The Potential for Innovation in the Swedish Food Sector

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To my grandchildren,
Selma, Erik and Andrea,
and to the future

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My journey has been rather long and has kept me quite occupied, especially the last few years. I hope my family and friends have not suffered too much, but at times I would have liked to spend more time with you.

Last and first, Claes-Göran, thanks for being such a good husband and companion and for your never ceasing support in all aspects!

Abstract

The food sector in Sweden, comprised of retailers, food manufacturers and packaging suppliers, has been investigated, guided by two research questions:

- What does "innovation" mean to the different actors (i.e. is there a gap in opinions)?
- How is innovation performed and what are the key issues?

But before this research of the present, the **past** was studied (the author's licentiate) to identify and describe the factors and reasons behind the growing food sector in Sweden after World War II, particularly those underlying the major innovations (i.e. what, why, how and who?). It was a historical and qualitative case study based on interviews with people who had experience and knowledge of the food sector in the period after WW II, and on literature reviews.

However, in this doctoral thesis the focus is on the **present** situation in the Swedish consumer food sector, albeit with some comparisons with the past. The method is qualitative, starting with an exploratory study and continuing with three case studies in which three groups of actors in the supply/value chain were interviewed: retailers, food manufacturers and packaging suppliers. In all, 47 people in Sweden were interviewed. During the entire research process, relevant literature was reviewed to guide the analysis of results. The author also has a pre-understanding and personal experience of innovations in the food sector, which has facilitated contacting different actors and performing the interviews based on open-ended questions.

The results show that the respondents define "innovation" in a similar way, and that it is more than incremental. Based on this input, a new definition for food related innovations is proposed. However, gaps in the meaning of innovation do exist between the three groups. This is evident from the examples they give of innovations on the market. It may be due to their different roles, their lack of a common vision, and their lack of a supply chain perspective. The food manufacturers and retailers appear to develop for the consumers, not with them, and do not involve anyone from the outside. In other words, they do not apply the Chesbrough's concept of Open Innovation. When innovating, there is limited collaboration between retailers and food manufacturers. Practically the only time it occurs, it results in private labels for the retailers. Packaging suppliers are quite global and collaborate with customers everywhere but they lack direct consumer insight and rely on their customers to tell them what is needed. Contacts in the chain are mainly transactional, cost focused, and non-relational.

Among other key issues are lack of trust and transparency in the chain, the need of food manufacturers to be listed by all major chains, lack of pride and vision among manufacturers. There are several drivers and barriers, such as a strong trend towards sustainability (which will require a total chain approach), "pure" food with no additives, ecological, locally produced, more convenience, higher quality and lower cost.

It is difficult to make any direct comparisons between the **past** and the **present** as society, the supply chain and its actors, including the consumers have changed. Still some things are worth considering from that time. In the **past** the major innovations, frozen food and self-service shops, fulfilled consumer needs, were introduced at the right time and with the right conditions prevailing in the country. They resulted through collaboration in clusters and networks and by allowing individuals, 'Edisons', from inside and outside to contribute. This was an early example of Chesbrough's Open Innovation. Trust existed among different actors, including the consumers.

Will the **present** way of working prevail or will it change? There are signs of an emerging shift from a focus on cost to value. This is evidenced by some respondents from each group expressing a wish to contribute and help the others in the supply chain, and by some manufacturers realising that to develop and produce private brands in addition to their own brand is not necessarily bad. Some manufacturers already have separate organisations for developing their own labels and private labels. These signs can be seen as indications of an interest to co-operate and compete simultaneously, which is the definition of coopetition. Coopetition implies trust between the individuals involved in a defined task where resources are pooled to be used for mutual benefit, and it offers a way out of being locked in pure competition – and save costs at the same time.

Sammanfattning: Potentialen för innovationer inom svensk livsmedelssektor

Innovationer är livsviktiga för de flesta företags långsiktiga tillväxt och överlevnad. Det gäller även livsmedelssektorn i Sverige som här har undersökts med avseende på tre grupper av aktörer: handel, livsmedelsproducenter och förpackningsleverantörer. Målsättningen var att undersöka om det finns ett gap mellan hur dessa olika aktörer ser på innovation och hur de genomför innovationer och att studera samspelet dem emellan. Arbetet har styrts av två forskningsfrågor:

– Vad betyder ”innovation” för de olika aktörerna?
– Hur utförs innovationer och vad är nyckelfrågorna?

För att åstadkomma innovationer, som utveckling av nya produkter, förpackningar, tjänster, nya sätt att arbeta etc., är det många i försörjningskedjan som kan bidra, förutom de tre nämnda aktörerna. Men dessa tre har valts ut som de främst ansvariga för värdeskapande i kedjan. Konsumenterna är inte med i undersökningen trots att de är de slutliga domarna av det som utvecklats och dessutom kan bidra med problem som bör lösas. Ökad konsumentinsikt har blivit ett mantra för kedjans aktörer, men om det har slagit igenom i kedjan är en fråga som inte inkluderats i denna avhandling. Konsumenterna är i ökande grad välinformerade, krävande och individualistiska och skulle dessa ha inkluderats så skulle ett annat upplägg av studien krävts. Den tiden är förbi då konsumenterna kunde sorteras in i målgrupper som sedan analyseras efter behov, köpfrekvens, ekonomi etc. Som komplement till detta arbete finns andra undersökningar om hur konsumenterna ser på livsmedelssektorn (Wikström et al, 2010; Lareke, 2007) och dessa kan ställas i relation till denna avhandling om kedjans aktörer.

Själv har jag ett förflutet inom livsmedels- och förpackningsindustrin där jag arbetat med utveckling och har därför viss förkunskap i branschen, vilket har underlättat i kontakter med olika aktörer.

Som del av denna avhandling undersöktes tidigare vad som låg bakom att svensk livsmedelssektor började växa och blomstra efter andra världskriget (mitt licentiat arbete, Beckeman, 2006). Ett antal kunniga personer inom sektorn och med kunskap om vad som hände och hur man arbetade efter kriget, kunde identifieras och intervjuas. Resultatet av denna kartläggning visade klart att introduktionen av djupfrysning

och självbetjäningsbutiker var de främsta orsakerna bakom livsmedelssektorns utveckling i Sverige efter kriget. De främsta skälen till detta undersöktes och bl.a. spelade Djupfrysningsbyrån en stor roll som spindeln i ett nätverk av arbetande intressenter och ett kluster som spontant uppstod i Skåne. Aktörer från odlare och växtförädlare till slutproducenter och näringsspecialister och dessutom representanter för fackmedia bidrog till framgångarna och kvalitet var honnörsordet. Sättet att samarbeta påminner mycket om s.k. ”Open innovation” som myntades av Chesbrough (2003) som ett sätt att utnyttja all kompetens som står till buds och samarbeta. Dessutom spelade ett antal faktorer i omvärlden en stor roll; det fanns ackumulerade behov av nya bekväma livsmedel, man kände förtroende för att industrin skulle lösa behoven, tiden var mogen, USA inspirerade och samarbete i och utom kedjan uppstod spontant. Betydelsen av olika individer (eldsjälar som på engelska döptes till ’Edisons’) och deras bidrag till utveckling och framgång kunde inte nog överskattas och många var inte ens anställda i något av de företag som deltog. Den svenska livsmedelssektorn och det omgivande samhället då, mötte vid jämförelse många av de krav som Porter (1990) senare ställde upp för att en nation skulle kunna vara konkurrenskraftig, ”Porter’s Diamond”.

Undersökningen av dagens situation innefattade först en utforskande (”exploratory”) studie och därefter tre fallstudier, en för varje grupp av aktörer och fortlöpande litteraturstudier för att kunna jämföra erfarenheter och utveckling i andra länder. Sedan andra världskriget har stora förändringar skett i samhället och i maktfördelningen inom försörjningskedjan för livsmedel. Där tidigare producenterna bestämde vad som skulle produceras och hur mycket, har handeln idag makt att besluta vad som ska in på hyllorna och har dessutom introducerat egna varumärken och deras egna handelsmärken har blivit varumärken. Handelns egna produkter tillverkas av olika leverantörer inom eller utom landet och konkurrerar med livsmedelsproducenternas varumärken, nationella såväl som stora globala varumärken från utlandet. Inom handeln i Sverige följer man i stort sett den utveckling som sker i Storbritannien med viss fördröjning.

Totalt intervjuades 47 personer i Sverige (och en inom handeln i Storbritannien) genom att de fick halv-strukturerade frågor och utrymme att berätta. Resultaten från denna studie av idag kan sammanfattas som:

– Det finns ett gap mellan de tre grupperna beträffande hur man ser på innovationer. Definitionerna är likartade men av de givna exemplen på innovationer på marknaden framgår klart att de olika aktörerna skiljer i sin uppfattning av vad som är en innovation. Detta kan bero på att man har olika roller, ingen gemensam vision och inget övergripande kedjeperspektiv utan arbetar inom sin egen ram.
– Innovationsbegreppet bör användas på nyheter som är mer än inkrementella enligt de intervjuade och baserat på deras synpunkter och olika definitioner i litteraturen, föreslås en ny definition som bygger i huvudsak på definitioner av OECD (2005) och Assink (2006) och som är bättre anpassad till livsmedelsrelaterade innovationer: *”An innovation is a new or significantly improved product or process or way of handling services, logistics, marketing and organisational issues internally and externally that has significant value to the relevant unit of adoption”.* Som en konsekvens av detta bör en

inkrementell innovation (t.ex. ny smak, ny förpackningsstorlek) kallas utveckling (”development”), inte innovation.

