooperation partner of the gas stations of Neste. (Finne & Kokkonen 2005, 80-82.)

The structure of Finnish retail market has been changed radically during the last years. The number of outlets has diminished and big units (outlets) have replaced small outlets. Improvement in the competitiveness of small stores has been tried by investments supports and permission to operate on Sundays. Also there is a restricted number of possible hypermarkets' store sites, which is limiting the expansion of hypermarket outlets. The number of grocery store chains has also diminished significantly. In the beginning of 1990's there were still a great number of chains, with relatively small number of outlets, whereas today there are

only few store chains operating in the Finnish grocery retail market and usually they comprise of several hundreds of outlets. (Finne & Kokkonen 2005, 132-133.)

During the past 10 years big supermarkets have increased most their sales volumes and outlet numbers. The number of big supermarkets has increased by 102 %, accounting now for 509 outlets, and sales amount (3.736 billon euros) has doubled in the last 10 years. Hypermarkets have also succeeded well in the last 10 years, accounting now for 115 outlets (increase of 46 %) and have increased their sales as much as the supermarkets. Small neighbourhood and small size stores have suffered most from the trend toward bigger outlets. (See appendix 1.) (Finne & Kokkonen 2005, 132.)

In 2005 the total value of the Finnish grocery retail market accounted for 11, 8 billion euros, in the last years the price competition between different grocery retail chains has increased intensively. In 2005 the total amount of grocery retail trade increased by 2 per cent. The increase did not concern the prices, but the product volumes. Intensive competition led to integrations and arrangements between retail companies, concerning Tradeka, Wihuri and Spar. The K-Group did not take a part in these arrangements. (Inex's presentation 2006.)

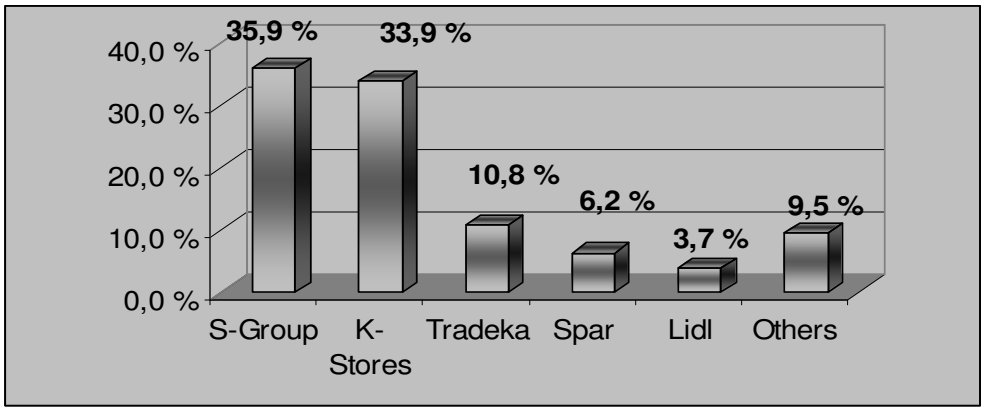

Fig. 2. Grocery market share in Finland. (Inex's presentation 2006.)

S-Group is a market leader in grocery retail trade. With its 781 retail outlets(S-Market, Sale, Prisma, Alepa), it comprises 35.9 % of the whole grocery retail market in Finland (Fig.2). With its 33.9 % K-Stores hold the second position and Tradeka with its 10.8 % comes in third place. On fourth position, with its 6.2 %, is

coming Spar. The market share of Spar is calculated separately since these numbers are from the year 2005 and S-group acquired Spar in 2006. Lidl's market share is growing constantly each year with steady temps, however with its 3.7 % from the grocery market, it is not considered to be a threat for the market leaders according to their executives. Other stores' market share accounted for 9.5 % of the grocery retail market. (Inex's presentation 2006.)

3.1.1 Kesko Food Ltd

Kesko Group is a central firm of private retailers. Kesko Ltd was established in 1940 when four regional wholesalers, Savo-Karjalan Tukkuliike, Keski-Suomen Tukkukauppa Oy, Kauppiaitten Oy ja Maakauppiaitten Oy, integrated their operations and formed the central firm. Currently Kesko Ltd constitutes, together with independent K-retailers, the K-group. In 1996 Kesko Ltd bought the Tuko Logistics Ltd and acquired the ownership of the department store, Anttila. But the deal was not accepted by the European commission and Kesko Ltd had to renounce the deal, but the company was allowed to keep the ownership of Anttila. Kesko Food Ltd is a important part of Kesko group. (Kesko 2006a.)

Kesko Food Ltd operates in the grocery retail market and offers versatile grocery retail services for consumers and for companies in Finland and in Baltic countries. Kesko Food Ltd is responsible for management and development of K-store chains and it also provides them with marketing, procurement and logistics services as well as with store site and retailer resources. Kesko Food Ltd and Swedish company called ICA Baltic Ab own together Rimi Baltic AB stores, which operate in Estonian, Latvian and Lithuanian grocery retail market. (Kesko 2006b.)

Kesko Food Ltd. has four different grocery store brands: K-Citymarket, K-Supermarket, K-market and K-extra. K-Citymarket is a hypermarket chain and there are 53 K-Citymarket outlets around Finland. K-Supermarket chain is known for its food expertise and wide range of fresh products. The chain accounts for 150

outlets. K-market is a supermarket type of store, but with less floor space. Because of its small size, it is easy and fast to do the shopping there. The K-market chain consists of 363 outlets. K-extra is a neighborhood store chain, which offers essential daily groceries. Personal service has a key importance in K-Extra stores. Locating in the rural areas, K-Extra stores usually offer additional services such as agricultural products, fuel, lottery and postal services. The K-Extra chain is comprised by 215 outlets. Kesko Food comprises 46 % of the operations of Kesko Ltd. The K-stores account for 33.9 % of the Finnish grocery retail trade.(Kesko 2006b.)

Pirkka, Euroshopper, Rico and Costa-Rica are Kesko food's own labels. Pirkka brand was the only private label, categorized in 2005 among 50 strongest brands in Finland. Pirkka assortment consists of almost 1400 products. Pirkka products are known for their good price quality correlation. Euroshopper, which is other famous brand provided by Kesko, is a private label of European companies. Euro shopper-brand is known for its low prices and there are 300 different Euro Shopper products in K-stores. (Kesko 2006b.)

Kesko Ltd also has a loyal-customer program, Plussa. The scheme has been developed for a long time and it has a broad network of partners. In 2004 almost 3 million people were involved in Plussa program. Plussa program have different features when compared to S-groups' and Tradekas' programs. The basic idea of Plussa-card is that the customers get points for their purchases, and when they reach a certain amount of them, they are rewarded with a coupon, equivalent of a bank note usually of the value of 5, 10 or 20 euros, depending on the amount of accumulated points. For example for 1000 points the value of the coupon is 5 euros. (Plussa 2006.)

3.1.2 Tradeka Ltd

Tradeka Ltd is a retail company, which has 740 grocery stores in Finland and three in St. Petersburg. Tradeka's operations are based on three store brands: Siwa, Valintatalo and Euromarket. The company has full ownership of all its outlets and its operations are centrally managed. The owners of Tradeka Ltd. are Cooperative Tradeka Corporation (51 %), Industri Kapital (32 %), Ruokamarkkinat Ltd (16 %) and its corporate management (1 %). Tradeka's net turnover was 1.158 billion Euros in 2005, and it accounts for 10.9 % of the Finnish grocery retail market. With its 7000 employees, Tradeka is the mayor employer in the grocery retail business in Finland. (Tradeka 2006a.)

Siwa and Valintalo, so called neighborhood shops, are small shops located very near to population areas. There are 170 Valintatalo outlets around Finland, located mainly in cities and urban areas. Siwa, with its 530 outlets, comprises the largest neighborhood shop chain in the Finnish grocery retail market. (Tradeka, 2006a.) Euromarket, on the other hand, is a hypermarket, which product range, in addition to groceries, includes clothing, household goods and different kind of equipments for leisure-time activities. Tradeka has also a loyal-customer scheme, where one million customers are involved. Unlike SOK and Kesko, Tradeka offers the bonus card free of charge. The bonus refunds are paid to customers once in a year, that is how their customers can get higher bonus per cent, that can reach even 5.5 %. (Tradeka, 2006b.) (Tradeka 2006c.)

3.1.3 Lidl

Lidl is so far the only international grocery retail chain in Finland. The first Lidl outlet was opened in the summer of 2002 and has grown its own store's network without any acquisitions of other grocery retail companies. Lidl has built own logistics strategy that is able to deliver the goods to the Lidl outlets in a prompt and cost- efficient way. Lidl is part of the German Schwarz-group, that has been continuously opening new outlets around Europe. (Lidl 2006c.)

Lidl's assortment is quite narrow, only 1000 products. The product range includes Lidl's own labels and domestic as well as international brands. The product range includes also fresh fruits and vegetables, dairy products and bread. Lidl has set very high standards for their products and they accept only the suppliers that can fulfill their requirements. Owing to direct deliveries and prompt replenishment cycle of the products, there are always fresh products available in Lidl outlets. (Lidl 2006b.) (Lidl 2006a.)

In addition to grocery products there is a broad range of specialty products available, such as clothes, toys and electronic equipments. Lidl's price strategy is based on big order quantities, usage of cost efficient procurement channels and rigid pricing policy. The layout of the store is very clear, which makes the shopping there easy and fast. (Lidl 2006b.)

Lidl is the most widespread discount- retail store chain in Europe. Lidl outlets are operating, as independent subsidiaries, in almost all European countries. In Finland there are over 100 Lidl outlets. The market share of Lidl is 3.7 % of the Finnish grocery retail market. (Lidl 2006c.)

3.2 Main characteristics and special features of the grocery supply chain in Finland

3.2.1 General issues

The supply chain management in the grocery industry follows the basics of the logistics management reviewed in general in the previous chapter. However there are some differences concerning each activity and the way how the material flow is handled and moved further to the consumer, due to the special characteristics of the products, product delivery, storage and equipment used. In this chapter we will describe the main issues concerning the supply chain activities from the perspective of the grocery retail business. We will also present the parties involved in each stage of the product distribution, their role and impact on the supply chain effectiveness and profitability.

The grocery store's product range may vary from one thousand up to 16 000 items. Therefore, it should be noticed that the supply chain's management methods, stages and participants included can differ from one another, depending on the product homogeneousness, product mix and differentiation, assortment, volume and quantity. For example, the distribution process of bred and milk is different than the distribution of industrial products, such as canned goods, cosmetics and hygienic products. The supply chain of grocery retail trade usually includes the material, information and capital flow from the supplier of raw materials through manufacturers of finished goods to the wholesaler, who distribute the goods to the retailers, who, on their behalf sell the products forward to the end users, the regular consumers

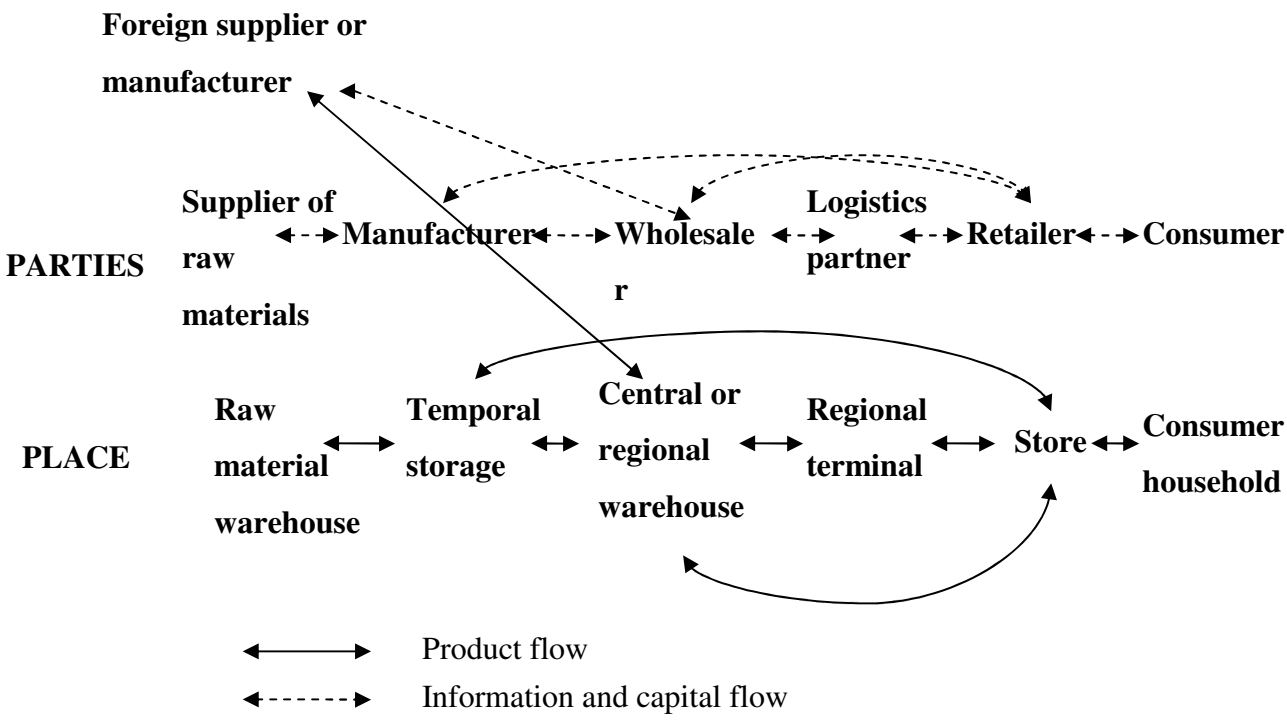

Fig.3 .Supply chain structure of grocery retail business in Finland (Fernie & Sparks 2004, 155.) (Finne & Kokkonen 2003)

In the diagram above, is shown the supply chain structure of grocery industry in Finland. It includes the parties involved in the distribution process and places trough which the product should pass. The broken arrows represent the information and capital flow between the participants in the supply chain and with the black arrows are shown the product and material flow between the facilities. (Fernie & Sparks 2004, 155.)

The supply chain structure, material, information and capital flow, and places the product should pass across the distribution channel are determined by the goods' characteristics. Also some parties involved in the supply chain process might be bypassed depending on the product and type of store. For instance, if the product is imported, it goes directly to the wholesaler's central warehouse facilities. Usually imported products consist of industrial and non-food goods, frozen food products and fruits and vegetables. Further on these goods are distributed from the central warehouse to the regional terminals or warehouses, where they are

consolidated usually with fresh meat products supplied from the regional producers. This kind of distribution system concerns usually small and medium size stores and supermarkets. When we talk about hypermarkets, like Citymarket, Euromarket and Prisma, the terminal stage is skipped. At this way large product quantities can be transported cost-efficiently to hypermarkets. (Finne&Kokkonen 2005, 266-329.)

On the other hand, beverages' suppliers, milk producers and bakeries distribute their products straight to the store. The reason for direct distribution of dairy and bakery goods is that these kinds of goods have very limited shelf-life, only a couple of days, and their distribution through logistical centres can increase to some extent the risk of wastage and loss to a high degree. The present distribution process takes only few hours or less until the product is delivered to the store in fresh and good condition. Still, the supply chain of fresh milk, for example, may last couple of days until it arrives to the store. It may take one day before the milk is transported from the milk plant to the milk factory, where it is pasteurized and packed and after that distributed to the stores. (Finne&Kokkonen 2005, 273.)

The direct distribution of beverages (soda-water, lemonades, beer and cider) is justified with the transportation of big volumes, which, in addition to stores, are delivered also to Alko and restaurants situated on the same route. Also the reverse logistics of return bottles requires significant transportation capacity. Every truck, after unloading the beverages, is loaded with plastic cases with empty bottles from each place, which are then delivered back to the factory premises for reuse. (Finne&Kokkonen 2005, 271-273.)

The three biggest wholesalers in the Finnish grocery retail market, Inex Oy, Tuko Oy and Kesko Oy, account for 80 % of the total volume of grocery goods distributed. Their central warehouses are located in the capital area - Helsinki, Espoo and Vantaa. Their responsibilities in the supply chain include receiving and processing the orders, unloading the goods, shelving, storage, breaking bulk in small quantities and their consolidation into convenient and ready for delivering packages and their loading and delivering at the time they are needed. The

wholesalers also sustain the sales process by taking the warehousing and storage risks, granting credit and providing market information to their customers and suppliers. (Pastinen & Mäntynen & Koskinen 2003, 24.)

3.2.2 Distribution process

The product distribution and consolidation is determined by the product qualities. For example, the temperature requirements of certain products set limits to the delivery mode and load consolidation. Vegetables, frozen goods, meat and dairy products require special storage and transportation arrangements in order to guarantee their safe arrival at the retailer's premises. (Fernie & Sparks 2004, 121-134.)

There are standards in Finland that set the proper temperature at which the different types of groceries should be stored and transported. The frozen goods should be stored and transported at temperature not higher than -20 °C. Fruits and vegetables require 10°C, milk and meat, 2-6 °C and industrial goods have no special temperature regulations and can be stored and transported at room temperature. (Finne & Kokkonen 2005, 274.)

Trailers, where the storage space is separated in different sections according to the products' temperature limits, are used in order to make the consolidation of the food stuff easier and to provide cost-efficient transportation. A matter of great importance is that no breakage in the cold chain will occur during the distribution process of goods that require special temperature limits. This cold chain should be maintained from the manufacturer to the end user in order to avoid spoilage and decrease in customer satisfaction level. Another special feature of logistics activities in the grocery industry is that the wholesalers have outsourced their transportation equipment and services as well as the services and facilities of regional warehouses and terminals. In grocery retail business, the suppliers or logistics companies have started to include value added services (VAL) in their operations, in order to distinguish their activities from the competitors and

increase the competitive advantage. For instance suppliers of beverages not only transport the products to the store but also set them to the store's shelves. In recent times many warehouses have been called also logistics centres, due to the fact that they provide, in addition to warehousing operations, other versatile services. The value added services include product pricing, attaching alarms to the products, and providing the materials needed in the product campaigns, such as display frames. Some logistics centres have even their own storage facilities where bananas have been ripen. (Finne & Kokkonen 2005, 271-273, 326-328.)

Nowadays, express freight companies in Finland use mainly night deliveries from the regional terminals to the retailer facilities. It is done with the purpose to decrease the traffic jams and to improve the delivery efficiency in the cities' centres and suburbs. The problem of night deliveries is that they may disturb people who live near the stores. Therefore, there are time limits for vehicles that exceed the noise standards. (Pastinen&Mäntynen&Koskinen, 2003, 100.)

The purpose of each distribution chain is to get the products through the various stages as fast as possible. The main factor that determines the delivery times and distribution control is the product characteristics. Fresh goods should reach their destination maximum in couple of days from the time they have been produced. So the main task in the distribution process appears to be the elimination of the time-lags from the production stage to the product placement on the store's shelf. This is done for the reason to maximize the product's lifetime. (Karrus, 2001, 188-189.)

The standard delivery times concerning the grocery retail trade in Finland are as follows: fresh products, such as meat and fish (not packed) are estimated to be delivered to the service counter in less than 12 hours, and they are expected to be sold in 24 hours; fruits' and vegetables' delivery time from the central warehouse to the store usually is between 12-48 hours and there sales life is less than one week. Non-foods' delivery time is between 24 and 72 hours and they are usually sold in 2-3 weeks. (Karrus 2001, 188-189.)

The last link in the traditional grocery supply chain is the store, with its own replenishment processes, product handling and shifting from one place to another. The store's replenishment process starts with the arrival of the goods to the store's terminals and continues to the customers' checking out. It is estimated that the management of the logistics processes in the store causes nearly 60% of the product total logistics costs because it requires significant labour resources. (Finne & Kokkonen 2005, 316-317.)

3.2.3 The inventory and storage

The aim is to diminish and centralize the inventory stored across the grocery supply chain. A special characteristic in the grocery industry concerning the storage and inventory is that the stores do not provide permanent storage of any type of product. Usually all products go straight to the shelves and what is held in the store's terminal is sold at the same day. For example meat and milk products are kept in refrigerated storage room when the load has just arrived and waits to be unpacked and placed on the shelves or in cases if there is no free space on the shelves. Product surplus raises the possibility of undesirable wastage and decrease in sales revenues and profits due to the discounts, undertaken to accumulate sales before the product is spoiled. However, the loss of sales caused by spoilage is not the greatest concern of the store's manager. Worse situation would be if the obsolete (or with expired sales date) product has ended up in the hands of the consumer and it had caused a food poisoning. Then not only the store itself suffers but also the image of the store's chain and the producer is strongly affected. (Finne & Kokkonen 2005, 172-177, 317-318.)

However, product shortages are a common event in grocery stores with a strong impact on the customer service. Nearly 10 % of the goods in a store are always out of stock. It affects to a great extent the level of customer service and also harms the shops with losses of unrealized sales. It is estimated that in Europe the amount of unrealized sales due to out of stock cases, amount to 4 billion euros. (Ihanas 1999.) Product shortages are always waste of time, money and energy for the

customers. In cases that some product is missing from the shelves, 37% of the store's customers buy another similar product but of other brand, 21% would rather change the shopping place, and 9% leaves the store without purchasing anything. Product shortage can mean to the customers that the product is not available at all or not available in the desired size, form or taste. The lack of availability can also mean the product is not in good sale condition or just it cannot be find from the place it should be. (Ekholm 2003.)

3.2.4 Order processing and information technology

Special feature of the order processing in grocery industry is the increased use of automated order processing systems. Automated replenishment programs (ARP) refer to all order processing methods that are based on the real sales instead of long term demand forecasting or safety stocks. This kind of order processing system do not require any employees, since the system place an order automatically in electronic form to all the suppliers, when there is a certain number of products available in the store. When the minimum limit of products on shelf is reached, the system places an order automatically. The product minimum limit is based on its average demand, shelf-life, demand variations, lead time and possible delays, size of the delivery and shelf space. The limit is determined carefully in order to prevent possible product shortages or loss. (Finne & Kokkonen 2005, 294.)

As was mentioned, the automated order processing systems do not require any labour and there is not a risk of possible human errors. This system is used mainly for goods with stable customer demand. The order processing of seasonal or trend products is usually handled manually, due to their short life cycle. So, in many shops there are still used two order processing systems according to the seasonal demand variations and product characteristics. In the previous years, when the orders were input manually, it meant that the stores' staff had to turn their back to the customers for the fulfillment of this task. Also the order processing could take even 20% of the employees' time. Today with the automated ordering systems the

stores' employees are enabled to spend more time on serving the customers. (Saure 2003.)

In addition to the order processing and capital flow management, information technologies have a significant impact on the effectiveness of other issues concerning the supply management of groceries. The new information technologies facilitate the distribution monitoring and product identification. Now it is usual that the order progress can be followed via Internet, allowing the customers to view at what stage in the supply chain their order is. This system turns to be very useful in case of delays or loss since it can show the exact location and time of the order when such failures happen. (Finne & Kokkonen 2005, 314-315.)

The grocery suppliers have developed a Transbox-system in order to increase the efficiency of the package reuse. It consists of boxes and cases used especially for transportation of fruits and vegetables, meat and meat-based provisions, and cigarettes as well. The presence of an identification code on every box contributes to more accurate distribution management and decrease in product loss. (Finne & Kokkonen 2005, 315.)

Bar codes enable product identification in different stages across the supply chain, which on the other hand facilitates the material flow management. The widely used bar code system in Europe is called EAN (European Article Number), which can be read by the cash register's reader wand. Usually the products that include bar codes do not require separate price markings. Bar codes give information about the production country and company and the product itself. Usually the product price is indicated in the etiquette, placed in the edge of the shelf, so that the customer can see that. SSCC code (Serial Shipping Container Code) is used for monitoring of individual batches. With the help of this system every individual pallet can be identified and its information can be gathered in every distribution stages. (Sakki 2003, 175-176, 179)

In addition to bar codes the 2D codes are used in grocery retail business. In two dimension codes can be added more information about the product and its transportation than in regular bar codes. The use of 2D is relatively rare due to fact that they require very specific reading wand. For that reason they are not estimated to replace the bar codes. (Pastinen & Mäntynen & Koskinen 2003,113-116.)

Radio Frequency Identification, RFID system is predicted to replace bar codes. RFID- system uses chips and transmitters with antenna and reading wand. The RFID system enables to identify an individual product and monitor its movement across the supply chain. The main advantages of RFID system are that it makes possible to read many products at the same time, the reading is handled automatically and it does not require manual handling and the electronic chips contain huge amount of information. Another advantage of RFID is that the reading does not require direct contact with the product and the reading can be done, without unloading the products through the container wall. Despite of its versatile advantages, the RFID is still not widely used, due to its high price.
GPS (Global Positioning systems) enables to monitor vehicles' movement and position very specifically. It also helps the driver to choose most appropriate route and find the right place of delivery. It is very useful cases of changes in the route or delays. (Finne & Kokkonen 2005, 342-343.)

The intranet, the store chain's internal network, improves the communication between the different parties in the chain. For instance, it enables efficient and accurate information flow between the chain's management and the store. For instance the shelves layouts and assortment guidelines can be provided in the intranet. (Sakki 2003, 183.)

3.2.5 Demand forecasting

Demand forecasting in the grocery industry is prerequisite for the company's successful operations. Accuracy of demand forecasting is emphasized at certain situations. For instance when the products' life cycle is short or delivery time is long. For example products that cannot be stored for a long time, such as fruits and vegetables, fresh meat and bread, require a greater precision with regard to the demand prediction. The replenishment cycle of some imported goods may take longer time, caused by number of factors- product characteristics, supplier delays, custom clearances bottlenecks and others. (Finne & Kokkonen 2005, 288.)

However, this process is more complicated compared to other industries due to the multiplicity of products in store assortments, their seasonal availability and demand, and different campaigns that grocery chains in Finland are launching. In Finnish supermarkets as, S-Market or KKK- stores there are in average about 12 000 items. Groceries and daily goods account for about 80% of the store assortment. Therefore it is almost impossible to predict with big accuracy the demand of each product. The lack of the sufficient storage place at the store facility impedes the storage of safety inventory of some non-food or canned food, for times when there can be great fluctuations in the demand. This fact complicates additionally the forecasting process.

For that reason it is more convenient to forecast the demand of product group or type (e.g., pork or chicken meat), not the demand of a particular brand. During campaigns it is predicted that the demand of the discounted product will rise but it should be taken into account the demand variations of substitute products. The most common demand forecasting methods are based on history sales, cooperation between the store and its suppliers, consumer surveys, and monitoring the population growth. It is important to mention that the demand of particular product should be forecasted on national level first in order to give a clear market vision to the Finnish wholesalers how to plan and fulfill the distribution operations in the country. Later on a demand forecasting on a regional level (a town, a district or a store demand) is needed to be carried out in order to facilitate

the product distribution through the regional warehouses and terminals. (Finne & Kokkonen 2005, 292.)

The Just- in-time model in grocery trade is based on the continuous replenishment system (CRP), where the products are delivered in small quantities but more frequently. Good examples of CRP are milk, meat and bread deliveries. Usually JIT activity requires a production and delivery on existing order at the right time, of the right product, at the right place and of the right quality and quantity. Although the supply of milk, meat and bread is not based on specific orders but on anticipation of sales, the ordering process system can predict to a great extent what will be their demand from day to day. Thus the loss of unsold or discounted goods remains as low as possible. The main advantage of CRP is the prompter and more accurate response to the demand fluctuations. Also the smaller product quantities take less space on the shelves, which enables the display of greater variety of items and brands from one product type to the customer. (Finne & Kokkonen 2005, 312-313.)

3.2.6 Reverse logistics and packaging

In the grocery retail business reverse logistics activities deal with the return goods handling and the stages that a product should go through when it is returned. In grocery trade the reverse logistics does not take care only of goods but of auxiliary devices as well. The auxiliary devices include for instance the boxes and cases that bread, meat and bottled beverages are delivered in. When a new batch is delivered the driver collects the empty boxes and cases with return bottles from the previous delivery. So, the load capacity of the truck is used in efficient way, it is fully-loaded at each direction. In general, it can be said that in very rare occasions the product is delivered from the store back to the manufacturer. If the product is proved to be dangerous, it should be taken out from the market back to the manufacturers where it goes through different examinations and analysis. In regular cases regarding groceries the product is just disposed at the store's

premises and later on transported by the waste collection vehicle to the waste disposal sites. (Finne & Kokkonen 2005, 325-326.)

There is continuous development in the field of packaging and new technologies and productions methods have been taken into use. Today the packages contain more specific information about the product and the ingredients, partly due to the new legislation requirements. Also the internalization of the grocery products can be seen in the multiple languages used on the packages. Every single package is planned to fit and answer the standards of as many countries as possible in order to avoid the re-packaging for specific market areas and this is how production volumes can be kept at high level. (Finne & Kokkonen 2005, 50-51.)

Package sizes have grown in the recent years, and for example the manufacturers of sweets and candies have been criticized for the lack of small product packages. Obviously the impact of the consumer requirements have been sufficient since in the middle of 2006, the main Finnish manufacturers of confectionery products, Fazer and Leaf launched small packages of candies, 70-120 grams, and chocolate bars of 19 grams. (Jokela 2006.)