– Livsmedelsproducenter och handeln tycks utveckla *för* konsumenterna, inte *med* dem och samarbetet dem emellan förefaller begränsat till handelns egna varumärken och de säger sig heller inte lita på varandra. Producenterna utvecklar internt, inte över gränserna som i ”Open innovation” (Chesbrough, 2003), medan handeln köper in och lanserar nyheter från hela världen.
– Förpackningsleverantörerna förlitar sig på information från sina kunder om vad som ska utvecklas men är mer globala än övriga aktörer. För dem är det bara tillgänglighet av egna produkter till rätt kvalité/pris som begränsar den geografiska intressesfären och mycket av deras utveckling sker i Sverige. Detta borde vara en möjlighet för övriga aktörer att samarbeta mer med dem än hittills. Förpackningsleverantörerna önskar med konsumentinsikt hos sig själva för långsiktiga projekt.
– Kostnad är mer i fokus än kvalité, dvs. att addera värde, och oftast möts de olika aktörerna för att diskutera pris, inte produkter. Detta är en nyckelfråga medan exempel på andra är: mer differentierade produkter/förpackningar för handelns egna varumärken, olika konsumentkrav och trender (som när/lokal producerat, inga tillsatser/rena produkter, ekologiska, högre kvalité, bekvämlighet, roligare shopping), ökad global konkurrens, brist på gemensamma visioner (och även brist på stolthet hos tillverkarna), önskan att växa hos de flesta mm.

Om man jämför resultaten från idag mot dem från igår, visar det sig att förr kunde kedjan i Sverige samarbeta av olika skäl med innovationer medan idag sker samarbete inte särskilt ofta. Förhållanden och attityder i samhället har också förändrats, vilket måste tas med i analysen. Men någon form av samarbete krävs inom vissa områden som hållbar utveckling, säkerhet, kostnad mm, vilket framgår av litteraturen. Att det dessutom finns ett konsumentmisstroende mot industrin, vilket Wikström et al. (2010) redovisat, gör det inte lättare, om man inom sektorn vill förändra något i hur man arbetar med utveckling och samtidigt bygga förtroende.

Det finns vissa tecken på en önskan att samarbeta och konceptet ”coopetition”, samarbeta och konkurrera samtidigt (Bengtsson och Kock, 2000) är intressant. Detta sker ju faktiskt när producenter utvecklar och producerar för handelns egna varumärken och vissa gör det i en separat organisation från den som utvecklar producent varumärken. Ett annat tecken är att några av respondenterna från varje grupp av aktörer uttryckte en önskan om att kunna hjälpa varandra mer.

Bidraget som denna studie ger, förutom förslag till ny definition på innovation, är en överblick över hur de tre olika grupperna diskuterar och ser på innovation. Inom varje grupp är kanske resultaten inte särskilt nya men om man jämför så erhålls en holistisk bild av hur olika personer bedömer vad man gör, hur, vilka etc. från olika synvinklar. Frågan som väcks måste vara om detta är vad aktörerna önskar eller om man vill förändra något? Jag ser möjligheter till samarbete, men inte generellt utan inom områden där svensk livsmedelsindustri (handel, producenter, förpackningsleverantörer och andra

här inte undersökta leverantörer) har förutsättningar och kan konkurrera. För att illustrera detta har ett antal förslag till handling inför framtiden lagts fram, baserat på mina personliga reflektioner och intresse inom sektorn.

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1. Introduction

Innovative firms are more successful long-term. They possess a creative culture, a desire to succeed and empowerment at the employee level (Dobni, 2006). Innovation is part of a company's competitive advantage and, according to Grunert at al. (1997), there are two major views of innovation in the literature: that innovation is linked to technological change with R&D as a key factor, and that innovations should be market-oriented and fulfil the known or unknown wishes of customers/consumers. In reality both R&D skills and market-orientation skills are needed (Grunert et al., 1997). The main objective of an innovation is to create value for the customer/consumer but "Value exists only if the consumers perceive it as such, otherwise it is not added value but added expense" (Burt, 1989, p. 29). In more recent literature, transactions (with a focus on cost) are set against the trend towards relationship marketing (Bowersox et al., 2000; Gehlhar et al., 2009; Costa and Jongen, 2006). The latter emphasises the relations and actions needed to fulfil what consumers now and in the future might need and desire and "consumer delight" should be created (Mascarenhas et al., 2004). For the actors in the chain, the route to competitive advantage goes through the supply chain and "supply chains compete, not companies" (Christopher and Towill, 2002, p. 1; Lambert and Cooper, 2000). Hence, the supply chain perspective is increasingly important and according to Ferrari and Parker (2006) becoming the business model in many manufacturing industries. In recent literature, there is ample evidence for the value of increased collaboration in the chain (Bailey, 2010; Weaver, 2008; Mena et al., 2009).

Grievink et al. (2002) investigated the worldwide food sector in 2001. They asked two of the main actors – retailers and food manufactures – to list the main issues for themselves and what they thought they were for the others. Food manufacturers put innovation at the top of their own list, whereas retailers put safety first on their list for manufacturers followed by innovation. Retailers did not put innovation among their own top five issues, nor did the manufacturers in their list for retailers. In their mutual relations, Grievink et al. (2002) listed the major mistakes made, which for retailers were: too little attention to long-term strategy; too much focus on getting the lowest price; not enough attention for the added value that manufacturers can provide. For manufacturers they listed: not enough investment in product innovation; too much focus on their own playing field; insufficient knowledge about retailers' problems and issues. In other words, retailers and food manufacturers in the investigation did not see their main issues and innovation in the same light and did not share a common vision that enabled them to collaborate for the benefit of the whole supply/value chain. It was different in the Swedish food sector directly after World War II (WW II), when the

actors, all the way down to empowered individuals, did and could collaborate in the whole chain, including the packaging suppliers (Beckeman, 2006).

The research is longitudinal in nature. It started by studying the reasons for the rise of the Swedish food sector after WW II, which was the theme of the author's licentiate dissertation (Beckeman, 2006). This initial investigation will be referred to throughout the thesis as the **past** and described and referred to only when needed for comparisons and discussion of current results, as more details can be found in the licentiate dissertation. Hence the second part, the investigation of the food sector in Sweden today, which is the main theme of this doctoral thesis, will similarly be referred to as the **present**. Later on, the **future** will also come into the picture.

When researching the **present**, three groups of actors in the consumer food supply chain were studied – retailers, food manufacturers and packaging suppliers – and their attitudes and actions related to innovations and to each other's innovativeness in the Swedish context. Packaging suppliers were included as they actively contributed to the competitive advantages of the whole supply chain in the study of the **past** and also because the role of packaging in the supply chain in the **present** is not sufficiently explored (Olander-Roese and Nilsson, 2009), perhaps because packaging is seen as an integral part of the product (Hawkes, 2010).

Consumers are becoming more individualistic, more informed and demanding (Kandampully, 2002; Grunert, 2005) and hence less predictable to please – but they are not included in this research. One reason was because of the focus on investigating the main actors in the food supply chain in charge of innovating the products, packaging and services, how they go about doing it and their attitudes, including how they serve the consumers and add value. If and how they succeed has to be judged by the consumers in the long run, but this is not examined here. However, some rather recent and useful information about consumers in Sweden is available from other researchers (Wikström et al., 2010; Lareke, 2007).

Since 1995 Sweden has been part of the European Union, which includes the Common Agricultural Policy (CAP), and experiences here may have relevance in other countries. The overall opinion from earlier studies of the European food sector is that little really new or radical innovation is happening in the food industry (Christensen et al., 1996; Lagnevik et al., 2003). Many consumers are growing more and more sceptical of industry and new technologies like gene modified crops, processing, additives, etc. They tend to trust only themselves and home cooking, which adds to the bad conscience they have when this is not possible due to lack of time (Wikström et al., 2010). Still, food insecurity (i.e. fear of food shortage and misgivings about food quality and health aspects) is part of our historical inheritance according to Ferrières (2006).

Examples of innovations in the food sector are often new food products and sometimes new packaging and packaging systems, but the service aspects are becoming increasingly important (Vargo and Lusch, 2004; 2008). These include self-scanning, banking, etc., and this is an area where retailers innovate and add value to the shopping experience. A great number of new products are launched each year, offering an ever

increasing choice of varieties in tastes, appearances, shapes, sizes, brands, etc. but many of the products appear to be similar. The success rate of new products is quite low. Ryan (2007) reports that in the UK 90% of all new food and drink products fail within one year. Stewart-Knox and Mitchell (2003) attribute failure of new products to shortcomings in the methodology for food innovations. It could also be that new launches are based on yesterday's trends and in reality other wishes and needs of the consumer have priority today, or that the business model applied to capture value from innovations is not the most suitable one (Teece, 2010). Still, the limited success represents a waste of time, money and ambitions.

Looking back, one obvious difference from the **past** to the **present** is the development and impact of retailers' private labels and the "gate keeping" role by retailers (Dobson et al., 2003). They now control the product supply from producers to consumers and have the power in the chain, which in the past was in the hands of the food manufacturers (Fernie and Sparks, 2009). According to Van Donk (2001), the main reasons for this shift of power from manufacturers to retailers are: consumers' wish for differentiation; the restructuring of the supply chain by retailers to reduce cost and time and to push manufacturers for faster deliveries; mergers and acquisitions in the retail chain triggered by low retail margins. The trend towards a wider differentiation of products, packaging, recipes and delivery on demand (Taylor and Fearne, 2006) has resulted in smaller order sizes and designs (Van Donk, 2001; Van Donk et al., 2008) causing an increased squeeze on cost. Yet the wish remains: to produce and deliver just in time with lower cost and improved quality. Thus, the perspective of the whole supply chain and value chain are important for food innovations and efficient logistics have become a necessity to co-ordinate the various demands (Fisher, 1997; Gustafsson et al., 2006).

1.1. My interest and background

My professional interest in food started when working with product development of infant and baby food in Sweden in the late 1960s and later on in Switzerland. Further on, I continued to work with other development projects but nothing has affected me more than those years with infant and baby food. Since then I have become convinced that taste and overall food quality are of uttermost importance to most consumers and must be carefully controlled and documented and not left to wishful thinking and subjective claims.

After more than thirty years in the food related industry, working with development of products, processing and packaging, I was offered the opportunity to carry out research. Building on previous experience I studied the rise of the Swedish food sector; the what, why, how and who behind this development that started after World War II (Beckeman, 2006). This inevitably gave rise to the question that became the topic of this thesis, namely, what is the situation regarding innovations in the food sector today

about sixty years later? Many social and cultural changes have re-shaped our society and attitudes towards industry have altered. When starting to investigate today's situation, I was of the opinion that not much new development was taking place in the food sector – but to what extent that opinion was valid needed to be investigated. I also asked myself if innovations have to be made in Sweden as we live in a global world and have access to a variety of products, services, etc., from all over. By examining and describing the actual situation, some answers may be found, but only the actors in the supply chain, including the consumers, can provide them.

1.2. Study of the ***present*** situation: demarcations, purpose and research questions

Based on my own interest and involvement in development I wanted to find out more about some of the pieces in the puzzle of food innovations and related activities in Sweden today. Those who know more are the major actors responsible for creating value in the supply/value chain: retailers, food producers and packaging suppliers. There are other actors that are in the chain or can contribute to it, such as consumers/customers and intermediates like consultants, sub-suppliers of services, knowledge and equipment, etc. But the actors selected for this research are the major ones. Hence, the consumer perspective of how the selected actors succeed in innovating and adding value for them was not included in the research, although consumers are the final judges. To include them would have changed the focus and set up of the study and made it very large, as consumers of today are more individualistic than before and less inclined to be part of a group.

A personal *aim* was to generate a discussion among concerned people in Sweden about the results, if the situation described is correct, if they want it to remain as it is, or if they want to change and in that case, discuss their visions for the future and how they can be achieved. Hence, this thesis presents a multi-case study of three, focused on retailers, food manufacturers and packaging suppliers active in the consumer food supply chain in Sweden. The beverage sector and food service are excluded.

The *purpose* was to investigate if there is a gap today between how retailers, food manufacturers and packaging suppliers view innovations. This included investigating how they define innovations, if/how they collaborate in the chain as they did in the past in Sweden, or if retailers and food manufacturers today have the same differences in opinions as shown by Grievink et al. (2002), working in their own areas of interest and not for the whole value chain. In addition, the purpose was to describe and discuss the findings and relate them to relevant literature, to experience of the Swedish food sector in the **past** and to discuss the potential for innovations in the Swedish food sector in the **future**.

The *objective* of the research was to contribute to theory development but "ultimately, the theory may be useful for practice in general" (Dul and Hak, 2008, p. 31), which is part of my personal aim.

In each of the three case studies (of the **present**), the work was guided by two overall *research questions* (RQs), adapted according to the actors (for exact formulations see appended papers 3-5):

RQ 1) What does "innovation" mean to the different actors?

RQ 2) How is innovation performed – (in the **present**, **past** and **future**) – and what are the key issues?

1.3. Reader's guide

Chapter 1 The food sector, the importance of innovations and possible problems and gaps in opinions about innovation among actors in the supply chain are described. This leads to defining the purpose, objective and research questions for studying the **present** situation.

Chapter 2 The research journey and **present** research approach are presented as background to the research design (**past** and **present**), with a more detailed outline of the **present** study.

Chapter 3 The theoretical framework is described, with definitions, theoretical aspects and themes as background to the research along the lines of the two research questions in the **present** study.

Chapter 4 Main results and analysis in relation to the purpose and research questions are presented from the **past** study and the **present** studies, separately and as reported in papers. A comparison of the three **present** case studies is made and a new definition of food related innovations suggested. Finally, a comparison of the Swedish food sector of the **present** and the **past** is presented.

Chapter 5 The main conclusions are drawn and the contributions of this research are summarised.

Chapter 6 Personal reflections and suggested actions for future work to meet my personal aim with the study are presented and discussed.

2. Methodology

From earlier work I have a pre-understanding and personal experience of innovations in the food sector that undoubtedly have affected my approach to this research. From 1966 to 1998 I worked at Nordreco/Findus/Nestlé, then as a consultant with food and packaging development and finally at Tetra Pak and in Sweden and Switzerland. The work involved the development of food products, processes and packaging along with business development. I worked in project management, within the timeframe and resources given, and in close collaboration with marketing.

The **present** purpose was to investigate possible gaps in opinions and attitudes among the three selected groups of actors (retailers, food manufacturers, and packaging suppliers) regarding how they define innovation, how it is performed and different roles, collaboration, trends for the future, etc. If differences were identified, they would then be compared to the finding from **past** studies and data from the literature on innovation in order to contribute to a deeper understanding of the key issues regarding innovations in the Swedish food sector.

With my background in industry and being a strong believer that individuals matter (referring to my article on 'Edisons', 2008, appended paper 2), my approach to the present problem was qualitative, looking at the food sector as a system with different components, of which three components/groups of actors in the chain were selected.

2.1. The research journey

*Licentiate dissertation (**past**):* When I moved to Germany in 1998, I found myself with time on my hands and a good friend (Professor Gunilla Jönson) invited me to do research at the Division of Packaging Logistics, Faculty of Engineering (LTH) at Lund University. I studied how Sweden came to develop its modern food and packaging industry, a topic we did not know much about, nor did the students. This resulted in my licentiate dissertation, *The Rise of the Swedish Food Sector after WW II – What, why, how and who?* (Beckeman, 2006). In 2004 I moved back to Sweden and Lund and my research continued at a more concentrated pace. Besides studying the rather limited literature about Swedish development in the food area, I found information about other countries that were leading the way, in particular the USA after the War. But most information was gained by interviewing knowledgeable people from different areas of the food sector in Sweden who had been part of the development after the War or had

learnt about it in their occupations. The findings were concentrated to developments and events that took place directly during/after WW II and into the 1970s.

*Doctorial studies (**present**):* After the licentiate studies, I found it very tempting to find out how the Swedish food sector is doing today, more than sixty years later. My impression at the start was that not very much really new or radical had happened regarding products and new technology since right after the War but that the packaging industry was moving forward. I had limited knowledge about modern retailers, apart from that they are very successful in establishing themselves and have introduced their own private labels that directly compete with the manufacturers' branded products. Hence, the first phase was an exploratory interview study with experts in the field to determine the interest for the topic and test or gather suggestions for questions and interviewees to approach. In the further planning of the study, the retailers were to be interviewed first, followed by food manufacturers and then packaging suppliers as the last group.

Some studies about Sweden by other researchers have been published, particularly about retailing, private labels and Sweden joining the EU in 1995, and more recently also about consumers. But when examining the literature, it became quite obvious that the UK leads retail development in Europe and that the Netherlands, in particular, is quite active in researching the food industry.

As this research started as a much appreciated way for me to do something meaningful while living abroad, it has been entirely self funded: none of the participating companies or respondents were in any way involved in the funding and thus had no direct influence on the results.

2.2. Research approach

The food sector is composed of different parts/components and taken together, these represent a system with different characteristics than those of the individual components: the whole is more than the sum of the parts (Wallén, 1996; Arbnor and Bjerke, 1994). The intention with a system approach is to explain or understand the components based on the characteristics of the whole system. Actors can be a part and the system can be explained by understanding its actors and its interrelations. You work with analogies in that the components being compared are built on similar structures. You then try to explain some effects by identifying driving forces which can be more or less suitable or even destructive for the system. The results are in the form of typical and sometimes also unique cases, and different general mechanisms of classification (Arbnor and Bjerke, 1994).

There are closed and open systems. The latter's surrounding system environment is defined as "factors which are essential for the system to take into consideration but which lie outside its control" (Arbnor and Bjerke, 1994, p. 128 translated). In the study of an open system, an analysis aims to investigate the components and their relations to each other and to the whole system, as well as to the environment of the system. In

modern system theory, the systems investigated can be quite concrete and as a consequence the results become less general. Regarding validity, a common method to obtain some guarantee of valid results is to analyse the system from as many angles as possible, to interview or talk to as many people and study as much secondary material as possible (Arbnor and Bjerke, 1994).

The parts or components in the system can be individuals or groups of people, individual or several similar companies or institutions, etc., that can be studied as cases. In case study research both quantitative and qualitative methods can be used to collect and analyse data but the qualitative case study method dominates when it concerns practical problems from a holistic view, as for instance when studying a system built up of several actors. According to Merriam (1994), the focus is on process rather than results, on context rather than specific variables, and to discover rather than prove (i.e. to gain deeper insight into a given situation and how the people involved interpret it) (Merriam, 1994). There is a distinction between experimental and non-experimental methods. In the latter, the aim is to describe or explain. According to Merriam (1994), there are four fundamental characteristics of qualitative case studies: they are particulate (focused on a special situation, event, etc.), descriptive ("thick", i.e. detailed), heuristic (improve the understanding), and inductive (collect information in reality and draw theoretical and general conclusions).

Yin (2003, p. 13-14) defines the scope of a case study:

"*1. A case study is an empirical inquiry that*
- investigates a contemporary phenomenon within its real-life context, especially when
- the boundaries between phenomenon and context are not clearly evident".

This research started by examining the **past** with a near "historical" case study (with respondents who had knowledge of the period) and continued in the **present** with three contemporary cases and how they interact with each other and with the system and its environment.

"*2. The case study inquiry*
- copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
- relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result
- benefits from the prior development of theoretical propositions to guide data collection and analysis".

The historical case study of the **past** (i.e. the situation after WW II) was carried out with two groups, one with more general knowledge about the food sector and the second with those who had more expert knowledge (Beckeman, 2006).

The inquiry of the **present** situation started with an exploratory study with experts on food and packaging innovations and development representing the three groups of actors. It was followed by compiling interview data from three different cases within the same system and with similar questions being put to the respondents in each group. In addition, comparisons to literature and to the earlier case study were made. This resembles how Dul and Hak (2008, p. 4) define a case study: "A study in which (a) one case (single case study) or a small number of cases (comparative case study) in their real life context are selected, and (b) scores obtained from these cases are analysed in a qualitative manner".

Woodside and Wilson (2003, p. 493) widen the perspective by defining case study research as "inquiry focusing on describing, understanding, predicting, and/or controlling the individual (i.e. process, animal, person, household, organization, group, industry, culture, or nationality)".

The qualitative methods chosen in these case studies were: in-depth interviews based on semi-structured interview guides (see Appendices 1-3 for the recent case studies), literature studies during the whole period of research, and a consequent matching of the results with theory after finalisation of the interviews. Focus was on getting descriptive "thick" data, improving the understanding (heuristic), collecting information in reality and drawing conclusions (inductive) in a specific setting, as described by Meriam (1994) as characteristics for case studies.

2.3. Research design

The focus in this doctoral thesis is on the **present** situation in the Swedish food sector. At the same time it is a longitudinal study that started with an investigation of the **past** after WW II. Thus this section begins with a brief description of the design of the **past** study, followed by that of the **present** study described in more detail.