The packaging has a significant role in the marketing field as with extraordinary packages the companies are trying to attract new customers and impress and keep the old ones. With the new packaging methods the manufacturers are now able to improve the preservation of the products and to increase their expiry date. Significant amount of fresh meet and fish products are now sold in ready-made packages, instead of traditional way from the service counters. Also so called "smart packages" are making their break through on the grocery market, especially in the fresh products. This kind of packages can give information about the product's condition and alert in case of package damages, temperature fluctuations and excessive amount of bacteria in the product. (Finne & Kokkonen 2005, 50-51.)

The appropriate packaging of products also facilitates their handling and setting into the shelves. The packages sizes should be scaled according to the store's

shelves. In most of the Finnish stores the shelves are 90 cm wide and 40 or 60 centimeters deep. The packages should be designed in a way, so that they can be easily set in the shelf and also to provide full optimization of the shelf's space in depth and width. Also the cans should be placed on a carton base, which facilitates their handling. (Finne & Kokkonen 2005, 318-319.)

3.2.7 Store's logistics

The store's internal logistics is very similar to the warehouse activities. As a matter of fact the store can be viewed as a small warehouse where the products are replenished according to the needs of the customers, where customers themselves pick up the desired goods. When the goods arrive at the store's premises they are received usually by the store's staff and the consignment documentation is handled and possible lacks and damages are noticed. At the same time the products are registered in the store's stock database. In some cases, such as night deliveries, these actions are skipped due to the fact that the store's employees are not present. For that reason stores may place reclamations later if they encounter some inconformity in the delivery. (Finne & Kokkonen 2005, 315-316.)

The next stage of the store's logistics is the product transfer from the store's storage rooms to the shelves. The goods are set on the shelves according to the shelf's design. For every product there is a specific space in width, which should not be exceeded. (Finne & Kokkonen 2005, 316-317.)

The last phase in the store's logistics is checking out the customers' products. With the rising technology development it is expected that self-service check-out points will be introduced in the near future, which are now a common view in the USA and in some European countries. The benefits for the store management from this advanced technology are reduction of employees in the check-out points. These employees can concentrate on improving the customers' service by enhancement of the internal operations in the store. They will have more time for checking the products' quality and product deficiency on the shelves. The

customers can benefit from the new technology by keeping their own privacy. Their purchases will not be exposed directly to anyone so they should not be afraid of the thought that somebody else knows their consumption habits.

3.3 Customer service

3.3.1 Definition of good customer service

Quality of services can be defined as fulfillment of customers' needs and expectations, and when the customers are satisfied, the quality can be said to be at right level. Customers' expectation about particular service is not based only on their needs but also on their earlier experiences. The reputation of the service has impact on customers' expectations as well. Therefore the service quality could be defined as the relationship/correlation between the customer's expectations of a particular service and his/her opinion about the received service.(Edvardsson & Thomasson & Ovretveit 1994, 1-12)

Customer satisfaction, provoked by the customer service a shop offers, can be viewed either as a result or as a process. In the first case the customer satisfaction is characterized as a result of activity-the consumption experience. In the other case the customer satisfaction is connected to the psychological, evaluative and perceptual processes a customer should go through when buying a specific product. The satisfaction processes include various stages- from the satisfaction of selecting and purchasing the desired product to the satisfaction of the product performance. This generates further customer satisfaction now with the store, the company or the brand institution. (Vavra 1997, 4.)

Customers and especially satisfied customers form the basis of all operations of the companies. Customer, who purchases and fulfills the bill transactions, is a prerequisite for the operations of company. It is important to remember that satisfied customers are those who come back and do their purchases on regular basis and they make possible the continuous operations of the company. These

issues show that customer service and satisfaction is extremely important for the company. In addition to that, customer service creates competitive advantage and distinguishes a company from its competitors. The challenge is how to respond to the changes in customers' behavior, as they become more demanding, critical and informed. Customer is expecting to have both, good customer service in combination with low prices. Customer satisfaction and the level of service have influence both on productivity and profitability of the company. (Aarnikoivu 2005, 13-22)

3.3.2 Customer service and satisfaction in grocery stores

"*Understanding of the consumer perspective is necessary if the retailer aims at promoting consumer satisfaction and caring for consumers. Consumer perspective entails exploring consumers' expectations, their perceptions and experiences concerning the retail service package as well as identifying consumer satisfaction and potential problems in using the retail service."* (Uusitalo 1998, 22.)

The customer satisfaction is used as a measure of store performance. Expressing their satisfaction customers testify that an organization is quality oriented (Korkeamäki & Pulkkinen & Selinheimo 2000 9.). On the contrary, if a customer is unsatisfied with the store's performance it will cause harms for the both sides. The store loses a part of its turnover and consequently profitability affected by the customer's refusal to use outlet's services anymore. And the customer is burdened with the task to look for another shop, which in many cases might be connected with the appearance of additional costs. According to previous research 68% of the customers usually point out the low service level as a main reason for changing a store or a company. Further on 14 % point out the insufficient product quality and 9 % the high price level as secondary issues for stop buying from the particular outlet (Aarnikoivu 2005, 22).

In grocery stores the customer service is closely related to the availability of the products, variety of product assortment, price level, shopping convenience and

shop location, layout of the store and the staff's friendliness.(Korkeamäki & Pulkkinen & Selinheimo 2000, 9-16). According to the AC Nielsen latest research 54 % of the customers stated that location is the most important criteria when choosing a shopping place, 37 % pointed the product assortment, 26 % of the customers said that price level is the main factor for store selection and only 8 % stated that their requirements for choosing a shop is the presence of service counters. (Möttölä 2006)

3.4 ECR - Efficient consumer response

3.4.1 General review

ECR, efficient consumer response, is a customer-driven strategy, which is especially developed and focused on grocery retail business management. The objective of ECR is to create a responsive and customer oriented supply chain system, where all the parties involved, collaborate closely with each other in order to maximize the satisfaction of their customers and the same time minimize the costs. This kind of close collaboration enables better and more quickly fulfillment of customers' needs and this is how the overall satisfaction among customers can be increased. So, the aim of the system is to optimize the whole supply chain so, that the level of inventories is at the lowest possible level, without deteriorating the product availability. The parties involved in the supply chain observe every activity and analyze its additional value to their customers. Customer appreciate better products, broader product range, better availability of the goods, shopping convenience and for lower prices; all these issues can be achieved by better supply chain management. (Pastinen & Mäntynen & Koskinen 2003, 52-53)

There are three basic strategies of ECR that enable more efficient management of the supply chain. These strategies include category management, product replenishment and enabling technologies. Category management is a central part the whole ECR management. The aim is to design the product assortment that corresponds to customers' needs. Also space management is included in this category. Space management focuses on the space of the store; it defines how much space is to be given for each product and product groups in order to

maximize the profits. This is based on the fact that the store space is limited and it is very valuable resource. Category management as a whole also includes the optimizing of products' range through campaigns and new product introduction. This attracts more customers and provides the store with competitive advantage in the grocery retail market. (Pastinen & Mäntynen & Koskinen 2003, 145-157.)

An important part of the category management is the store's layout design which ensures good and clear visibility of products. Good store's layout makes shopping easy and convenient for the customer and can attract more customers to a store and increase their purchases. When planning the store's layout, the route the customer walks when doing his purchases should be taken into consideration. It is important to notice, the route customers usually take in the shop, is easy and natural and therefore it is important to set the products that have most influence on the customer purchasing behaviour and experience on visible places. In Finland usually the fresh products, fruits and vegetables, are set in the beginning of the customer route, in order to attract the customers by giving them fresh impression. In big stores is possible to design two different customer routes, for example in hypermarkets there is one for those who are interested only in the specialty products, such as clothes and electronic equipment, so the route is designed in a way that the customers do not have to pass by the grocery section, if they do not want. The second customer route is designed for those who only want to purchase groceries. (Finne & Kokkonen 2005, 153-154.)

The aim of the replenishment is to provide the customers with the right product, at the right place and at the right time. However, this is not possible without accurate and prompt information flow. It is important that all the parties in the supply chain are aware how many products are on the move and how many are in storage. In addition to that, communication networks between all parties should be developed to a level that can assure sufficient and unimpeded flow of information, which can facilitate and optimize demand forecasting and hence decrease the safety stock and level as a whole. (Pastinen & Mäntynen & Koskinen 2003, 52.)

The efficient product replenishment has enabled cutting the main part of the ECR costs. This has been possible to achieve due to automatically managed ordering processes, terminal operations, collaboration with raw-material suppliers, demand forecasting and production planning. With the help of bar codes and the sale information of the product, the material and information flows have been integrated from manufacturer until the end customer. (Pastinen & Mäntynen & Koskinen 2003, 55.)

Different technological solutions comprise the basis of ECR strategy and enable increasing the efficiency of the operations. When customer purchases a product in a grocery store, the cash register recognizes the product by its bar code and right price is given to the product. At the same time information about purchases is recorded in the cash system, with help of this information customer behaviour and different product trends can be identified and recorded. In addition to the product name, brand and price, the store can gather information about the consumer's shopping basket and the time when a particular purchase was made. (Finne & Kokkonen 2005, 155-157.)

3.4.2 Customer behaviour - part of ECR-strategy

The ECR strategy takes the customer shopping process into consideration as well. This shopping process starts from the shopping list to the consumption of the products. This process comprises of many activities that are linked together and they all have an effect on the customer shopping experience. With analysing the customer behaviour and the stages of the customer shopping trip the store can build an individual competitive strategy directed to specific customer groups the shop serves. (Finne & Kokkonen 2005, 186-191.)

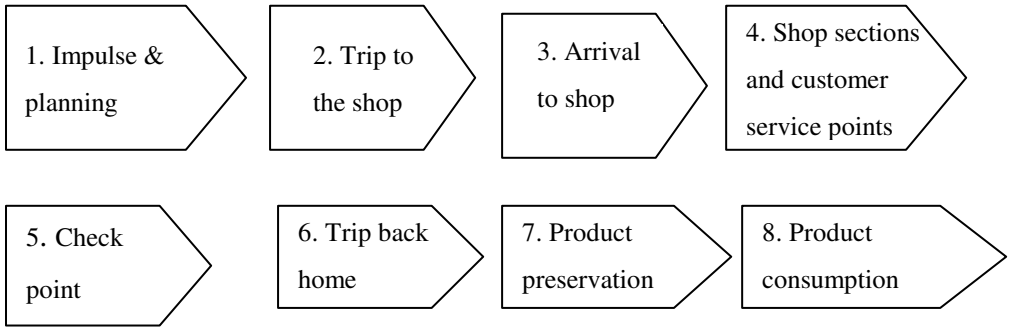

Fig. 4 Stages of customer shopping process (Finne & Kokkonen. 2005, 183.)

As seen from the table above, the typical shopping process starts from the impulse and planning stage. In this stage customers get an impulse for shopping and they usually do their shopping list and look at the ads of different shops. In the second stage, they choose the store where to do their purchases and then make plans how to get there. They evaluate the transportation opportunities and links (to go by car or by bus if they do not posses a private vehicle) and infrastructure (traffic hours and road repairs and sufficient parking place). (Finne & Kokkonen 2005, 183-185.)

In the third stage, customers arrive at the store and they pick up a trolley and after that they might return bottles or withdraw money from the cash dispenser. In the fourth stage, customers go around the store and do their shopping according to their shopping list. In this stage, customers usually go through many different sections of the store and they may purchase products impulsively, that are not

mentioned in the shopping list. If there are product presentations in store, customers may stop there for a while and taste some product samples and later on decide to buy it. During their visit in the store they may speak for a while with shop assistants if help is needed. (Finne & Kokkonen 2005, 183-185.)

In the fifth stage, customers arrive at the counter and they still have some time for impulsive purchases, they may buy some candies or magazines or newspapers which are placed near to the counter. After that they pay for their purchases and pack their shopping bags. In the sixth stage, they go to the bus stop or search for their car from the parking place, then they pack the bags into the car and after that they return the trolley and start they trip back home. In the seventh stage, customers arrive at home and carry their purchases to the fridge. The eighth stage consists of consumption of the purchases. (Finne & Kokkonen 2005, 183-185.)

However the example above presented only one typical example of customer shopping habits and behaviour, in reality customer behaviour is highly depending on the customer type and customers' life situations. It is important for a store chain to understand and identify the needs and shopping behaviour of its customers, so the store can contribute to operations that bring additional value for its customers. (Finne & Kokkonen 2005, 183-185.)

On the other hand, it is important to operate cost efficiently on issues that do not necessary tend to increase customer satisfaction. Customers' shopping behaviour has a central role when planning and forming the store's strategy and layout, assortment specification, supply management, order processing and demand forecasting, transportation and route optimization and future development plans. As seen from the above table, the transition from home to the store and vice versa, has very central role in shopping process, especially as a proportion to the time spend on shopping. So, it is not a wonder, that location is so significant criteria when choosing a shopping place. (Finne & Kokkonen 2005, 183-185.)

It is important to notice, that a failure in some stages of the customer during the shopping process can lead to the customers' disappointment and in the worst case

customers can change their shopping place. The store should make sure that all their customer service points inside and in front of the store are operating impeccable. But sometimes even secondary factors, not controlled by the store or with no connection to the store's performance, can deteriorate the customer satisfaction and perceptions about a particular store. These kinds of factors can be traffic jams, insufficient number of parking lots, high parking fees, and bad road infrastructure and transport connections. (Finne & Kokkonen 2005, 184.)

4. ORGANIZATION STRUCTURE OF S-GROUP

4.1 S-Group in general

S-Group is formed by cooperative enterprises and Suomen Osuuskauppojen Keskuskunta (SOK) and its subsidiaries. The current structure Of S-Group was developed in 1980's when SOK gave up for its own manufacturing and concentrated more on coordination, integration and government of their value chain. The S-Group offers services for supermarkets, gas stations, department stores and specialty store trade, hotel and restaurant businesses, as well as vehicle, automotive accessories and agricultural trade. The S-Group has 1461 outlets in Finland and 11 outlets in Baltic countries. Of these 1461 outlets in Finland 47 are Prisma hypermarkets, 395 S-market and 282 Sale and Alepa stores. (S-kanava 2006a.) (S-kanava 2006b.)

The S-Group is formed by 22 independent regional cooperative enterprises and they all together own SOK (see appendix 2). In addition to that there are another 20 local cooperative enterprises that belong to S-Group and participate in the loyal customer scheme. In fact the S-bonus card holders are the owners of these 22 regional cooperative enterprises and SOK altogether, which is the basic idea of S-Group's cooperation and loyal customer program policy. The network of cooperative enterprises extends to the whole country and has very strong regional emphasis on the enterprises' operations. The S-Group Hämeenmaa, with headquarter in Lahti, includes the geographic regions of Kanta-Häme and Päijät-

Häme. In these both areas the number of population totals 363 974 and the number of households is about 120 000. (S-kanava 2006a.)