2.3.1. The historical case study of the *past*, the Swedish food sector after WW II

Open-ended interviews were carried out in two groups (more details in appended paper 1 and Beckeman, 2006). Eleven participants were selected based on their knowledge of the food sector and of the period after WW II along with an additional eight persons with more expert knowledge.

The *purpose* was to identify and describe the factors and reasons behind the growing Swedish (consumer) food sector after the War and particularly those underlying the major innovations. In addition it was to learn from the past and identify possible ways to proceed today in developing radical or really new technologies and food products, to launch them on the market and be accepted by the consumers.

Accordingly the *research questions* were formulated as:

- What were the major innovations/events behind the growth of the Swedish food sector after 1945?
- Why did these major innovations occur and what were the underlying driving forces?
- How was the innovative work carried out?
- Who became involved in and contributed to the development?
- What can we learn today?

With the criteria and selection of respondents, the findings were relevant for developments and events that took place directly during/after WW II and into the 1970s.

2.3.2 The study of the *present* situation in the Swedish food sector

Following the classification by Arbnor and Bjerke (1994), the system studied was an open one and the cases studied as components of the whole system often share a culture (i.e. have common values). The focus was on explanations and descriptions in a defined context from the perspective of the interdependencies of three groups of actors. The context was the supply/value chain for food in the Swedish consumer market and the three actors were packaging suppliers, food manufacturers and retailers.

The investigation started in 2007/2008 with an exploratory study. It continued by going "backwards" in the consumer market supply chain by first interviewing the retailers, then the food manufacturers and finally the packaging suppliers on their views of innovation and their roles (Figure 1). This is because I have worked with food manufacturing and packaging innovations but not at all with retailing and wanted to learn from them before interviewing the other two groups.

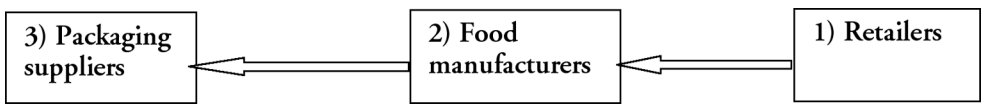

Figure 1: The sequence of the three case studies

The three groups of respondents constituted the open system to be studied and were examined in three case studies, with research questions starting with how and what (and/or similar) and about contemporary events (Yin, 2003).

The research *purpose* was to investigate if there is a gap between how retailers, food manufacturers and packaging suppliers view innovations. The work was guided by the two *research questions*: RQ 1) What does "innovation" mean to the different actors? and RQ 2) How is innovation performed (including identification of the key issues)?

The *demarcation* was that the study focused on three groups of actors (retailers, food manufacturers and packaging suppliers active in Sweden) in the (consumer) supply/value chain as three cases. The end-users/consumers were not included nor were different

intermediates (other suppliers or sub-suppliers of technology, knowledge, ingredients, equipment, consultancies, etc.) or supply chains outside the consumer retail market or alternative supply chains such as the farmers' own markets, direct deliveries, on-line shopping, etc. The demarcation was due to the fact that the three selected groups are the major ones in creating value and innovation in the food supply chain and more or less in competition with each other. Not all the interviewed companies are totally or partly Swedish owned, but all have activities in Sweden including some development.

The study started with initial interviews of an exploratory group of experts in the field to gain more insight into the supply chain. Fourteen expert participants were selected for open-ended interviews as they had long experience in the food sector. They were a mixture of professors from academia and institutes, people actively involved in branch organisations and with past experience in R&D or marketing. One came from a food branch journal. The purpose was to get their help in identifying issues and important aspects in the Swedish food sector concerning innovations, such as attitudes among different actors, ways of working and collaboration, as well as to elicit suggestions of suitable companies and interviewees that could contribute to the study. The participants of the exploratory group confirmed an interest in the topic, contributed with aspects and suggested companies and names of appropriate people to approach in the coming case studies. They also tested some of the questions to be included in the interview guide. The guides were similar but adapted for the three groups, see Appendices 1-3. The interviews with the exploratory group took place in 2007 and 2008.

Eleven of the fourteen members in the exploratory group were included in the compilation of results and analysis of the individual cases and allocated, depending on their experience, into the different groups. The remaining people ("others") from the exploratory group could not be allocated into a specific group since they had knowledge of the whole sector.

The total number of respondents, including both the exploratory group and the three cases, are shown in Table 1.

Table 1: Number of respondents in the exploratory and case studies

	Retailers		**Manufacturers**		**Packaging suppliers**		**"Others"**
Type of study	No. of retailers	No. of interviewed	No. of manufacturers	No. of interviewed	No. of suppliers	No. of interviewed	No. of interviewed
Exploratory:		5		5		1	3
Case study:	4	9	12	16	6	9	

47 respondents were interviewed in Sweden and 1 in the UK (Professor Leigh Sparks, Sterling University and an authority on UK retailing) for a total of 48 including the initial exploratory group members.

In selecting the respondents it was obvious that the four major retailers on the consumer market had to be chosen as they represent a market share of around 91% (Axfood, 2010). The criteria for selecting food manufacturers were that they are considered innovative and successful on the Swedish market and that the group as such represents a

spread of company size (no. of employees) (Table 2 in appended paper 4). The actual selection was based on suggestions from the exploratory group, my own and colleagues' knowledge of food manufacturers. Criteria for the packaging suppliers were also that they were innovative and successful on the Swedish market. They were selected based on suggestions elicited from food manufacturers and retailers that were interviewed prior to the packaging suppliers.

Gummesson (2000) wrote that one problem might be getting access to the object of study. Thanks to input from the exploratory study and my own experience of the food sector, access to relevant companies/firms and persons did not pose a problem. I started with the four largest retailers in Sweden, wrote to the CEO or a suggested senior manager and presented the study, my background and reasons for doing the study – referring to my previous licentiate study for which some retailers were interviewed as well. In some cases I was further referred to someone in the management group, described in appended paper 3. I wrote to them and presented the case and dates were set up. The websites and organisations were studied before the interviews that took place on the retailers' premises.

A similar procedure was applied to the food manufacturers and packaging suppliers, contacting the CEO or R&D directors. The outcome of the selection of respondents and their present positions are shown in appended papers 4 and 5 for food manufacturers and packaging suppliers, respectively.

None of the companies/persons approached declined to participate in the study or to be listed by name in Appendix 4 of this thesis.

Table 2: Educational background of the respondents in the three case studies

13 in retailing	**21 in manufacturing**	**10 in packaging**
9 in business and economics 1 with studies in economics and internal training 2 with internal training 1 in agriculture	10 in engineering 8 in business and economics 3 with other higher education	5 in engineering 3 in business and economics 2 with other higher education

No major differences in the answers were found between those with technical versus those with business and economics training among the food manufacturers and packaging suppliers when defining innovations, roles, trends, etc. (Table 2). Still, it is interesting to note that practically all the respondents, in the retail group had a business and/or economics background, and that only in the retail group does it seem possible to have a career without formal higher education before employment.

The interviews of the three groups took place during 2009. Most of them were recorded and transcribed. When they were not it was due to failure of the recorder, that the interview took place via the phone, or that the situation did not make it feasible. Hence, of the 48 interviews, 37 were recorded and notes were taken during the others.

The articles resulting from interviews of the three different groups (appended papers 3-5) were reviewed by some of the respondents from each group before being sent in to

journals in order to increase the validity. Why only some received the articles for review was simply that all could not be reached because they had left the company or moved to another position in reorganisations. The articles were met with interest and approval of the contents by the reviewing respondents.

2.3.3. Analysis of data from the *present* study

The data in the interviews were analysed by reading the transcriptions and notes and marking words and themes according to the purpose, research questions and important aspects mentioned in the literature (Miles and Huberman, 1994). An example from the analysis of case 2, food manufacturers, is shown in Table 3 (from appended paper 4).

Table 3: Conceptual model of analysis (food manufacturers) linking the literature to the empirical work

Main questions from Appendix 2 (abbreviated)	**Question no.**	**Main references**	**Information sought**
What is innovation? Please give examples.	2	Kotler in Grunert et al. (1997); Garcia and Calantone (2002); Deschamps (2008); Vargo and Lusch (2008) – service	Definitions, radical versus incremental; how updated they are about the value chain and what others are doing; types of innovations (i.e. packaging, service, etc.) alongside products.
Collaboration in and/or outside the chain: - Who should innovate? - Where do you find new ideas? - Who should take part in NPD (new product development)?	2, 3, 5	Spekman et al. (1998); Lambert and Cooper (2000); Vereecke and Muylle (2006); Grievink et al. (2002); Chesbrough (2003) – Open innovation and internal/ external collaboration	Roles in innovations, theirs and others; informed about others' innovations inside or outside of Sweden; any network for new ideas and products and collaboration in general (institutions, abroad, etc.).
Do you collaborate with users/ consumers? Or suppliers?	3, 5	Von Hippel (2001); Grunert et al. (2008); Mascarenhas et al. (2004); Petersen et al. (2003)	How do they approach the NPD process? Who is involved and how?
Trends and future of innovations and of private labels.	4,5	Reynolds and Hristov (2009)	Relate the trends to examples of innovations and discussion about the future.
Do you collaborate with retailers? - Produce private labels? - Develop with one retailer? - Squeezed by retailers? - Category management - Co-branding	4 5 8	Grunert et al. (2008); Reynolds and Hristov (2009); Anselmsson and Johansson (2007) – collaboration in the chain	Pinpoint collaboration with retailers – and if manufacturers are aware that the main retailers employ food experts and that they might go for open innovation as in the UK.
What are retailers missing in relation to you?	6	Grievink et al. (2002); Beckeman and Olsson (2011)	Find out if there is any interest to collaborate and share knowledge.
Food manufacturers specifically - Work with new technologies? - Export? - Logistics? Needs?	 3, 6 3 7	Christensen et al. (1996); Lagnevik et al. (2003)	Find out if food manufacturers are aiming for more unique products based on new technologies and how they view exports – in relation to trends.

Do you trust each other in the chain?	8	Lindgreen (2003); Beckeman and Olsson (2011)	Without trust, there is no collaboration.
Do you want to grow? How?	9	Empirically based question	Find differences between smaller and bigger companies.

Very recently the concept of coopetition (cooperative competition) was brought to my attention and the interviews were checked for possible examples that I had listed as collaboration. More about this follows in the theoretical framework and results and analysis chapters.

2.3.4. Possible bias

As I have worked both in the food manufacturing and packaging areas and with development, I have personal experience in these two areas and some indirect knowledge of retailers. According to Gummesson (2000), experience is important in developing understanding and the insight and type of knowledge and personal attributes of the researcher play a role. He concludes that there is a need for pre-understanding and understanding, although he warns against that he calls blocked pre-understanding (i.e. becoming "an expert ad absurdum") (Gummesson, 2000, p. 62). I have been fortunate to work in quite innovative and successful companies (i.e. in more than one company at different places in the food value chain), in different positions and in different countries. I have thus gained experience from different perspectives and due to this, possible bias has been significantly reduced. Another factor is that the work performed has been self-financed with no monetary support from any of the companies or participants involved, which removes the risk of bias from supporting organisations.

2.3.5. Validity and reliability

Validity and reliability are closely connected in case studies as well as generalisation. Validity is divided into construct, internal and external validity (Yin, 2003). Internal validity is linked to how well the results actually reflect the reality and several strategies are suggested by Merriam (1994). Among the six suggested strategies are triangulation (i.e. use of several methods and sources of information), which is done in this research, and participant controls, which were also carried out here by sending articles to respondents before publication. Reliability concerns being able to replicate the results, but Guba and Lincoln (1981, referred to in Merriam, 1994) claim that internal validity is more important than reliability, as internal validity requires reliability. They claim that the latter should rather be expressed as "degree of dependence" and "context". External validity or generalisation relates to how applicable the results in one study are to other situations. According to Merriam (1994), one cannot generalise from one case study. In this research there are three cases studies that examine the same situation but from different contexts/perspectives and the results can to a certain extent be gen-

eralised on issues where there is agreement or similarities. And, according to Merriam (1994), the aim is to look for interpretations of the results and not hard facts.

A point of caution: The results are based on what a number of respondents chose to answer to the questions posed. As innovation, development and strategy are a competitive edge for a company, the respondents may not have been completely open in their answers. However, saturation was reached in several answers and the contents of the papers from the three case studies have been approved by respondents from each group. Some (translated) citations have also been included to add to the rigour of the results.

3. Theoretical framework

This chapter contains definitions, theoretical aspects and themes as background to the **present** study and to the two research questions about what innovation means to different actors (RQ 1), how it is performed and the key issues involved (RQ 2), particularly related to food. Some of these theoretical aspects have already been referred to and discussed in the appended papers but the aim here is to widen and deepen them in order to create a background for the results and analysis in the next chapter. In addition, some recent studies by other researchers regarding food in Sweden have been published that are relevant to this thesis. They are referred to at the end of this chapter. Sweden, being part of the EU since 1995, is also greatly influenced by European member states and the USA.

3.1. The supply/value chain

Mentzer et al. (2001, p. 4) define a supply chain as, "A set of more companies directly linked by one or more of the upstream and downstream flows of products, services, finances, and information from a source to a customer". Cruz and Boehe (2008) describe a global value chain as comprising all activities that bring a product from conception to market and add the concept of sustainable development, "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs", citing the Brundtland Report from 1987 (Cruz and Boehe, 2008, p. 1189).

Value according to Payne and Holt (2001) can be seen from three distinctive perspectives: creating and delivering superior customer value, customer perceived value, and value of the customer to the firm. Product quality alone is not enough to create value and the key success factor for a company is to deliver better customer value than the competition. Lindgreen and Wynstra (2005) discuss two directions: value of goods and value of relationships between buyer-supplier. Relationship marketing is said to be a paradigm shift from transaction based exchanges.

Grievink et al. (2002) investigated the changing worldwide food industry in 2001. They interviewed 65 CEOs and received answers to questionnaires from 225 retailing and marketing executives. Major issues for retailers as judged by retailers and manufacturers are shown in Table 4 and major issues for manufacturers according to manufacturers and retailers in Table 5 (Grievink et al., 2002).

Table 4: Major retailer issues according to retailers and manufacturers

Issues in order of importance for retailers	**Issues in order of importance for retailers according to manufacturers**
1. To create and retain store loyalty	1.
2. To hire and retain qualified personnel	3.
3. To make significant use of the available knowledge of the consumer	2.
4. To recognise the attractive areas for expansion	4.
5. To increase involvement in the food chain	5. To create a clear, distinct profile for the organisation

Source: Grievink et al., 2002, p. 414-416

Table 5: Major manufacturer issues according to manufacturers and retailers

Issues in order of importance for manufacturers	**Issues in order of importance for manufacturers according to retailers**
1. Product innovations	2.
2. Obtain a stronger relationship with the consumer	4.
3. Food safety and guarantees	1.
4. Delving deeper into the retail operations and the accompanying need for profiling and assortment segmentation	3.
5. To increase in scale	5. Further re-orientation of the core business and split-off of parts of the organisation

Source: Grievink et al., 2002, p. 414-416

In 2001 innovations were seen by the interviewed food manufacturers as their most important issue and judged second for manufacturers by retailers, who themselves did not list innovations among their top five issues. Consumers are mentioned in both tables and food safety is number one on the retailers' list for manufacturers but number three for the manufacturers themselves. The tables show that there was limited consensus among retailers and food manufacturers on the major issues in the chain in the study by Grievink et al. (2002).

3.2. "Innovation" according to the literature

An innovation is the combination of two processes: invention and implementation, the latter leading to commercialisation of the invention (Deschamps, 2008). According to Kotler (referred to in Grunert et al., 1997, p. 4) an innovation can be a product, a process, a service or a new way of doing things and "refers to any goods, service, or idea

that is perceived by someone as new". The trend in recent years in innovation research has been to emphasise not only goods but services "to a new dominant logic for marketing; one in which service provision rather than goods is fundamental to economic exchange" (Vargo and Lusch 2004, p. 1). This is because "a service-centred view is inherently customer oriented and relational" (Vargo and Lusch, 2008, p. 7).

The OECD Oslo Manual (2005) defines four types of innovation:

1. Product innovation: "A good or service that is new or significantly improved. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics".

2. Process innovation: "A new or significantly improved product or delivery method. This includes significant changes in techniques, equipment and/or software".

3. Marketing innovation: "A marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing".

4. Organisational innovation: "A new organisational method in business practices, workplace organisation or external relations".

Deschamps came up with another way of grouping categories of innovations. He divides them into four innovation groups requiring different processes, structures, cultures and people (Deschamps, 2008, p. 23):

1. 1. "new/improved products, processes or service offerings;
2. 2. "totally new product categories or service offerings;
3. 3. "totally new business systems or models;
4. 4. "new/improved customer solutions".

The height of an innovation may vary and range from radical ones "that cause marketing *and* technological discontinuities on *both* a macro *and* microlevel," to incremental ones "only at a microlevel and cause either a marketing *or* technological discontinuity but *not* both"; really new innovations are in between (Garcia and Calantone, 2002, p. 120). Based on the definitions by Garcia and Calantone (2002, p. 121), there are eight combinations of possible innovation types (Table 6).

Table 6: The different types and levels of innovation with examples (after Garcia and Calantone, 2002, p. 121)

Type of innovation	Level	Examples
Radical	Macro: M* and T** disc.*** Micro: M and T disc.	Steam engine, telegraph
Really new	Macro: T disc. Micro: M and T disc.	Canon laser jet, electron microscope
Really new	Macro: M disc. Micro: M and T disc.	Sony Walkman, early telephone
Really new	Macro: M disc. Micro: M disc.	Early commercial jetliner
Really new	Macro: T disc. Micro: T disc.	Diesel locomotive
Incremental	Micro: M and T disc.	Supersonic transport, BMW-M5
Incremental	Micro: T disc.	Digital automotive control system
Incremental	Micro: M disc.	Health food

* Marketing
** Technology
*** Discontinuity

Thus a radical innovation "can be identified by the initiation of a new technology *and* new marketing S-curve" (Garcia and Calantone, 2002, p. 122). This means that very few radical innovations are to be found. With the above definitions and examples in the table by Garcia and Calantone (2002), most innovations of moderate height are "really new" and fit into one of the four levels above (Garcia and Calantone, 2002). Radical innovations, and also some really new innovations, are sometimes called "disruptive" or "discontinuous" or "breakthrough". A breakthrough innovation is defined by O'Connor et al. (2008, p. 11) as "the creation of a new platform or business domain that has high impact on current or new markets in terms of offering wholly new benefits *and* high impact on the firm through expansion into new market and technology domains, increased revenues, and ultimately increased profits".

Incremental innovation processes, such as the stage-gate processes, are mainly linear, whereas the processes for more radical innovations are often more like a spiral or a circle with continuous fast feed-forward and feed-back loops; the process is affected by economic, social and political factors, competition, infrastructure, resources, corporate structure and culture (Assink, 2006). Assink defines innovation as, "The process of successfully creating something new that has significant value to the relevant unit of adoption" (p. 217), and a disruptive innovation as, "A successfully exploited radical new product, process, or concept that significantly transforms the demand and needs of an existing market or industry, disrupts its former key players and creates whole new business practices or markets with significant societal impact" (p. 218).

Obviously different activities are reflected in the various definitions of innovations. In the appended papers the main references are Kotler (referred to in Grunert et al.,

1997) and Garcia and Calantone (2002). This is because Grunert is a well-known authority on innovations in the food industry and Garcia and Calantone have contributed with several aspects of innovations and provided a clear definition and distinction between radical and incremental innovations. Their eight levels of innovation in Table 6 will later be applied in analysing the results. But however innovations are defined, the chance of success is rather low, and limited information is available about the "radicalness" of the new offerings that succeed or fail.

3.3. Product launches and failure rates

In the appended papers a failure rate of new products of 80 to 90% is quoted during the first year of launch, referring to Rudolph (1995) and valid for the US market in 1993. Nothing is mentioned in his paper about the type of innovation and how radical they were.