The purpose of the integrated chain management is to combine S-Group's experience and expertise in the retail business, in order to reach constant market success. Each of the cooperative enterprises is responsible to coordinate, develop, manage and supervise their own businesses. The S-Group operates mainly as a retail chain, where all the support and development services are centralized. The chain management guides and supports the operations within the framework of the chain. Wide product ranges and economies of scale, which ensure the customers with low prices, high quality products and services, are the benefits that arise from the centralized retail management. (Hukka 2005.) (S-kanava 2006c.)

According to Kari Neilimo, the President of SOK, about 64% of Finnish households are involved in the S-bonus card scheme. In Finland there are approximately 2,4 million households, which means that in about 1,5 million households there is at least one S-bonus card. When it comes to S-Group Hämeenmaa, the number of households that own s-bonus card, counts for approximately 95 000. This makes about 79% of the total households' number of Kanta- and Päijät- Häme, which is one of the highest percentage rates in Finland. The basic idea of S-bonus card scheme is that the S-bonus card holders are not just customers but also owners of the S-Group. The s-bonus card holders not just acquire the products they need from the S-Group outlets but with the purchases they make also support their own business and thus participate in the development of the businesses that S-Group provides, for which the s- card holders are rewarded with bonus according to their monthly purchases. (Mot 2006.)

The S-bonus card holders can get bonuses for their purchases in more than 2000 outlets, S-Group's and their partners outlets, around Finland. The S- bonus card, one share of the company, costs 100 euros. The bonus card holders have an account where they can accumulate their bonuses and pay for their purchases. The ownership brings many benefits for the customer owner, for example in the form of special offers and bonus refunds. In 2005 the bonus payments for the customer

owners accounted for 194 million euros. The number of customer owners is growing constantly. In the first six months of 2006, from January to June, 59 000 new Finnish households joined the bonus card scheme. Bonus paid for the customers for their purchases was 108 million euros for the period January-June, 2006, which is 21 % more, compared to the first half of the year 2005. The bonus purchases accounted for 62.3 % of the total sales amount of S-Group. (S-kanava 2006d.) (S-kanava 2006e.)

Loyal customers have a vital role in S-group's decision making process. Every loyal customer has a possibility to participate in S-Group's decision making process through their own cooperative company. The representatives elect the board of managers, whose task is to decide the basic lines of the operations and they elect the committee. The highest authority in the decision making process is the cooperative convention, where every cooperative enterprise has their own representative. SOK has its own administrative committee, which elects the board of managers, whose task is to implement the decisions concerning the S-Group cooperation policy and long term plans. (S-kanava 2006f.)

In 2005 the retail sales of S-Group were 8 633 million euros (increase of 6.6 % from 2004) and from that amount grocery retail trade accounted for 4 237 million euros (increase of 6.9 % from 2004), which constituted 35.9 % of whole grocery retail market in Finland. S-Group' national supermarket brands are Prisma, S-Market, Sale and Alepa, ABC represents the brand of service and fuel stations and hotel and restaurant brands are Sokos Hotels, Radisson SAS Hotels, Rosso, Rosso Express, Fransamanni, Amarillo, Sevilla, Memphis, Night, Corner, Coffee House and Presso. S-Group's national brand in agricultural trade is Agrimarket. In 2006 S-Group bought Finnish Spar chain. Some of the Spar outlets in Finland will be transformed into S-Market outlets but still some Spar outlets will be allowed to operate under the brand Spar, due to the Finnish law regulations. (S-kanava 2006c.)

In general it can be said that the main goal of S-Group is to provide their loyal customers with comprehensive, competitive and constantly developed retail

services. The basic idea is that the loyal customers invest in the company and they are rewarded for their loyalty in the form of bonuses and lower prices. Likewise other companies, the dividends of S-Group are used to bring benefits for the customer owners and for the development of the company and its operating area. For example new outlets are built and higher bonuses and lower prices are offered to loyal customers. The purpose of the corporation is not to maximize the profit but to optimize it; therefore the actual profit of S-Market is relatively low. (Hyytiä 2006.)

The growing number of loyal customers has positively affected the sales of retail trade. The customers have centralized their purchases more in S-Group outlets. Also the company acquisitions made in the beginning of the year, in the field of grocery retail market, vehicle and vehicle accessories market and in hotel and restaurant business, have been raised the retail sales. In addition to that the transition of Inex cooperation to SOK has had a positive effect on the sales figures of the retail line of S-Group. (S-kanava 2006e.)

S- Group market stores' sales growth for the first half of 2006 increased by 15,1 %, compared to the same period last year, which means that the growth speed is prompter than the Finnish market growth in this particular business line in general. The turnover of S-group from January to June 2006 was 3 265 million Euros, the growth was 60, 9 %. This enormous development in the growth rate can be explained by the fact that S-Group acquired Inex Partners, the wholesaler of grocery goods, in March 2006.The profit before taxes was 29,3 million euros, which had decreased from the same period of the earlier year by 24,7 million Euros. The lower profit was a consequence of the strong investment initiatives that S-Group has undertaken across Finland. (S-kanava 2006e.)

4.2 Inex in general

Inex Partners Oy was established in 1991 and its total sales for 2005 accounted for 2, 075 billion euros. The company became SOK's subsidiary on the 1st of March 2006, when SOK acquired all the shares of Inex from Tradeka Oy. Until that date Tradeka Oy and SOK shared 50/50 the ownership of Inex Partners Oy. From Inex point of view SOK is not only the owner of the company but also Inex customer. The whole ownership of Inex gives to SOK an opportunity to develop the procurement, storage, distribution and other logistic activities focusing especially on the needs of S-group, which facilitates the supply chain coordination and management and gives to SOK a chance to improve the efficiency of their services and overall customer satisfaction. (Inex 2006a.)

Inex is a company that provides logistics services for the grocery retail chains of SOK, with an emphasis on procurement, warehousing, storage and distribution processes. Inex's task is to increase the competitive advantage of its retail customers, the grocery outlets, by providing them with cost-efficient logistics services and with the desired products at the desired price, at the time when needed. The high quality and efficient operations as well as competent employees and continuous development, provide their customers with competitive advantage in the grocery retail market. (Inex 2006b.)

Inex is responsible for the procurement of fresh and processed (industrial) grocery products and non- food products. The Group is responsible for procurement of over 13 000 products. This number includes Inex's private labels, which consists of more than 1000 products. Inex increases its purchasing power together by the co-operation of Coop Norden, a joint Scandinavian cooperative retail chain. Thus, when going to the market the both companies can influence the product price by purchasing in big volumes, achieving economies of scale. The common supplier packs the products for Inex and Coop Norden, but Inex provides its own labels, layout and design of the package, since the products are sold in Coop Norden retail chain outlets under different brand name. Exception is only X-tra, which is Nordic joint brand. (Inex 2006b.)

On the domestic market Inex use mainly the services of Schenker, its outsourced transportation company. In Lahti area they use regional transportation company, Kuljetusliike Räihä, which provides them with terminal and transportation services. Inex has determined its transportation policy by picking up the goods from the manufacturers in Finland and distributing them to the distribution centres, which has proved to be more cost-efficient and convenient for managing the distribution process. Of course, there is some amount of risk in this distribution system, especially in cases when the manufacturers and suppliers cannot keep to the time table. (Piiparinen 2006.)

There are two other companies that belongs to the Inex's organization structure- Meira Nova Oy and Finnfrost Oy. Meira Nova is a subsidiary of Inex, whose responsibility is procurement and delivery of products to companies that opearate in HoReCa (hotels, restaurant, catering) business line. The second one, Finnfrost, is a associate company of Inex (Inex has 50% share) that provides procurement and logistics services for frozen goods.(Inex 2006c.) (Inex 2006d.)

4.3 S-Market in General

The S-Market store chain represents the biggest grocery retail chain of S-Group and of the whole country. At the end of June there were 395 S-Market's outlets in Finland. The sales of the S-Market chain for the first half of 2006 were 1 254 million euros, a growth of 12,4% compared to the same period of the previous year. S-Markets´ size is usually between 600 – 3000 m2 and it is the location of the store that determines the size. The shops located in suburban areas are usually smaller than those located near to the city centres. (S-kanava 2006g.)

S-Market is a very modern and versatile grocery store. The operation of S-Market is based on appropriate price/quality correlation, versatile product range and the convenience of shopping. The price level is based on every day low prices-

strategy. The product range of S-Market consists of 4000 to 16000 products, depending on the size of the outlet. Central location, good transport connections and reasonable number of parking lots guarantee the flawless access to S-Market outlets. Broad aisles in the store as well as clear products' grouping and guiding signs make the shopping easier for the customers. In the facilities where S-Markets are situated the customers can enjoy additional services, such as Kiosks, Pharmacy shops and others. (S-kanava 2006g.)

5. SUPPLY CHAIN OF S-MARKET METSÄKANGAS

5.1 The role of S-Hämeenmaa and SOK in the supply chain

In this chapter we will explain the supply chain of S-Market Metsäkangas and parties involved in it. The information presented in this chapter is based on the interviews with the marketing manager of S-Hämeenmaa, executive manager of S-Market Metsäkangas and logistics manager of Inex. Also part of the empirical study is based on our own observation and experiences.

SOK operates as a central firm for the cooperative enterprises, providing them with procurement expertise and other supporting services. In addition to that SOK maintains all business policies of the group and is responsible for strategic direction, development of its retail chains as well as own product and store brands and stores' conception development. SOK makes also decisions on product assortments and pricing policy of S-Group's retail chains.

Today SOK has full ownership of Inex Partners, which also predetermines their role of main supplier to all regional cooperative enterprises. SOK exercises control management on Inex and gives orders what products Inex should purchase. On the other hand it is possible the procurement process starts from the wholesaler Inex. In cases when Inex has found a product that fulfills SOK's requirements they have a permission to acquire it.

As was mentioned SOK consists of 22 regional cooperative enterprises, which own SOK. S-Group Hämeenmaa is an independent company, which answers for the business activities in Kanta-Häme and Päijät-Häme, and in particular in Lahti. It is engaged in contract agreement with Inex, the main wholesaler of S-Group, therefore the company has to comply with the agreed terms. The use of Inex's procurement and supply channels seems to be the most efficient and reasonable alternative for SOK, that is why there is no sense for S-Hämeenmaa to look for another main supplier and provider of logistics services. However, there are no

obstructions for S-Hämeenmaa to buy products from other suppliers, if it were, of course, economically reasonable.

The contribution of S-Hämeenmaa to the supply chain of S-Market is shown in the governing, management and supervision of the processes that occur across the whole value chain. S-Hämeenmaa provides S-Market with joint services based on mutual agreement. These services concern the chain management in Hämeenmaa area as well as agreements on the logistics processes and product delivery, transport coordination and unitization. For example S-Hämeenmaa concludes contracts with the suppliers and transportation providers and makes sure that they are fulfilled by both parties. S-Hämeenmaa also exercise demand and supply planning for its own outlets and looks for new investment opportunities and takes care of their realization.

The sales of S-Group Hämeenmaa for the first of half of 2006 rose to 282,2 million euros, an increase by 20 % compared to the same period of the last year. Also the profit of the cooperative company rose to 6,4 million euros (an increase by 0,4 %), due to the successful sales development, processes' cost efficiency and investments. (S-Hämeenmaa brochure 2006.)

However, as a result of the strong investments, a record of 21,5 million euros for the first six months of the year (for comparison the whole investments 2005 accounted for 28 million euros), the profit percentage of S-Hämeenmaa has decreased from 2,5 % for the period January-June 2005 to 2,2 % for the corresponding period of 2006. The fact does not disturb the management of S-Hämeenmaa since the financial objectives of the company are not to maximize the profit but optimize it in a way that the company can maintain its operations' development, and implement the planned investments objectives. What has left is offered to the loyal customers as bonus refunds and low prices. Another factor that influences the financial policy of S-Hämeenmaa and S-Group as a whole is the fact that the company is not listed on the stock exchange unlike Kesko Oyj, the second biggest grocery retail company in Finland.

5.2 The role of Inex in the supply chain – description of logistics activities

Inex's role in the supply chain of S-Market Metsäkangas is to take care of procurement, storage and warehousing, and product distribution to the outlet's destination. The procurement process at Inex starts with procurement preparations, product presentations and the procurement process itself, if the product is accepted by the SOK's management. Inex also scans the market situation, evaluate own market competitiveness carries on negotiations with the manufacturers for the purchase conditions, exercises product evaluation and product quality control as well as management of the whole distribution process from the time the product is purchased.

Inex has procurement responsibility for the acquirement of fresh foods (eggs, fruits, vegetables, meat, fish and etc.), industrial goods (canned food, coffee, candies, juices, spices, etc), cosmetics, hygienic (soap, shampoos, detergents) and household goods (electric lamps, cleaning devices, razors), which form about 70% of S-Market Metsäkangas assortment. There are three product brands and concepts that are developed with the help of the close relationship with SOK. The brands that Inex offers are Rainbow, X-tra and Daily and their number of items is over one thousand. Rainbow includes a great variety of high quality food products, from frozen soups to chocolate bars. Under the X-tra brand, the cheap label, Inex offers industrial products and frozen goods. The low price is achieved with the big purchase volumes and packing savings. The third brand, Daily, includes high quality hygienic and household goods. The concept of all these three brands is to offer everyday low prices. Another method for achieving this goal is the lack of any advertisement campaigns, which means that there are no additional costs for these three brands' products.

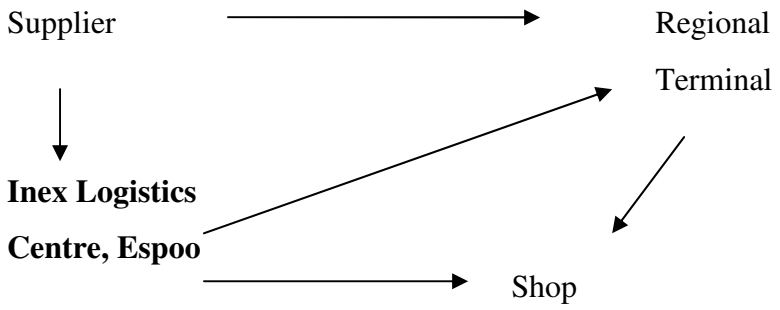

Fig 5. The place of Inex in the S-Market Metsäkangas supply chain (Inex's presentation 2006.)