In a more recent paper by Fornari et al. (2009, p. 32), they define a "real innovation" as being "able to create concrete market revitalisation by means of introducing products new from the point of view of both the companies developing them and for the market in which they are proposed". Based on this definition they found that about 20% of the Stock Keeping Units (SKU) (i.e. not only food) in Italy the last three years can be defined as really new products and the rest line extensions, new products only for the company, new packaging formats, more service contents, etc. Fornari et al. (2009) classified the success of new products with two parameters (average weekly sales and % of total sales) into four groups. Of all newly launched products, only 1.8% were considered successes, whereas an additional 5.3% were considered worth keeping under observation for a longer time as potentially innovative products. The 1.8% "represents the real innovation, i.e. the products which have been able to satisfy both consumers' and distributors' requirements (Fornari et al., 2009, p. 34). Products by brand leaders are said to represent 75.5% of successful new products (Fornari et al., 2009).

Stewart-Knox and Mitchell (2003, p. 58) define a "new food product" as "one that is new to the consumer" and consider that only 7-25% can be considered "truly novel"; referring to work by others (including Rudolph, 1995), they estimate that 72-88% of new food products fail.

Costa and Jongen (2006) state that only 2.2% of new products are radical (not specifically defined) and 77% only incremental, referring to Ernst & Young Global Client Consulting from1999, and that 40-50% of new products are off the shelves within a year; me-too launched products in Europe fail 18% more often than line extensions and about 24% more than truly new products. This would support the opinion that consumers' aversion to too much novelty and that eating preferences and habits are difficult to change would create a high barrier to "genuine" innovations (Costa and Jongen, 2006, p. 457). But they insist that behaviours and habits do change and that the globalisation of the market makes innovations necessary.

Ryan (2007) reports that in the UK 90% of all new food and drink products fail within one year. His survey indicates that the companies involved in new product development (NPD) do not have an explicit strategy and do not approach NPD in a market-oriented way. Farmers are too far from the consumers and few retailers dominate the market in the UK. Similarly in a Nielsen report from 2001 about the UK (referred in Hughes, 2004), it is claimed that nine out of ten new grocery products fail within 12 months of launch.

Annually in Sweden about 4000 new and modified products/articles are launched and about 20% of them succeed (Wallteg, 2008) but no information is given about the level of "radicalness".

3.4. Performing innovation

Stewart-Knox and Mitchell (2003) conclude that the failure of new products might indicate shortcomings in the methodology for food innovations. One could also add that the low success rate means a waste of resources and a lot of human disappointment. Obviously few new products survive and more efficient ways to innovate are needed. Hughes (2004) refers to a Nielsen report from 2001 where they identified six factors that are of particular importance for a successful launch of a new product:

- True innovations, not me-too or line extensions
- New products must meet what they promise (e.g. most convenient, best tasting, etc.)
- Long-term marketing and R&D support
- Big companies are usually more successful as they have access to more resources
- Being first to market is a competitive advantage
- Include consumer trial as a key to success

Another reason for failure besides shortcomings in the methodology of innovations (Stewart-Knox and Mitchell, 2003) could be that the right business model to "capture value from innovations" (Teece, 2010, p. 183) has not been designed.

The more radical an innovation, the higher the uncertainty and risk, and consumers very often have an aversion to risks (Galizzi and Venturini, 1996). It has been assumed that consumers would accept new food if it meets consumer perceptions of benefits (Partos, 2009). However, Frewer et al. (2003) found in connection with functional food that it is not that straight forward. They propose trying to understand consumers' risk perceptions and concerns in relation to process technologies, new and emerging, and in relation to their own health concerns and then develop appropriate information strategies. Calantone et al. (2006) warn along similar lines that product innovativeness can be detrimental to success if the customers are not familiar with the new product and the innovativeness does not improve product advantage. They suggest that firms

emphasise product innovativeness only when relevant, when customers are familiar, and when existing technical and distribution abilities can enhance product quality and customer understanding. There is a link: product advantage-product innovativeness-customer familiarity (Calantone et al., 2006). Scholderer and Frewer (2003) tested attitudes and different information strategies for genetically modified food in several countries and found that the negative attitude did not improve with more information; it actually became worse in that specific case. Risk management is thus important and related to innovation, and innovations offer a number of challenges to business leaders (Deschamps, 2008).

According to Gehlhar et al. (2009), the global food industry is changing as it feels the pressure of strong retail brands. The survival of a manufacturer brand depends on being a leader, unless they choose to become a low-cost manufacturer for private labels (i.e. retailer brands) or "becoming a manufacturer of their own branded products taking on responsibility for and risk of product innovation" (Gehlhar et al., 2009, p. 115). To be a leader implies among other things being able to achieve adequate distribution for one's products and to differentiate one's offerings from the competition. Today mass production is replaced with mass customisation. Each firm has a collection of special resources and if they are aware of which ones they possess the better off they are for innovations and sustainability. Branded manufacturers need, besides branding, the power to create and process innovative products. Small and medium sized enterprises (SMEs) might choose to become private label manufacturers or food service providers or they have niche capability. Health, vitality and convenience food are becoming more important and require investments in new processes, ingredients, new technology and the manufacturer needs to use strategic resources (Gehlhar et al., 2009).

According to Fortuin et al. (2007), companies on the top should have a prospector strategy, "a strategy to bring a continuous stream of innovative new products to the market or implement new processes before competitors do" (Miles and Snow, 1978, referred to in Fortuin et al., 2007, p. 2) (i.e. to innovate continuously). They investigated a number of large multinational prospector agrifood companies and identified key success factors: team communication, product superiority and the expected high market volume. They concluded that the project should be cross-functional, have a heavyweight leader for team communication and provide a clear product definition. In the past these companies flourished based on technical expertise but today they need to pay attention to market and product activities (i.e. detailed market studies and clear product definitions) before development (Fortuin et al., 2007).

Packaging and packaging suppliers are either neglected or taken for granted in the supply/value chain as packaging is considered part of the product (Rundh, 2005; appended paper 5). Packaging is defined as "a coordinated system of preparing goods for safe, efficient and effective handling, transport, distribution, storage, retailing, consumption and recovery, reuse or disposal combined with maximising consumer value, sales and hence profits" (Saghir, 2002) (i.e. of utmost importance for both supply and value chain). Wells et al. (2007) found that over 73% of interviewed consumers stated

that they rely on packaging to aid their purchasing decision. Ahmed et al. (2005) list four main packaging elements that influence the purchase of a product and divide them into visual elements (i.e. graphics and size/shape of packaging) and informational elements (i.e. information provided and technologies used in the packaging). They refer to research indicating that the impact of visual packaging elements is stronger when consumers have low levels of involvement with the product due to time pressure, and is weaker when they have high levels of involvement due to less time pressure. The impact of informational packaging elements is the opposite: stronger when consumers have high levels of involvement with the product due to enough time on hand, and weaker when they have low levels of involvement due to time pressure (Ahmed et al., 2005).

The importance of packaging is not sufficiently investigated according to Olander-Roese and Nilsson (2009), perhaps because packaging is seen as an integral part of the product (Hawkes, 2010). For this reason it has been advocated that product and packaging should be developed simultaneously (Chan et al., 2006; Bramklev, 2007; Olsson and Larsson, 2009).

3.5. Business models and strategies for innovation

Teece (2010) noted that failure in innovation could depend on not designing the right business model. There are different models and strategies to innovate and create business and to do it successfully usually involve several actors. Co-operation or other forms of collaboration and/or competition between actors or supply chains can be part of the business model and the strategy, as well as coopetition (i.e. to co-operate and compete simultaneously) (Bengtsson and Kock, 2000). These processes are reviewed in this section and followed by describing different partners, concepts, and examples of working together to innovate and add value.

3.5.1. Business models

A business model "defines how the enterprise creates and delivers value to customers, and then converts payments received to profits" (Teece, 2010, p. 173). It can be a competitive advantage, an innovation in itself, if sufficiently differentiated and difficult to imitate but usually that is not enough (Teece, 2010). For a sustainable business model strategy, analysis is essential and the model should be reinforced by supporting processes that make it difficult to imitate. An example is Wal-Mart and the way it operates in the USA. According to Teece (2010), Wal-Mart selected smaller towns, too small to support another similar store. They had national brands discounted and worked to establish lean and innovative purchasing logistics and IT systems. In addition to establishing a business model that is difficult to imitate, a company can make the model have a certain level of opacity and competitors might hesitate for some time, being afraid of

cannibalising existing operations. Still, competition will follow and copy a successful business model.

A critical part of a business model is to find ways to capture the value of innovations. Teece (2010, p. 184) suggests a framework with two extremes:

- At one end an integrated business model, "in which an innovating firm bundles innovation and product together, and assumes the responsibility for the entire value chain".
- At the other end the outsourced approach (i.e. licensing), which is possible only with strong intellectual property rights.

In between are hybrid approaches with mixtures of the two extremes and this is the most common approach (Teece, 2010). One reason for market failure of innovations is insufficient investment in R&D, according to Teece (2010). One way to get around this is to bundle inventions and complements into products (i.e. complementary products and services). Teece goes on to state that "technological innovation often needs to be matched with business model innovation if the innovator is to capture value" (Teece, 2010, p. 186), and particularly more radical innovations. "One needs to distil fundamental truth about customer desires, customer assessments, the nature and likely future behavior of costs, and the capabilities of competitors when designing a commercially viable business model" (Teece, 2010, p. 187), and "in many sectors, the supply side driven logic of the industrial era has become no longer viable" (Teece, 2010, p. 172).

Outsourcing, one extreme in the Teece (2010) business model framework, can be a consequence of specialisation along the value chain. This means that a product will be more competitive in price, quality and innovation (Dankbaar, 2007). Hence, parts of the chain activities might move to low wage locations (i.e. become outsourced). When outsourcing manufacturing, development might follow and only research and branding remain. Outsourcing of manufacturing is not an option if a company is planning to remain actively engaged in more than just incremental product development according to Dankbaar (2007), but to outsource component production could be an option. Those contracted in a low wage country will strive to develop and climb the value chain and become competitors. Dankbaar (2007) claims that the long-term impact of outsourcing manufacturing might be a loss of innovative capabilities and thus one should maintain in-house manufacturing activities. Dabhilkar and Bengtsson (2008) investigated outsourcing of manufacturing (not specifically food) and the relative improvement potential by Swedish firms and concluded that there is a far greater performance improvement potential in investing in, rather than divesting, the manufacturing function.

Logistics outsourcing is growing (Hsiao et al., 2010) and a number of network players – DHL, TNT – have emerged. Outsourcing is mainly related to cost savings but what about service benefits in the food industry that are more complex with seasonality? According to different authors referred to by Hsiao et al. (2010), outsourcing of non-core business has positive impacts on innovativeness, cost efficiency, profitability

and logistical flexibility. Regarding logistics service, the most used service performance indicators are: delivery reliability, delivery flexibility, and order lead time. They mention four levels of logistics activities: 1) transportation, 2) packaging, 3) transportation management, and 4) distribution network management. Outsourcing was found to have no direct impact on service performance in any of the levels. But the performance increased with an increasing degree of demand complexity and outsourcing on level 4 and chilled foods have higher service performance than non-chilled (Hsiao et al., 2010).

3.5.2. Co-operation/collaboration

Collaboration is "a process where a group of autonomous stakeholders in a problem domain engage in an interactive process, using shared rules, norms and structure, to act or decide on an issue related to that domain" (McCarthy and Golocic, 2002, referred to in Osarenkhoe, 2010, p. 346). Co-operation is defined as "a relationship in which individuals, groups, and organisations interact through the sharing of complementary capabilities and resources, or leveraging these for the purpose of mutual benefits (Blomqvist et al., 2005, referred to in Osarenkhoe, 2010, p. 346). But according to the Merriam-Webster dictionary, co-operation and collaboration are synonyms and indicate working jointly with others for mutual benefits.

Co-operation or collaboration (treated as synonyms if not otherwise indicated) along the entire supply chain exist in many industries and this is the starting point for supply chain management (Spekman et al., 1998) (i.e. mainly vertical collaboration). "Collaboration requires high levels of trust, commitment and information sharing among supply chain partners" (Spekman et al., 1998, p. 57). In addition, partners should share a common vision of the future. Measurements for success involve cost, speed, innovation and customer satisfaction. Spekman et al. (1998) state that collaboration is not for every buyer-seller relationship and that partners and strategies must be selected with care, but that sharing information is essential for developing a more integrated supply chain.

The objectives for collaboration vary. Between retailer and manufacturer it might be to increase sales, create a more efficient value chain and improve service level (Bailey, 2010), while versus the consumer it might be to create more value by collaborative pull innovation (Weaver, 2008). According to Weaver (2008), three major forces are behind the reorientation from a push to a pull system – the "new economy": general technological change, information and communication technology revolution, and institutional changes. The results of these forces are increased competition, differentiated products, changing consumer demands and moving away from only a cost reduction focus. This in turn requires flexible technologies and process co-ordination vertically, horizontally and spatially across firms and linking to consumers: ". . . management of these interorganizational processes poses a fundamentally new challenge to yesterday's silo enterprise managers" (Weaver, 2008, p. 391). Strategies for survival involve going

from silo to relational forms, to reorientation towards the consumer and pull innovation based on collaboration.

Mena et al. (2009, p. 764) summarised some of the claimed benefits of collaboration in the supply chain: ". . . lower cost and inventory, higher efficiency, improved customer service, reduced cycle times, faster time to market, increased risk sharing, improved learning and knowledge exchange, higher profit margins, improved shareholder value and increased competitive advantage over other supply chains". But they found, contradictory to common assumptions, that actual collaboration within organisations might be less than between organisations such as between customers and suppliers, when studying two cases in the UK food and drink industry. Dunne (2008) concluded that a company should develop its own collaborative capabilities before collaborating with supply chain partners as it is a demanding task. As an example, Dunne (2008) describes how a closer relationship between a manufacturer and a packaging company could be formed by going into a joint strategic development project in packaging. Lambert and Cooper (2000) note that competition is no longer between organisations in a supply chain but between supply chains; the success of a single actor/business will depend on his/its ability to integrate into a chain.

Where many actors are involved, interaction and collaboration in the chain become necessary along with the creation of trust (Grievink et al., 2002; Grunert et al., 2008). Trust (Mayer at al., 1995, referred to in Vlachos et al., 2008, p. 268) means "the willingness of a party to be vulnerable to the actions of another party based on the expectations that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party". Trust is often defined as a willingness to take risk. There are different types of trust (Lindgreen, 2003) such as general trust, system trust (written rules), process-based trust (repeated interactions and the history of that), personality-based trust; each type is a valuable strategic variable. When one type is not available other types can be used. Many European consumers do not trust the food industry or the government, perceived as lying about safety and scientific data: ". . . trust encourages partners to co-operate, seek long-term benefit and refrain from opportunistic behaviour" (Lindgreen, 2003, p. 313). Part of trust is honesty, safety, credibility and previous experience. Communication to consumers is believed to foster trust (Lindgreen, 2003).

With many actors and the need to integrate, efficient logistics is important in the supply chain. Gimenez and Ventura (2005) found that integration in the logistics-marketing interface does not lead to reductions in costs, stock-outs and lead time but the integration in the logistics-production phase improves these parameters. External collaboration among supply chain members always contributes to the logistical performance.

Vereecke and Muylle (2006) investigated performance improvement in the supply chain and found that collaboration is no guarantee for success. But a clear strategy, including both information exchange and structural collaboration with suppliers and

customers, characterises companies that are reaching major performance improvements (Vereecke and Muylle, 2006).

In conclusion: There are many advantages in collaborating in the chain if done with the right partners and in the right way. Internal collaboration should be developed first and then external with selected partners. Actors need to be prepared to change their way of working and managing, perhaps by starting with a joint development project (Dunne, 2008), which may be an example of how companies/partners manage to compete and collaborate simultaneously (i.e. coopetition).

3.5.3. Coopetition

Coopetition is defined by Bengtsson and Kock (1996, referred to in Bengtsson and Kock 2000, p. 415) as follows: "If both the elements of co-operation and competition are visible, the relationship between the competitors is named coopetition". They define competitors as "actors that produce and market the same products". Competition assumes that individuals act in their own interests whereas to co-operate implies that individuals participate in collective actions towards common goals. Bengtsson and Kock (2000) divide coopetitive relationships into three types: co-operation-dominated, equal, and competition-dominated, involving two different types of interaction simultaneously. People get involved in this dual relationship of coopetition when it is advantageous for them. Competition creates a pressure to develop new products and markets, whereas co-operation may give access to resources of mutual benefit, in some cases even unique resources. It means that R&D activities can be carried out in co-operation with a competitor, but when it comes to product development, this is done separately with resulting competing products. The benefits listed by Bengtsson and Kock (2000) from co-operation are: reduced development cost as it is divided, shortened lead time, and each company contributing with its core competence. And competition forces competitors to further develop their products and their marketing and sales activities.

Bengtsson and Kock (2000) investigated coopetition in three manufacturing industries of which two were in the food and beverage sector (a brewery in Sweden and a dairy in Finland). Part of their findings were that competitors co-operate in activities far from the customers, such as in empty bottle returns to the brewery and joint transport containers for distribution in the dairy case. In activities closer to the customers like in the brewery case to distribute to wholesalers/stores, they compete and try to position their products better than competitive products. Hence, when the brewery association suggested co-operation to distribute the beer, this was not accepted. In the case of the Finnish dairy they found that competitors can co-operate in some product areas or markets and compete in others. Considering coopetition (competition and co-operation), the tasks should be divided among individuals, although it happens that the same individuals are involved in both, as in the brewery case with deliveries and returns of bottles. In such a case Bengtsson and Kock (2000) suggest that an intermediate actor,

in this case a brewery association, is needed for co-ordination and to define the rules of coopetition.

Another example of coopetition by the soft drink industry is described by Meade et al. (2009). They showed that soft drink bottlers in the US promoted strong brands by a promotion system of coopetition between them to fight the weak bottlers.

When studying the healthcare network in Taiwan, Peng and Bourne (2009) found that coopetition was not dependent on closeness to customers, contrary to Bengtsson and Kock (2000). They also found that "two organizations will compete and cooperate simultaneously when each organization has complementary but distinctly different sets of resources and when the field of competition is distinctly separate from the field of cooperation" (Peng and Bourne, 2009, p. 377).

Osarenkhoe (2010) investigated three cases regarding competition and co-operation in Sweden. One was a food court with 15 competing restaurants. The food court was co-ordinated by a management team, the "landlord", and a coalition was formed among the tenants to co-operate, (i.e. a similar arrangement for coopetition as presented in the brewery example with an intermediate actor) (Bengtsson and Kock, 2000). Critical factors for a smooth operation are trust, commitments and loyalty among the actors (Osarenkhoe, 2010). She found several advantages with co-operation but also that some of the benefits could hamper competition. It is not always a question of either co-operation or competition but that both can co-exist (coopetition). She concludes that "there are two critical points in coopetition strategy, namely knowledge sharing and pooling competencies, which can help to strengthen competitive advantage" (Osarenkhoe, 2010, p. 356).

3.5.4. Different partners, concepts and examples of working/developing together

A *supplier* may serve the food manufacturer and the retailer with products, packaging, services, new ideas, etc. At the same time, the food manufacturer is also a supplier to the retailers and carries the risk in terms of lost investment if the product fails (Stewart-Knox and Mitchell, 2003). Food manufacturers face a number of barriers for chain integration such as shared resources (capacity to serve different customers), a variety of products, smaller batches and uncertainties in demand, limited shelf life of some products, etc. (Van Donk et al., 2008). One solution could be to postpone final formulation/mixing to just before packaging but this does not solve all barriers or the problem with shared resources. Van Echtelt et al. (2008) emphasise the need to select the supplier and determine the extent of involvement. How successful this is carried out is reflected by how the firm is able to capture both short and long-term benefits.

Von Hippel (2001) suggests involving *users*, preferably lead users, and giving them toolkits to do their own development (Von Hippel, 2005). Nestlé Food Services have used the toolkit idea to let customers translate their product ideas into production ready products (Von Hippel, 2005). Heiskanen et al. (2007) investigated user involvement

in radical innovations. They suggest taking consumer resistance more seriously, testing concepts early to learn and interact with both designers and potential future users, and to allocate more time for development and acceptance. Grunert et al. (2008, p. 591) provide an overview of user-oriented innovation, defining it as "a process towards the development of a new product or service in which an integrated analysis and understanding of the users' wants, needs and preference formation play a key role". As users can be direct customers and end users, this concept is broader than consumer-oriented innovations and affects multiple actors of a value chain. Grunert et al. (2008) describe three types of user-oriented innovations in the food sector: Type I, the classical new product development carried out in-house by the producer; Type II, the retailer takes the initiative to obtain products for his own brand and interacts with the producer; Type III, the whole value chain is involved and the initiative can come from many actors in the chain. There is a trend towards more Type III innovations, driven by demands of end users for differentiation (Grunert et al., 2008).