As seen from the table above, Inex gathers the material flow together and direct it through the regional terminals, where the products are consolidated and distributed to the outlets. The products are gathered together according to their product groups and transported as a night delivery. Specialty goods, such as toys, batteries, compact discs and DVDs, come from the logistics centre situated in Hakkila, Vantaa. It is important to mention that milk, bread and beverages are delivered from the manufacturers straight to S-Market Metsäkangas, overpassing the logistics centre of Inex and the regional terminal in Lahti. Today SOK wants that the beverages are not delivered straight to the outlets but to go through the logistics centre of Inex in Espoo. This proposal has aroused due to the possibility to reduce costs when consolidating smaller quantities more frequently and thus delivered according to the customer demand. Until now only Olvi delivers its products to the final destinations through Inex.

The product quality control is carried out in the logistics centre in Espoo. In the premises there, Inex has at its disposal a laboratory where products are tested, their taste, appearance, condition, package and quality standards are examined in order to see if they answer the Finnish regulations' and SOK requirements. In cases of reclamations the product is tested again in the laboratory, at the same time the manufacturer of the product is contacted and informed about the problem. If the product turns to be dangerous for the consumer's health it is taken out of the market and in some cases Inex can stop ordering it.

The main logistics centre of Inex in Kilo, Espoo, concentrates more on warehousing, storage and distribution of daily goods, which form 95% of the total products' number (13 000 items) situated there. The company has other distribution centres also in Oulu, Kuopio, Kouvola and Lempäälä (near Tampere). There are 13 logistics terminals that Inex uses in their supply chain where the goods are consolidated and transported from to the final destinations- the retail grocery shops.

The central warehouse in Kilo has at its disposal 90 000 m2 of storage space, of which 24 000 m2 is chilled. Logistics activities with regard to groceries are maintained and carried out 24 hours a day, 7 days per week. Every day Inex receives 250 000-300 000 orders and 15 000 roll containers, full of products, are delivered to grocery retail shops. This makes 450 truck trailers. There are 530 forklift trucks in the warehouse taking care of the material handling. The number of employees in the central warehouse is 1650, but during the summer there are extra workers so the number of employees rises up to 2000. At rush hours there can be in the warehouse even 250 employees, whose tasks is only to pick up and collect the orders for shipment.

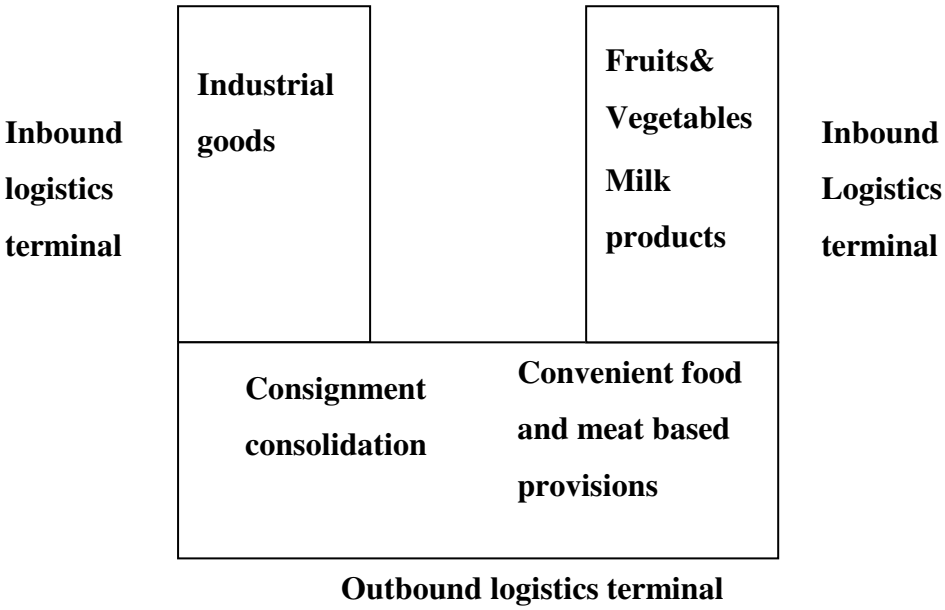

Fig.6. Layout of Inex's facilities in Kilo, Espoo (Inex's presentation 2006.)

The figure above shows the layout of the Inex distribution centre in Espoo. The inbound logistics activities are preceded in the wing sections of the warehouse according to the product type. When the order is received the goods from the both wings are moved to the front side of the warehouse, where they are consolidated with convenient food and meat based provisions (these products are not stored there but the warehouse is used as a terminal for them), packed in roller containers and shipped to their destinations (in particular to the Lahti's terminal). Order-delivery cycle is 48 hours concerning the daily groceries and 24 hours for fruits and vegetables. Number of week deliveries varies depending on the size of the store. Big stores receive 5-6 deliveries per week from Inex, while the small units only 2-3 times.

Inventory control is carried out manually in the warehouse. When the goods arrive the last sale's date is input into the computer database system. Quality and condition of fruits and vegetables are checked every day. If product obsolescence occurs, which happens often among fruits and vegetables, the products are threw to the waste tip and pressed. In regard to the industrial goods, inventory is done twice a year.

5.3 S-Market Metsäkangas

5.3.1 General review

S-Market Metsäkangas is the newest, and eighth, S-Market outlet in Lahti, which started to operate at the end of May 2006. The shops opening hours are from 7-21, from Monday to Friday, on Saturday from 7-18 and three months in the summer and in December as well the shop works from 12 to 21. It is situated in the area of Metsäkangas on the motorway to Tampere. There are approximately 6000 households in the Metsäkangas area situated close to the store, and approximately half of them are S-Group's customer owners. About 2.500 customers are visiting the store on daily basis. The turnover of the S-Market Metsäkangas in 2006 is estimated to be 13 million euros. With 320 days during which the shop is open, this means that the estimated single purchase is expected to exceed 16.25 euros.

There are Pharmacy and R-kiosk operating under the same roof with S-Market Metsäkangas. In addition to these outlets there is a free space, of about 100 m2, between the pharmacy and kiosk which has not been rented yet to any company. At the moment it is used as s storage place for industrial products of S-market Metsäkangas. The whole layout of the building is 3000 m2, and it includes S-Market, the pharmacy, R-Kiosk and the free space. The sales layout of S-Market is approximately 1790,5 m2, it does not include the terminals, the temporal storage places and other auxiliary rooms, which account for 484,7 m2. The layout of the store is designed in a way that the customer is forced to pass through as many product sections as possible. Everyday products (milk, bread, meat, beverages and others) are dislocated in different parts of the store, drawn apart from one another. (for detailed information see appendix 3) Fruits and vegetables and milk require a temporal storage place since it is not possible to place them on shelf at once.

There are two loading platforms at the store, one only for beverages' deliveries and the other for the rest of the products. Both platforms can accept two trucks at the same time. The layout of the store and product disposition is regulated by S-

Hämeenmaa, and almost in every S-Market it is possible to find the same design and disposition of products, with small exceptions of some product location' variations due to the different sizes of the S-Markets.

The product assortment of the store is wide, it consists of approximately 16 000 products. S-Hämeenmaa decides for 99 % about the product assortment of the store. But the store manager has some freedom to decide about the emphasis of the product assortment, which is based on their customers' needs. For example the candy and biscuits assortment of S-Market Metsäkangas is very different than in other S-Market outlets. Also S-Market Metsäkangas can decide about the stressing and visibility of the products. For example if Pampers diapers have a lot of demand in the store, their place can be changed on the shelf in order to gain more visibility. Even though S-Hämeenmaa usually does the contracts with the suppliers, the store has some freedom to do individual contracts for example with local bakeries or other companies that can supply and deliver desired products cost efficiently. S-Market Metsäkangas has such agreements with local bakeries as Viipurin kotileipomo, Pullapojat and Villähteen leipä.

Due to its large size, the store has a wide parking area, which consists of 200 parking spaces and three of them are for disabled persons. The number of employees is approximately 25 and in every working shift there are approximately 10 employees. However this number is highly depending on the day of the week and the season. There are eight check-out counters in the store and at quiet hours only one or two of them are working. On the contrary at rush hours usually six check points are working. S-Market Metsäkangas is protected from theft and storage equipment malfunctions using up-to-date cameras situated inside and outside the store, and alarm security system. The cameras recognize movements and record them. In cases of burglary attempts the alarm system informs the police station. Also there is alarm that takes care of store's equipment devices, like freezers and refrigerators. For example when the freezer's door is left open it alarms the maintenance company in addition to store's personnel. When the staff is busy and cannot hear the alarm, a called is received from the maintenance company that asks them to close the door.

5.3.2 Supply chain and internal activities of S-Market Metsäkangas

In this chapter we will review the supply chain of S-Market Metsäkangas from the shop's perspective. We will start with the process that triggers the supply chain operations and follow the movement of product through the various stages until it ends up on the shelves of the store. At first site it can be said that the supply channel of S-Market consists of three firms S-Hämenmaa, Inex and S-Market. However, the whole supply chain of S-market is more complicated and includes various companies involved in the product delivery and distribution.

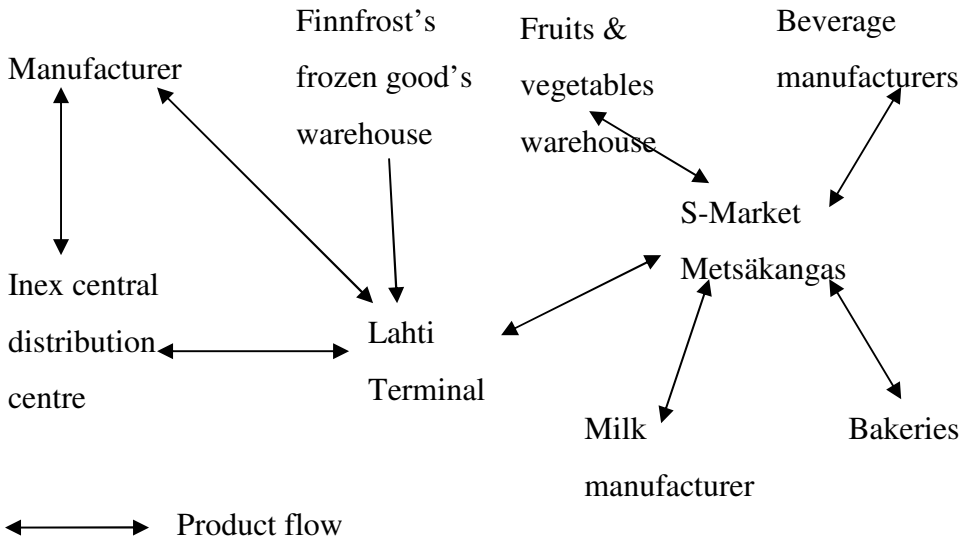

Fig.7. Product supply chain structure of S-Market Metsäkangas.

In S-Market Metsäkangas orders are processed automatically. There are two order systems, SBO and frame order system, which are used according to the type of product and product demand. SBO, sales based ordering, system is based on actual sales rhythm of particular product. The system is activated when the product number limit on the shelf is reached, which is based on the information received from the cash registers. At this point it places automatically an order. For example, if there is 10 units of some product on self and 5 are sold then the system places an order of 5 units of the same product, so this is how out of stock situations are avoided. SBO is used mainly in cases when the product demand is variable and cannot be forecasted. The other order processing system, frame order system

(RUTI) is based on history sales and used when the product demand is stable in time and quantity. Orders' frames, concerning the date and quantity of the order, are input in the computer system. For example, the system can be programmed to order each Wednesday 10 packages of HK-sausage or 10 units of Atria salami pizza. However, the employees supervise the current products availability on the shelves and list possible stock-outs caused by abnormal demand. If the change of the demand stays constant then new frame is input in order to correspond with the new demand situation. Usually it takes 48 hours from placing the order until the product is received. In emergency cases, for instance, when the product is needed fast or a mistake in the delivery has occurred, the order can be placed manually. Then the product can be received at the same day but it is achieved at the expense of increased transportation costs.

The order is processed and sent to the distribution centre of Inex and it enters their intranet system called S-net. The order is processed automatically and their SUBR3- system calculates automatically the delivery time, 24 or 48 hours depending on the product type. The system displays the order to the warehouse operator, who transfers the information with the help of radio control system to the collectors. Each collector has microphone and headphones and receives oral orders, where to go and what product to pick, from the operator situated in the central processing unit. When the task is done the collector inform the operator and receives another order. This radio system enables the collectors to accomplish the task more accurately and improves the productivity. The collectors use power lifter and powered pallet jacks where they can attach three roll containers or two pallets.

On the outbound terminal of the distribution center the consolidated consignment is packed in plastic foil and stickers are attached. The stickers give information about the time when the consignment is collected and when it has to be placed in the outbound terminal of Inex, the route of the consignment, the regional terminal it should be delivered to, the delivery date of the consignment and its place of origin as well as the final destination. In our case it is S-Market Metsäkangas.

About three or four o'clock in the afternoon the consignment is loaded on the trailer and it leaves to the Lahti's terminal, the services of which Inex has rented. In the terminal of Lahti, Inex's consignment is consolidated with shipments of meat, fresh fish or frozen goods. The trailers may consist of numerous consignments destined to other outlets of S-group in Lahti.

The whole delivery batch is shipped to S-Market Metsäkangas at midnight with the cooperation of a local transportation company. According to S-Market Metsäkangas, the products are transported to the shop using Incoterms 2000 and the delivery term is DEQ (delivered ex quay). Since Incoterms 2000 are used only in foreign trade, the more suitable delivery term is TOP (Finnterms2001, Toimitettuna perille), which is used in the Finnish domestic trade. At this time no shop's employees are present there, therefore the driver has own keys. He unloads the goods and places them in the store's terminal or freezer (if there are in the batch frozen goods) and at the same time he picks up the empty roll containers and plastic cases. In the morning, at 5.30, the employees check the consignment documentation, unpack the goods and place them in their places on the shelves using pallet trucks if needed.

The products that arrive straight from the suppliers include fruits and vegetables, milk and ice-creams, bread and beverages and these deliveries are fulfilled during the day. The drivers of bread and beverages go inside the shop and place the goods on the shelves. Regarding the fruits and vegetables as well as milk the drivers unload them to the store's terminal but the store's staff is responsible for moving them to the shelves. In the similar way like before, the drivers collect the cases with empty bottles or other plastic cases and boxes. Usually the drivers of milk, bread, fruits and vegetables and beverages ship their loads to other outlets, which are on the route and may not be necessarily from one retail chain.

S-Hämenmaa inputs directly the product prices directly to the store cash registers. With this system inconformity between prices on shelf and prices on the cash register can be avoided to some extent. Also the price can be input manually by the store staff if needed. A common mistake that may happen is that the price of

campaign product has changed and price label has not been changed, but the cash register has the updated price. The prices of S-Market Metsäkangas are formed according to SOK's every day low prices (EDLP) strategy. The chain regulates and determines the seasonal and campaign products' prices as well.

In cases when the product reaches its due date the discount price is determined by the shop's manager depending on the remaining number of product items. For example if there are twenty items left and the last date is reached the next day, then the discount percent may be as high as 50%. On the other hand if there are only a couple of items left on the shelf, then the discount is not more than 20%. It is important to mention that in S-Group' outlets no products can be sold on their expiry date. Obsolete products are registered in the system and disposed. The garbage truck picks up the wastage three times a week. There is no regular time table of the garbage truck and the days of the week when the garbage is collected may vary.

The daily and weekly time table of product delivery transports also varies according to the traffic jams, content of consignment and drivers' personal schedules. The usual weekly product delivery time table of S-Market Metsäkangas includes bread and pastry products, which are delivered on a daily basis, six times per week. S-Markets Metsäkangas receives fresh bread and pastries from various bakeries, such as Vaasa, Sinuhe, Fazer, and local bakeries like Viipurin kotileipomo, Villähteen leipä, Perheleipurit and Pullapojat. There are about 8-10 bread deliveries per day in total, half of which are carried out from 6.30 to 10 o'clock in the morning and the other half from 12 until 4 o'clock in the afternoon. Beverages from Hartwal are delivered three times per week, on Monday, Wednesday and Friday. Sinebrychoff and Olvi deliveries are received twice a week, on Tuesday and Thursday. Milk is delivered every day from the factories of Valio and Ingman. Frozen goods from Finnfrost come to S-Market Metsäkangas everyday from Monday to Friday. Ice cream and other dairy products from Valio are received from Monday to Friday and from Ingman three times per week, on Monday, Wednesday and Friday. Meat, meat-based provisions, convenience food, fruits and vegetables and industrial goods are delivered every night except Sunday.

Fruits and vegetables from regional suppliers are delivered to the store three times a week, on Monday, Wednesday and Friday.

Here is an example of the usual Wednesday's delivery receipt schedule of S-Market Metsäkangas, based on our observations. The first consignment is received at 00.30 in the morning, when the consolidated batch, which includes imported fruits and vegetables, meat, meat-based provisions, convenience food, industrial goods and Finnfrost's frozen goods, arrives to the shop premises. Between 6.30-6.45 AM Vaasa, Sinuhe and Fazer deliver their bread and pastries. At 8.35 and 8.50 AM Perheleipurit and Villähteen leipä respectively bring their products. At 10 o'clock Pullapojat transports its own goods to the shop. At 11 o'clock regional supplier brings domestic fruits and vegetables to the store. At 12 o'clock Viipurilainen kotileipomo brings bread and pastries to the shop. Beverages' delivery is received from Hartwall at about 13.15. At 13.25 Sinuhe bakery delivers again bread to S-Market Metsäkangas. Twenty minutes later Fazer bakery also transports for second time the bread intended for the shop's afternoon and evening customers. At 14.05, bread from Vaasa is delivered for second time too. Ingman delivers milk to the shop at 14.10. And 5 minutes later Valio deliver its milk to the store. At 16.30 Ingman transport its ice-creams and other dairy products to the store. At 16.55 Valio brings ice-creams and other dairy products to the shop. Later, at 17.30, garbage truck picks up the waste from the store's premises. All in all there are more or less than 17 deliveries' occasions at the S-Market Metsäkangas premises.

6. S-MARKET METSÄKANGAS CUSTOMER SATISFACTION RESEARCH

6.1 Questionnaire design

The purpose of the empirical study was to find out how supply chain management of S-market Metsäkangas influences the level of satisfaction among its customers. The satisfaction was measured by structured questionnaires. We designed two almost identical types of questionnaires; one was mailed to the bonus card holders and the other was given to the customers in the store. (see appendices 4 and 5)

When designing the questionnaires we had to take several issues into consideration. We decided to use mainly closed ended questions and only one open ended question was added in the survey. Firstly, the survey took place in a grocery store, where people usually are quite busy; therefore deep interview was not a considerable alternative. Closed-response questions are less time consuming to be answered and on the other hand it is easier for the respondents to perceive and answer them, as the task is facilitated by the list of possible responses for the question. Also closed-ended questions require less effort from the interviewer (from the people who carry out the study) since these kind of questions are much easier to analyze and make unambiguous conclusions. In comparison to open-ended questions the answers of closed-ended questions are directly comparable from respondent to respondent. In addition to that, in this type of questions there is a less potential error, due to the same way questions are asked and responses recorded. (Aaker & Kumar & Day 2001).

Our additional goal was to reach a considerable number of customers of S-Market Metsäkangas that is why we thought that deep interviews are more time consuming and we would not be able to reach as many customers' responses as we wanted. We used only one open-response question "how would you improve the outlet of S-Market Metsäkangas ", firstly to give more freedom to the respondents to give their opinion about the shop and secondly to reduce to a maximum degree the list of alternatives that could be chosen.

Another issue we had to consider was whether a neutral category of questions should be included in the questionnaire. As the sample was relative small, we decided not to use a neutral category in the questionnaire in order to avoid "don't know" answers, since usually 20 percent of the respondents would rather choose the neutral category if it is offered (Aaker & Kumar& Day 2001).

Our surveys covered three main issues: background data of respondents, consumer behavior and evaluation of the level of service, which corresponds to the store's supply chain performance. The first part of the surveys consisted of questions concerning background information of the respondents, which included the questions from one to five (gender, age, place of residence etc). This information was needed in order to identify the customers of S-Market Metsäkangas.

The second part of the questionnaire, questions from 6 to 13 (mail survey-questions 6-11) , deals with consumer behavior issues. We asked from the respondents if they had s-bonus card and to what degree it affected their choice of grocery store, we also asked how many times per week they shop in S-market Metsäkangas and the reasons for choosing exactly this outlet. In the mail survey the questions concerning the place of residence and presence of s-bonus card were skipped because we already new that they live in Metsäkangas and they were loyal customers. The respondents were also asked how much time and money they usually spend on their daily grocery shopping and where they do their daily and big weekend grocery shopping. Especially we wanted to examine the level of competition offered by the other shops, Siwa Metsäkangas and KKK-Market Marenki, situated near S-Market Metsäkangas. Siwa's outlet is located about 300 m from S-Market Metsäkangas and KKK-Market Marenki a little bit over a kilometer.

The third part of the questionnaire was overall evaluation of customer satisfaction induced by the S-market performance. We used a numeric scale from one to five to measure the consumer perceptions of the most important dimensions of retail service: personal customer service, product quality and availability, prices, atmosphere and convenience. In addition to that, at the end of the customer

satisfaction evaluation part we asked the overall grade about the S-market Metsäkängäs performance. The reasons why we chose to use overall customer service evaluation were defined by the fact that asking overall satisfaction seems somewhat more logical to the respondents and makes the customer's rating more studied and informed. (Vavra 1997, 133.)

After we designed the survey we pre-tested it by small number of people. We found it quite convenient, with only one small confusion regarding the question of queue and check-out times, but anyway it did not cause considerable problems among the respondents in the store. On average, the questionnaire took approximately three and half minutes to answer. The time for answering varied between 2,5 and 4,5 minutes, depending on the age of respondents and the level of their interest in the matter. As a conclusion, we found that the design of the survey was very functional and suitable for the busy environment of the store.

6.2 Conduct of the survey

We carried out the survey during four days, 24-27 August, 2006 in S-market Metsäkangas. The data about the customers and their level of satisfaction was gathered by structured questionnaires. We received a great amount of assistance from the manager of the store, Jarmo Piirainen, who provided us with the table and chairs needed to fulfill the survey and to make respondents feel more comfortable when filling the survey. Also we were given candies by our request in order to attract more respondents. On the same table there was a promotion for the S-bonus card and in some cases it helped us attract more people to answer the survey, but on the other hand it aroused misunderstandings among the store's customers, who, when asked if they were willing to respond the questions, answered quickly that they already had had S-bonus card.

The realization of the survey occurred as follows: Thursday, from 12.00-16.00; Friday, from 16.30-20.00; Saturday, from 10.30-14.00 and Sunday 12.15-15.30. On the first day we collected 56 answers, on the second day we collected 51

answers and the third day 53 and on the last day we got 24 answers. The number of the answers did not vary a lot between the first three days, but on the last day, on Sunday, we reached only half of the usual number of answers we received during the other days. A possible reason was that there were fewer customers who visited the shop, as Finns are not used to doing their shopping on Sunday because they usually do their big weekend shopping on Saturday. Other apparent reason for fewer numbers of customers could have been the Formula One live TV broadcasting.

During the fulfillment of the survey we observed the customers' behavior and their willingness to answer our questionnaire and time used to fill the blank. In the first day, on Thursday, we started in a passive way to wait for customers who could show interest to answer our survey. Having passed five minutes and still no one had paid attention to us, we understood that it was not the right way to reach our objectives therefore we had to change our tactics. We started to approach more actively almost each of the S-market Metsäkangas customers and ask them if they were willing to fill the survey. We chose to ask customers who had already accomplished their purchases for several reasons.

Firstly, about 20 percent of the customers we surveyed were new customers who had never before visited the store. A large part of them did not agree in the beginning to give their opinion about the shop, stating as an excuse that it was the first time they were doing their shopping in that particular outlet. We convinced them that it could be a great advantage to us to record their first impression about the shop, since new customers pay attention to most of the issues we had included and wanted to study in our survey (e.g. Store's layout, product range, price/quality correlation, products are easy to find, product availability, products' freshness), and usually new customers give more independent, accurate and precise evaluation. Regular customers, who have visited the store many times and have done their daily grocery shopping there, have been accustomed to the store's environment and they do not pay attention to details with regard to store's layout, products and service. Also it is easier for new customers to compare

subconsciously the shop to their previous experiences of shops, where they usually do their daily grocery shopping.

Secondly, it seemed to us more logical to ask the customers to fill our survey after doing their purchases, since their first objective when entering the shop was to get their business done. Finns in general do not like spending their time on something if there are no benefits for them from the whole ploy. However we succeeded to attract people by offering them some candies, although there were some cases when people asked half joking if they could get a six pack of beer in return for their answers.

Thirdly, customers (even those who regularly had visited the shop) who had just been checked out could evaluate the store more precisely and correctly, because their latest impressions were more reliable than their previous memories. They had just received renewed and updated perceptions about the store's activities and service. We could claim that if we were taking opinions from customers who were just entering the shop their opinions would vary a lot from these ones we got from the customers exiting the shop.

We also noticed that some people were quite scared when they were approached to fill the questionnaire, mainly because they did not have any idea what it was exactly about and what kind of questions we had. We decided to show the customer the questionnaire at the same time when asking to take a part in our survey. It helped us considerably to obtain more positive responses.

Additionally, what we found out during the first day was that after 3 P.M most of the people were in a hurry or busy to answer our questions, probably they had just arrived from work and were trying to get home as soon as possible. Before that time people were more relaxed and calmed down and they were more willing to answer our survey.

The most usual questions from the people were if the questions were easy to answer and how much time it would take. The main reasons for the negative

responses that people pointed were that they were in a hurry and did not have any free time; they were too tired and did not feel like filling the survey; they were not able to answer because their small children were with them; or they just stated that they did not have any willingness to answer but otherwise they felt completely satisfied with the store.

During the second day, Friday, we noticed that it was harder than on Thursday to get people to take part in our survey, although there were much more customers on that day than on Thursday. That day we had to ask more people to answer the survey and we got more negative answers. Main reason for this was that the weekend was just beginning and people were in a hurry and wanted to go home or to their summer cottages as fast as possible. We also noticed that after 7.30 PM it was almost impossible to get any people to answer the survey, probably because on that time people only come to the shop if they had forgotten do buy something and they did not want to loose any minute of their time. Despite of the difficulties we managed to collect almost same number of answers than on Thursday and we spent half an hour less time on collecting them.

On Saturday we faced the same busy atmosphere in the shop as on Friday. People were doing their big weekend shopping and there were higher number of families with small children. It was also our target to get more responses exactly from this kind of families, in order to analyze their opinions about the shop for the simple reason that they constitute the customers who spent most money there. However, people with small children rarely showed interest in our study, obviously because it was too difficult for the parents to leave their children even for a few minutes without supervision and also because the main goal for most of them was to get out of the shop as fast as possible.

As mentioned earlier on the last day, Sunday, we received a much smaller number of answers than in the first three days. People were more relaxed on Sunday, but in comparison with other days there were fewer customers in the store. It took us three hours to get the same number of responses what we got in about one hour during the other days.

In conclusion, we must admit that we were nicely surprise with the high number of responses we got. Our objective, when starting to conduct the survey, was to collect 20 responses per day taking into consideration that the Finns are quite reserved when it concerns their opinion's expression. People's attitude to our survey was very correct and pertinent. From over 180 responses only one person refused to fill the questionnaire till the end, saying that it was too long and he did not feel like answering. Every other took the survey in a very serious way and wanted to give their contribution to the matter.

6.3 Sampling technique and response rate

In the survey carried out in the shop we made a probe by interviewing randomly S-Market Metsäkangas' customers. We made a probe because we did not have a group of customers we could choose from for interviewing. We could not determine the actual number of customers who visit the store. We found out that the daily number of sales transactions is approximately 2500, but this could not give us the actual number of the customers. For example one customer might visit the store and buy products five times in one day. When making the probe we deliberately chose to interview different groups of people by shifting the day hours and week days.

For the second survey mailed to the loyal customers living in Metsäkangas we chose to use a sample, because our budget constraints did not allow us to survey the whole number of households of loyal customers (there are about 3000 out of 6000 households that own S-bonus card). Selecting a sample also could assist us to achieve the needed results quickly from the collected data. Sampling saves time, which is an important issue when we have tight dead lines. The organization of data collection and analyzing is more manageable as fewer people are involved. As we have fewer data to enter, the results we need will be available more quickly. Many researches argue that using sampling gives a higher overall accuracy than a

census. And collecting data from fewer cases also means that we can collect information that is more detailed. (Saunders & Lewis & Thornhill 2003.)

Respondents in S-Market were selected randomly no matter age, gender or amount of purchases. This technique is applicable and good for us when number of population group base is high and there is no beforehand information about it. Our most appropriate technique for sampling of the mail survey was simple random sampling. (Heikkilä 1998.). S-Hämeenmaa chose 500 households randomly from their loyal customer database. The sample selected was equal to 16.7% (500 out of 3000 households selected). We received 275 answers from which one was rejected. So the actual response rate was 54.8% (274/500). The high response rate could be explained by the fact that this is a new shop in Metsäkangas, with a significant impact on the people's life and shopping behaviour.

6.4 Analysis of the results

We got 183 answers for the survey that took place in S-Market Metsäkangas and 275 answers for the mail survey. The total number of answers was 458, as 4 of them were rejected since three of the respondents stated that they did not use the service of S-Market Metsäkangas and one questionnaire was not filled correctly. So the actual number of answers we got was 454. A possible error in the number of the total responses might occur by the fact that 81 of those people from the interviewed in the store's survey were living in Metsäkangas and owned an S-bonus card and thus could have filled the survey twice. On the other side the error may be certainly decreased due to the lack of any prizes for the participants in the mail survey, no matter how much they wanted to influence the store's performance improvement.

Approximately 69 % of the respondents were women. All the respondents of the mail survey were from Metsäkangas and about 51 % of the 182 people, who took part in the survey in the store, were from Metsäkangas. What we heard beforehand was that the average household size in Metsäkangas was 1.7 people. According to

our results, 45.8% of the respondents stated that their household consists of two persons and 19.5 % were living alone. Most of the respondents were aged between 46-65, 51.5%. The second largest age-group, 25-45, counted for 26.5 % of the total respondents and people over 65 years old formed 11.7% of the respondents in the survey.

A little bit over 64% of the people marked that they had a job, 23% were retired and unemployed only 5 %. All the respondents from the mail survey were S-Group's loyal customers, but from the survey carried out in the shop s- bonus card holders accounted for 86%. Half of these loyal customers stated that the s-bonus card has a great influence on their choice of shop.

We found out that about 17 % of these 454 respondents do their shopping in S-Market Metsäkangas on a daily basis. However, the largest group, 71% of the respondents, shops 2-4 times per week in S-Market Metsäkangas and 12 % said that they visit S-Market Metsäkangas once in a week or more rarely. As it was mentioned, S-Market Metsäkangas is a daily grocery store and therefore people usually do not tend to spend a lot of time there unlike in hypermarkets or Lidl and Cassa for example, which offer also household electric devices, electronic equipment and clothes. 93 % of the surveyed people use in average 15 minutes to accomplish their shopping in S-Market Metsäkangas.

The location was the crucial factor for choosing S-Market Metsäkangas as a shopping place, 85 % of the respondents mentioned that they shop in this outlet because it is situated near their home. Another important reason for selecting S-Market Metsäkangas was the benefits the respondents got from the using of s-bonus card, 63 % of them pointed this as a factor that predetermines their shopping behaviour. Product assortment and price level were mentioned only from respectively 27.5% and 13% of the participants in the survey.

Most of the respondents, 67.3%, pointed that they usually spent at one shopping occasion an average of 20 euros and almost 27 % said that every time they shopped in S-Market Metsäkangas they spent over 30 euros. It is interesting to

mention that about 85% of the people belonging to these two groups were shopping on average 3 times a week in the shop. Most of the people, 93.4 %, mentioned that they use the services of S-Market Metsäkangas and about 43.8% of the total respondents said that they did not shop during the week anywhere else. The people in the survey showed Prisma and the nearby KKK-Marenki as a second alternative grocery shop during the weekdays. About 14% of the surveyed pointed that in addition to S-Market Metsäkangas they also shop in the above mentioned stores. S-Market Metsäkangas turns out to be a main place for groceries among the respondents also during the weekend, 72 % pointed that they buy their groceries from there at this time of the week. On the analogy of the previous question, the people in the survey pointed out Prisma as a second favourite shop for groceries during the weekend. A little bit over 53 % mentioned Prisma as their weekend shopping place

Evaluation components	**Grade**
1. Store location	4.58
2. Number of parking spaces	4.69
3. Product assortment	4.16
4. Price level	3.15
5. Products are easy to find	3.70
6. Product availability	4.15
7. Product's freshness	4.29
8. Check-out times	4.18
9. Overall grade for the store's service	4.36

454 participants

Evaluation scale:
1 = very poor 2= poor 3= satisfactory 4 = good 5 = excellent

Table 2. Customer evaluation of the service level of S-market Metsäkangas (based on customer survey)

The table above demonstrates how the customers evaluated S-market Metsäkangas performance. The people could give their evaluation using the scale from 1 to 5. We noticed that most of the people easily chose grades 4 and 5 in their evaluation of S-Market Metsäkangas' performance. Only in cases when the respondents have had negative experience with some aspects of the store performance they chose to give lower grades followed also with comments in the last question of the survey. However, the lowest grades were mainly 2 and 3, which meant that people were to some extent discontent with certain aspects of the store's performance. We also noticed that when people were in a hurry they did not have time to read and analyze the service evaluation questions, therefore they just gave grade 4 or 5 to all components evaluated.

As seen from the table most of the respondents were very satisfied with the store location, since most of them live in Metsäkangas, very near to the store. Also the respondents were content with the number of parking spaces. So, we can say that the store is easy to reach for most of the people who come not only from Metsäkangas but from the nearby areas. On the other hand there were many complaints about security issues concerning the store's yard and main entrance approachability. For instance respondents complained that the yard is dangerous for foot and bicycle passengers since there are no route signs which can lead them safely to the store entrance.

Although the respondents gave a very good average mark for the product assortment and product availability, 4.16 and 4.15 respectively, there were a lot of people that mentioned in their comments that there was still a lack in the product assortment and availability. 67 % of the people who gave comments and 44.5 % of the all participants in the survey insisted on the presence of service counters in the shop- meat, fresh fish, ready-made food, salads and freshly baked bread. About every tenth of the respondents pointed out that the range of products could be more versatile and it did not only refer to the type of product but as well as the size and quantity of the specific item. For example, many people from one- or

two-person households stated that they would like to find smaller meat packages that answer their daily needs, which was in contrast to the comments from big families where they demanded even bigger packages of meat than what was offered now in the shop.

Almost half of the respondents in the survey gave a satisfactory grade (3) for the products' price level in the shop, which, as we explained, meant the people were not fully satisfied with the issue. Despite SOK's price strategy, every day low prices (EDLP), and the statement of S-Hämeenmaa's management that the shop' price level is the lowest in the area, the respondents' perception of the store's prices was totally different. The customers of S-Market Metsäkangas considered that there was room for the prices to be decreased. Also many people hoped that there could be more special offers in the store, for everyone or only for S-bonus card holders, which on the other hand does not correspond to the S-Market product price policy. The seasonal and campaign offers are not treated as special offers but from the consumers' point of view they represent exactly that. When people step into the shop they also need and look for nice surprises and experiences from the shopping trip. These surprises and experiences could appear in the form of new interesting products and product presentations, special offers or lowered prices, or just product availability- the right product, at the right price, quantity and size, and from the place of the store where the customers expects to find it from.

The place of the product in the store and the guiding signs are of great importance regarding customer satisfaction (for example in cases when they are in a hurry). The customers are becoming frustrated if they have to wander around in finding what they need, therefore in big supermarkets, where there can be up to 16 000 products, the place of a given product should be considered from the customer's perspective and in addition, frequent changes should be avoided. In our survey we found out that a reasonable number of customers had some difficulties in finding the desired products. That is why the participants in the survey gave to the "the products are easy to find" question second lowest average grade from all the evaluation components. A possible reason for this can be that the outlet is one of

the biggest S-Markets in Lahti and it has operated for a period of 3.5 months only. It is understandable that the people still have not got used to the store's layout and they might have own perceptions where a particular product should be placed, based on previous experiences from other S-Market's outlets.

The product freshness received a relatively good evaluation grade (4.18), but still there were a few comments that remarked that in some cases spoiled fruits and vegetables were found. Also some people insisted on a longer shelf life of dairy products, bread and meat. However, this is beyond the store's powers, since the manufacturers are those who sets the expiry dates for their products, the store's responsibility is only to receive the products' delivery, expose them for sale as fast as possible and to check the quality of incoming goods.

As seen from the evaluation table, the respondents were satisfied with the check-out times of S-Market Metsäkangas. They gave grade of 4.29 for the check-out performance. We observed that when there were over 6-7 persons in the queue with big amounts of purchases, a second check-out point was opened which decreased the queuing times of S-Market Metsäkangas customers to a minimum.

The overall performance evaluation grade was 4.36 and it was based on customers' own evaluation. One-third part of the respondents gave an excellent grade (5).
This meant that in general the customers of S-Market Metsäkangas were satisfied with the shop's performance, although respondents expressed some shortages in the service and store performance, and showed some aspects where the shop can make improvements in order to increase its customers' satisfaction level.

In the next chapter we will give some proposals on how to improve S-Market Metsäkangas services from the customer perspective. We will place a stress on what S-Market should do in order to give better service to its customers and how the possible additional operations will affect its internal logistics activities and the whole supply chain as well.

7. RECOMMENDATIONS FOR S-MARKET METSÄKANGAS OPERATIONS

The purpose of our empirical study was to find out how the supply chain of S-Market Metsäkangas affects the level of customer service and what the overall benefits it brings for the outlet's clients. In order to achieve our goal we examined the different parties and stages in the supply chain of the store, focusing on their role, tasks and operation methods. An examination of the supply chain alone was not enough. So in order to reach our objectives we had to look at the issues from the customers' perspective. For that purpose we carried out a broad survey, where we gathered 454 answers, with the help of which we could clarify the S-Market customers' perception about the store and how they evaluate the store's logistics performance. Recommendations and conclusions are made for the future development of the store's operations and level of service based on the survey analysis and our observations of the logistics activities across the value chain. Since we did not have admission to evaluate the internal performance of the supply chain operations of S-Market Metskangas, we had to comply with the customers' opinions and evaluations.

The price strategy as regards the S-Market outlets, every day low prices, is still in contradiction with the customers' perceptions of the store's price level. Although a great number of products with the private labels of Rainbow, X-tra and Daily have appeared on the market during the last few years, it is not enough to convince S-Market's clients that the products' prices correspondent to their expectations. A significant number of respondents stated that the price level was too high and the product assortment could be more versatile in specific product lines. One solution to this could be that the product range of S-Group's private labels is broadened so the shop can offer more low-priced alternatives. For instance S-Market can expand its product range of its own brands Rainbow or X-tra offering fresh meat or fish under these brands. A contract with meat or fish producers, which usually provide the same product, for example Atria, could be made, but now under the brand of Rainbow. A lower kilogram price of 20-40 cents is achieved by savings from advertising, large volumes' orders and efficient distribution process. If the number of private labels increases it can give to the customers an image of lower price

level of the store. This can also improve the competitiveness of S-market Metsäkangas in tightening price competition with the discount stores.

According to the S-Hämeenmaa research, the outlet in Metsäkangas is a cheaper alternative compared to Siwa or KKK-Marenki situated in the same neibourhood. But still it should not be forgotten that half of the participants in the survey choose to shop on the weekends, when usually the biggest amount of purchases is done, in Prisma alone, not to mention the other alternatives. The distances in Lahti are not so long, the consumers are able to make a shopping trip to three different grocery stores in one day. This enables them to compare prices for the whole Lahti area and not only in Metsäkangas and choose the cheapest alternative that suits their needs, financial abilities and expectations concerning product availability. In situation that S-Market is able to offer the same products at the same price or with just insignificant price difference, then Metsäkangas residents would rather shop there in S-Market than going to other shopping places for groceries in Lahti.

Many people complained in their comments that the dairy products, especially yoghurts, offer too short expiry period and they have only a few days for consuming them. S-Hämeenmaa should consider whether it is possible to consolidate even more the product transportation. Inex delivers dairy products in the capital area and the possibility for deliveries of dairy products through Inex to S-Market outlets in Lahti area should be taken into account. This could lead to benefits for the S-Group' outlets and in particular for S-Market Metsäkanagas, achieved from more optimized order size deliveries and reduction of dairy product stock held in the store. And on the other hand this could quicken the product's turn time, reduce spoilage and increase customer satisfaction by providing longer expiry dates. Also the beverages could be delivered through Inex, which would give the store a possibility to receive the desired quantity and reduce beverage stock held in the store. This is how the store could order more optimized quantities and cut transportation costs and provide free floor space for other products.

The S-Market Metsäkangas should follow the customer-driven strategy in its operations. That means that S-market Metsäkangas firstly should take into consideration its customers' demography and after this to design and adapt its product assortment to their needs. This kind of individual product assortment design is not so easy to realize in centrally managed store chains, which usually have the same product assortment frame for every store unit. But on the other hand S-Hämeenmaa gives some freedom to S-Market Metsäkangas to decide upon its own product assortment frame's content. The store can also utilize better the information of customers' purchases that the store records. For example, S-Market Metsäkangas can identify its customers purchases during a specific period of time, which will facilitate the store's decisions about what product it can put an emphasis on by committing it more visibility and shelf space.

Taking into account that one and two-person households form over 65% of the customers base of the shop, it would be more suitable for them that there is an ability to buy exactly the right quantity or size of the product they need. Most of them pointed out in their comments that buying quantities of 400 or 600 grams of mincemeat or one kilogram of chicken quarters or breast is too big a quantity for them and after opening the package they should cook the whole content or in another case to store it in the fridge for the next day, which decreases the product quality as customers usually say. One solution to the problem can be the availability of smaller packages which answers the daily needs of these specific customers. The disadvantage of this proposal concerning the logistics is that additional cost should be added to the product as a new package design should be made or if not, then this means that the package size will not be utilized efficiently. It would lead to inefficient transportation due to the lower weight of the same lot size. Also economies of scale could not be achieved by offering smaller quantities in the packages.

Another way to resolve the package size problem can be the presence of service counters where customers could buy fresh unpacked meat, fish, salads, grilled meat or other warm food. In fact, half of the respondents stated in the survey that they specifically wanted a service counter, which according to them will increase

the product variety in fish, meat and ready-made food and enable them to buy the quantity they want. S-Hämeenmaa management states that the product variety in convenience food and packed meat products is enough and answers the S-Market Metsäkangas customers' needs. The reality is that most of the middle-aged and older people, and they form about 60 % of the surveyed people and about 84 % of 1-2-person households, categorize the packed meat and fish products as something "disgusting" and of not so good taste and quality. The trend of packed meat and fish appeared in the grocery stores in Finland approximately 10-15 years ago and especially older people still have not got used to that. However, also this kind of service includes risks of increased cleaning and electricity costs and wastage and overall increase of the price level. An outsourced service, similar to Prisma, will be a reasonable alternative for improving customer satisfaction of S-Market Metsäkangas. Since in the shop's layout is not allotted a space for service counters, the most suitable place for them would be the space between the R-kiosk and Pharmacy, which is currently used as a storage place for industrial goods. According to the manager of the store, the place in fact is not needed and there would be no problem for moving the stored goods to the shelves, so it could be rented at the first opportunity. Thus, S-Hämeenmaa could collect rent from an outsourced company without taking business and logistics risks. It could be a win-win situation for both parties and for the customers as well.

There were some complaints about errors that happen at the cash registers (to the detriment of the customer) or in other words the price on the shelf or on the product does not match the price that the cash register displays. According to S-Hämeenmaa such kind of errors should not happen in theory, but in practice they might occur even very often and it is possible that the shop's customers do not notice them or if they do, it is just at home. As a matter of fact there are three links or parties involved in the information flow where these errors could happen. First the prices are input directly from S-Hämeenmaa to the cash registers in the shop.

From the chain's and shop's point of view the right price is only in the cash register but from the customer's point of view the right price should be on the shelf's label or on the product since they cannot have any clue what the price on

the cash register could be. If we presume that they have the right price then the misunderstandings result from the shop or the manufacturers, in case that the first one has not changed the labels with the old price on the shelf or the second one has stamped a wrong or different price than the chain price, which usually happens on meat products. If such errors appear in the future it means that information flow between the store, the chain management and the manufacturer does not work efficiently. S-Market Metsäkangas has to pay attention also to this "small" issue in order to keep their customers' satisfaction level as high as possible. For example, when a new price emerges the manufacturer should coordinate its price with the chain and the chain should inform the outlet about the new price in the promptest way so the price label on the shelf can be changed at the same time when the price is input in the cash register.

As it was mentioned the store also can place prices in the cash register in emergency cases. However this refers only to products that are not governed by the chain but are acquired by the store manager himself. It will also be more convenient for the store management to keep contact with the manufacturers with regard to price fluctuations and misunderstandings, so they can correct the price input from the chain's central management, in this case S-Hämeenmaa. In the future, with the progress in information technology, this problem could be avoided. The presence of an electronic shelf label will allow the store management to quickly change the prices displayed. The price changes at the same moment when it is input in the register system of the store. Thus the risk of human errors can be minimized as well. Another and cheaper alternative for decreasing the price inconformity can be that in every supermarket of S-Group and in particular S-Market Metsäkangas would be a reader wand like in the hypermarkets, so the customers can check every product price without looking for the store employees' help.

Another issue which was discovered in the survey is the approachability of the shop. According to the customers, S-Market Metsäkangas should pay attention to the safety of the yard and the shelter (walking alley) that leads to the store's entrance. They complained that customers that come by foot or by bicycle are in

danger since the cars are crossing the walking alley in front of the entrance but also at places where it is prohibited (for example at the shelter). S-Market can mark the routes for the foot and bicycle passengers and in addition to that to put blocks around the walking alley so no car can cross the area in front of the entrance and the shelter itself.

S- Market Metsäkangas is prepared for the product assortment's expansions that might happen in the future. If wines are allowed to be sold in grocery stores it will require an additional sales space of approximately 15 m2. S-Market Metsäkangas can solve this problem by decreasing the width between the shelves' corridors, which are now 1.5 metres wide and usually in other S-Market outlets they are only 1 metre. Also, floor space can be gained from the return bottle room, when new technology is in use, which is expected to take place during the next three years. The new bottle return machine will not only separate the plastic and glass bottles like now but crush them into very small parts,. This technology enables the reduction in the space needed for returning bottles, in a similar way like the empty cans which do not require space after smashing, which will ensure more 40 m2 that could be used as we mentioned to place more products or to be used as storage space. Thus small changes in the shop's layout are possible but the yard scheme puts limitations on other external expansion of the store's size. According to the shop's manager, the full limit of the building's floor space is reached.

8. SUMMARY

The purpose of our study was to find out how the logistics processes influence the customer service and satisfaction level. We limited our scope of the study to the supply chain of grocery retail business in Finland and in particular S-Market Metsäkangas. Our interest in the topic was aroused by the rapid progress of S-Group in the Finnish grocery retail market during the last years, turning the company into the market leader. We wanted to understand how the supply chain of S-Market was managed, what parties it involves and what values and benefits it creates for its customers. We examined the study problem from the customer-driven perspective as we were not able to work inside the specific environment or in other words we did not get access for evaluating each process of the S-Market value chain.

Our theoretical framework consisted of each process in the supply chain in general and in the grocery industry as well. We found out how the grocery supply chain is distinguished from other industries' supply chains and what specific issues we had to take into account. Also we examined the special issues concerning the customer service in grocery shops and the adoption of the consumer based strategy or efficient consumer response by the Finnish grocery retailers. We described the current situation of the grocery retail industry in Finland and identified the special features and main players as well as the contemporary trends of the grocery retail market. With the help of sufficient literature, interviews and observation we recognized and described the central operations and parties involved in the supply chain of S-Market Metsäkangas' performance.

Our objectives also included a collection of sufficient feedback from the S-Market's customers about their satisfaction level influenced by the logistics driven performance of the store. On the basis of the customers' evaluation and comments we were able to identify the areas which the shop should emphasize in order to improve its service level. We designed two surveys, one we made on the spot and the other was mailed only to the loyal customers of S-Group living in the Metsäkangas area. We collected in the survey conducted in the shop 182

responses and from the 500 questionnaires' sample we received 272, with a response rate of more than 54%.

The results of the survey showed that the S-Market Metsäkangas' customers were satisfied with the shop. The residents of Metsäkangas, who formed the main respondents' base, pointed out the excellent location of the store and its friendly and pleasant atmosphere. They also stressed the other reasons why they shop there and gave an evaluation on the store's logistics performance from their perspective. From the customers' comments, issues regarding the product range appeared. There was a sufficient customer base that pointed out that a presence of service counters will only improve overall customer satisfaction. Recommendations based on the customer evaluations and comments were made with an emphasis on the shop's internal logistics operations and the whole supply chain as well.

As a conclusion we can state that S-Market Metsäkangas' overall performance from the supply chain's and customer perspective was on a high level with almost 38% of the respondents who evaluated the performance as perfect. However, there is still room for improvements in the shop's supply chain, starting from the wholesaler activities, going through the central chain management, and ending up with the store internal logistics operations. Further research is needed for measuring and evaluating the logistics activities in the supply chain of S-Market from the company's perspective in order to understand and identify the stages and processes that it should stress in assuring more value to the customers.

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LIST OF APPENDICES

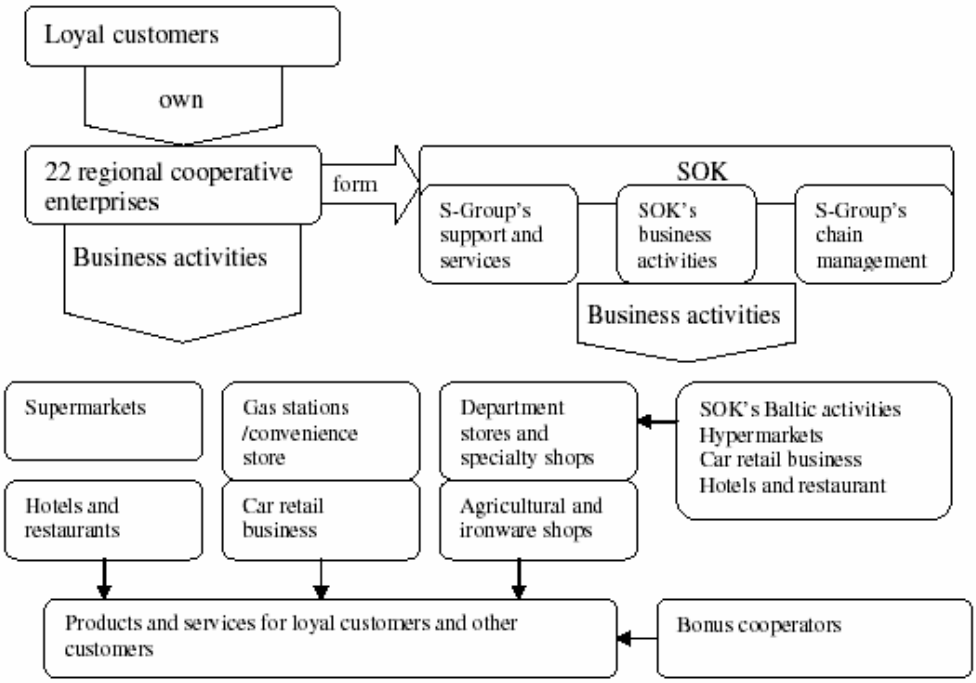
APPENDIX 1
Stores' development in Finland during the period 1994-2004

Type of store	The number of outlets	The development of the number of outlets, 10 years (%)	Sales in 2004 (M/EUR)	The development of sales, 10 years (%)
Hypermarkets	115	46 %	2713	108 %
Department stores	129	14 %	566	-16 %
Supermarkets (big)	509	102 %	3 736	108 %
Markets	511	-37 %	1 686	-21 %
Neighbourhood markets (big)	1205	4 %	2016	38 %
Neighbourhood stores (small)	685	-42 %	525	-22 %
Small size stores	579	-57 %	220	-31 %

Source: Finne & Kokkonen 2005, 132.

APPENDIX 2

S-GROUP'S STRUCTURE 2006



APPENDIX 4

CUSTOMER SATISFACTION SURVEY CARRIED OUT IN S-MARKET METSÄKANG.

Please circle the appropriate alternative:

1. Gender:
1. male
2. female

2. Age:
1. under 18
2. 18-24
3. 25-45
4. 46-65
5. 65-

3. Place of residence:
1. Metsäkangas
2. Hollola
3. Jalkaranta
4. Other, where? _____

4. Household size:
1. one person
2. two persons
3. three persons
4. four persons
5. five persons
6. more, how many?_____

5. Position
1. Employed
2. Unemployed
3. Student
4. Retired
5. Other, what?_____

6. Do you have S-bonus card?
1. yes
2. no

7. If you have S-bonuscard, how much does it affect your choice of grocery store?
1. not at all
2. to some extent
3. a lot

8. Describe the reasons, why you chose exactly S-Market Metsäkangas for your grocery shoppings.
1. Location of the store
2. Product range
3. Price level
4. S-bonus card
5. Offers
6. Other, what?_____

9. How often do you go shopping in S-Market Metsäkangas?
1. every day
2. 2-4 times per week
3. more seldom

10. On average, how much time do you spend on your daily grocery shopping?

1. less than 5 minutes
2. 5-15 minutes
3. 16-25 minutes
4. over 25 minutes

11. On average how much money do you spend on your daily grocery shopping?

1. less than 10 euros
2. 10 - 30 euros
3. over 30 euros

12. In addition to S-Market Metsäkangas, where do you do your daily grocery shopping (Monday-Friday)?

1. KKK-market Marenki
2. Siwa Metsäkangas
3. nowhere else
4. somewhere else, where?_____
5. I do not buy groceries during the week

13. In general, where do you do your weekend grocery shopping?

1. S-Market Metsäkangas
2. Prisma Lahti
3. City Market Laune/Paavola
4. Euromarket Paavola
5. KKK-Market Marenki
6. Other, where?_____

14. Please evaluate the following issues concerning S-Market Metsäkangas:
Evaluation scale:
1 = very poor 2= poor 3= satisfactory 4 = good 5 = excellent

	Very poor				**excelent**
1. Store location:	1	2	3	4	5
2. Number of parking spaces:	1	2	3	4	5
3. Store's opening hours:	1	2	3	4	5
4. Store's tidiness and layout:	1	2	3	4	5
5. Product range:	1	2	3	4	5
6. Store's price level:	1	2	3	4	5
7. Products are easy to find:	1	2	3	4	5
8. Product availability:	1	2	3	4	5
9. Products' freshness:	1	2	3	4	5
10. Price labels' visibility:	1	2	3	4	5
11. Store's staff is friendly:	1	2	3	4	5
12. Staff's complaisance:	1	2	3	4	5
13. Staff's expertise:	1	2	3	4	5
14. Queue and check-out times:	1	2	3	4	5
15. Store's atmosphere	1	2	3	4	5
16. Overall grade for the store's service	1	2	3	4	5

15. How would you improve the outlet of S-market Metsäkangas:_____
_____

Thank you for your responses!

APPENDIX 5
CUSTOMER SATISFACTION SURVEY (mailed to the loyal customers)
Please circle the appropriate alternative:

1. Gender:
1. male
2. female

2. Age:
1. under 18
2. 18-24
3. 25-45
4. 46-65
5. 65-

3. Household size:
1.one person
2. two persons
3. three persons
4. four persons
5. five persons
6. more, how many?_____

4. Position
1.Employed
2. Unemployed
3. Student
4. Retired
5.Other, what?_____

5. Do you do shop in S-Market Metsäkangas?
1. yes
2. no, why not?_____

If you answered yes, you can continue the survey. If you do not shop in S-Market Metsäkangas, can quit the survey after responding questions 1-5 and send it to us.

6. Describe the reasons, why you chose exactly S-Market Metsäkangas for your grocery shopping.
1. Location of the store
2. Product range
3. Price level
4. S-bonus card
5. Offers
6. Other, what?_____

7. How often do you go shopping in S-Market Metsäkangas?
1. every day
2. 2-4 times per week
3. more seldom

8. On average, how much time do you spend on your daily grocery shoppings?
1. less than 5 minutes
2. 5-15 minutes
3. 16-25 minutes
4. over 25 minutes

9. On average how much money do you spend on your daily grocery shopping?

1. less than 10 euros
2. 10 - 30 euros
3. over 30 euros

10. In addition to S-Market Metsäkangas, where do you do your daily grocery shopping (Monday-Friday)?

1. KKK-market Marenki
2. Siwa Metsäkangas
3. Nowhere else
4. Somewhere else, where?_____
5. I do not buy groceries during the week

11. In general, where do you do your weekend grocery shoppings?

1. S-Market Metsäkangas
2. Prisma Lahti
3. City Market Laune/Paavola
4. Euromarket Paavola
5. KKK-Market Marenki
6. Other, where?_____

12. Please evaluate the following issues concerning S-Market Metsäkangas:
Evaluation scale:
1 = very poor 2= poor 3= satisfactory 4 = good 5 = excellent

	Very poor				**Excelent**
1. Store location:	1	2	3	4	5
2. Number of parking spaces:	1	2	3	4	5
3. Store's opening hours:	1	2	3	4	5
4. Store's tidiness and layout:	1	2	3	4	5
5. Product range:	1	2	3	4	5
6. Store's price level:	1	2	3	4	5
7. Products are easy to find:	1	2	3	4	5
8. Product availability:	1	2	3	4	5
9. Products' freshness:	1	2	3	4	5
10. Price labels' visibility:	1	2	3	4	5
11. Store's staff is friendly:	1	2	3	4	5
12. Staff's complaisance:	1	2	3	4	5
13. Staff's expertise:	1	2	3	4	5
14. Queue and check-out times:	1	2	3	4	5
15. Store's atmosphere:	1	2	3	4	5
16. Overall grade for the store's service:	1	2	3	4	5

13. How would you improve the outlet of S-market Metsäkangas:_____
_____

Thank you for your responses!