Users can be *customers and consumers* and Mascarenhas et al. (2004) suggest involving customers to co-create customer delight. They suggest involving target customers at all stages of the value chain as consumers today are much better informed and sophisticated and want to fulfil their desires, "they want an engagement, an experience, and excitement and in sum, they want consumer delight" (Mascarenhas et al., 2004, p. 494).

Costa and Jongen (2006) review and discuss the concept of *consumer-led food product development* in the light of increasing globalisation and availability and the necessity to innovate. Consumers demand more and better information about food, its production and links to health and environment, and consumers are "more heterogeneous and whimsical than ever" (Costa and Jongen, 2006, p. 458). Companies need to anticipate demands, deliver and communicate to consumers. And before being applied, new innovative technologies need to be analysed on perceived consumer value.

Chesbrough (2003) propose *open innovation*, inviting anyone who can contribute and be part of a network (i.e. vertical and horizontal collaboration). His concept is to create an open mind-set for development, opposed to in-house development, and examples can be found in the food industry. Multinational companies like General Mills have identified open innovation as a key strategic priority for product and process development (Erickson, 2008) and Proctor & Gamble created their model for innovation by involving external organisations and individuals around the world (Huston and Sakkab, 2006), which has proven to be very successful. Proctor & Gamble have gone from an in-house R&D model to a C&D model (Connect & Develop). Their innovation success rate has more than doubled while the cost of innovation has fallen. According to Huston and Saakab (2006) some of the things Proctor & Gamble are looking at in innovations are:

- Top ten consumer needs for each business. These lists are compiled and developed into science problems to be solved.
- Adjacencies: new products or concepts that can assist in taking advantage of existing brands.

- Technology game boards that look at how technology acquisition moves in one area might influence products in other categories.

Proctor & Gamble also work in proprietary networks and with suppliers and in open networks as well. One critical factor is the organisational culture to back up this new way of developing. Huston and Sakkab also offer some words of warning (Huston and Sakkab, 2006, p. 66) and give three core requirements for a C&D strategy: 1) what is assumed to be ready and found outside is usually not ready and also requires risky scale-up; 2) the internal resources required must not be underestimated; and 3) launch only with a mandate from the CEO. Retailers in the UK are also said to exploit open innovation, relying on sources such as customers and suppliers (Reynolds and Hristov, 2009). Still, Fortuin and Omta (2009) found that open innovation is not widely used in the food industry in the Netherlands, although it could have potential.

Co-branding can be a collaborate (or coopetitive) activity and has been successful in candy and snacks. It is now moving into cereal, dairy and other areas according to Lieback (2005) and expansion into nutritional foods and ethnic foods are predicted. However, co-branding is most common between a brand and a special and really unique ingredient: NutraSweet, for example (Winter, 2008). There are examples of co-branding between a retailer, like Safeways, and Warner Bros. Consumer Products (Anon., 2008), between a retailer and Disney characters (Gallagher, 2007) or a charity brand like Newman's Own. But a co-branding strategy can have drawbacks such as the target consumer for one of the combined brands might not like the other brand (Lieback, 2005).

In order to improve collaboration in the supply chain and among competing actors, the concept of *Efficient Consumer Response (ECR)* was introduced in the beginning of 1990s in the USA and later in Europe (Lindblom and Olkkonen, 2008). It was mainly pushed by retailers and was a kind of co-operative value creation strategy with the objective of fulfilling consumer wishes better, quicker and less costly. Key components are physical distribution, information exchange and category management (Vlachos et al., 2008). The aim of *category management (CM)* is to manage product categories as business units and it is practiced rather commonly. Lindblom and Olkkonen (2008) studied it in Finland and Sweden. Retailers may have category managers (or captains) of their own without involving the manufacturers, or a major manufacturer might become category manager and "it is assumed that the results are enhanced through the collaborative pooling of complementary knowledge to meet the needs of consumers" (Lindblom and Olkkonen, 2008, p. 2). Partnership is said to be one of the cornerstones and yet if one manufacturer is acting as a category manager the other manufacturers compete with him and each other and with the retailers' brands in that category. Consequently, the bigger suppliers have a stronger role in collaboration than the smaller ones unless there is trust among the suppliers that objective decisions regarding the category are taken (Lindblom and Olkkonen, 2008).

Christensen et al. (2007) argue that the traditional way of segmenting into product category or price or consumer is the wrong way of thinking as customers need to get things done; they want solutions.

Collaborative Planning, Forecasting and Replenishment (CPFR) is another form of collaboration between supply chain partners, using the internet to share information and co-ordinate operations (Bowersox et al., 2000).

Corporate social responsibility (CSR) is a more recent aspect of corporate performance. In the food business it can mean that fast food and packaged food companies are held responsible for obesity and poor nutrition (Porter and Kramer, 2006). An example is Nestlé, a major target for the global debate on bottled water. Four arguments are used: "moral obligations, sustainability, license to operate, and reputation" (Porter and Kramer, 2006, p. 81). To integrate business and society requires successful corporations and a healthy society and there are points of intersection. As an example, Nestlé works directly with small farmers in developing countries to source basic commodities and it promotes social benefits. Any strategy needs a unique value proposition and major companies have found that the major business opportunities lie in integrating business and society. CSR should be perceived as building shared value rather than damage control (i.e. addressing social issues) (Porter and Kramer, 2006).

How or if and with whom to co-operate should be part of a business model and a strategy intending to deliver value to the customers and viable profits to the actors involved (Teece, 2010). The different concepts suggested for collaboration and selection of the right partners discussed to far are mainly concerned with vertical relationships (i.e. in a supply chain) "often built upon a mutual interest to interact" (Bengtsson and Kock, 2000, p. 414). Horizontal relationships between competitors do exist but are usually more informal and invisible and can involve simultaneous co-operation and competition (i.e. coopetition) (Bengtsson and Kock, 2000).

In a *network* or *cluster* with actors from within or outside an organisation, both vertical and horizontal relationships can be formed. With several actors in innovations involved, a network of some kind will be formed and this will drive profits according to Radjou (2005). Networks and clusters will also promote food innovations as such (Beckeman and Skjöldebrand, 2007). Gordon and McCann (2000) describe a network as one form of cluster, mainly based on trust and relations. According to Porter (1998) "A cluster allows each member to benefit *as if* it had greater scale or *as if* it had joined with others without sacrificing its flexibility".

A firm itself is a complex network of internal relationships that have to be managed along with external relationships (Ritter et al., 2004). A business relationship is defined as a process between two firms or other types of organisations and forms "strong and extensive social, economic, service and technical ties over time, with the intent of lowering total costs and/or increasing value, thereby achieving mutual benefits" (Anderson and Narus, 1991, referred to in Ritter et al., 2004, p. 176). Hence, a firm may have a relationship portfolio/net containing customers, suppliers, complementors, and competitors. There are different forms of strategic business networks (Möller et al., 2005)

with sub-networks distinguished by the functions they perform: production, innovation and distribution networks. The management of networks is a key characteristic of a firm and the major challenge in cross-relational and in organisational development is to tie resources together towards becoming an open, networked firm (Ritter et al., 2004).

Radjou (2005, p. 15) suggests forming a "networked innovation" strategy said to be used by IBM:

- "Engage customers as partners" (actively seek customer input for ideas, development and commercialisation).
- "Source and market anywhere" (talents, ideas, etc., also in non-traditional markets).
- "Anticipate as well as to respond to changes".

Strategic technology alliances are defined as "co-operative agreements for reciprocal technology sharing and joint undertaking of research between independent actors that keep their own corporate identity during the collaboration" (Gilsing et al., 2007). It is another form of collaboration in an alliance or inter-firm network. The objective is to reduce cost of R&D, improve innovative performance, reduce time to market, search for new opportunities and gain access to external knowledge.

Ronnow Olsen et al. (2008) propose the formation of *product development alliances* between food companies of a horizontal and non-competitive nature. The companies they interviewed in Denmark did not feel forced to enter into product development alliances and hence, compared to other industries, they have to be more strongly motivated or the risks have to be smaller to make them enter into an interorganisational relationship. They conclude that with changing consumer demands and increasing competition, food companies will tend more to form such alliances.

3.6. Customer and market orientation/driving

Consumers are the final targets for food innovations and many consumers worry about food product safety in the whole supply chain network (Beulens et al., 2005). In the investigations by Grievink et al. (2002), the issue of safety was high on the list and, according to the interviewed retailers worldwide, the most important issue for manufacturers to attend to, but an issue requiring participation of all actors involved.

Beulens et al. found a big need for transparent information on the quality of the whole food chain in order to restore consumer confidence. They define transparency of a supply chain network as "the extent to which all the network's stakeholders have a shared understanding of, and access to, product and process related information they request, without loss, noise, delay and distortion" (Beulens et al., 2005, p. 482). They identified in the process of a project a number of crucial points: operational fit (of information systems of participants); internal communication; trust (being clear about expectations, objectives, roles, etc.); transparency in the project (availability at the right

time and in the right way); result-orientation (committing, measure); departing from the physical and administrative process. This resulted in improved quality and facilitated innovations. Beulens et al. (2005) concluded that in order "to regain consumer trust and establish overall food safety a chain approach is necessary, forcing companies to co-operate in closed chains or supply chain networks" (Beulens et al., 2005, p. 486).

Stolze et al. (2007) investigated quality and safety in connection with organic food in Europe, so far a niche product category, with an annual turnover (in 2004) of 1% of total food turnover in the EU. The category represents no opportunity for economy of scale so the key strategy in this market would be to make use of the cost reducing potential by collaborating. Hence, strategic partnerships are relevant to finding the right partners for collaborate planning and trust, improve/establish information sharing and joint decisions, and establish action steps to reach targeted performance levels such as those regarding inventory planning, logistics and product development (Stolze et al., 2007).

"The goal of integrated supply-chain logistics is to enhance end-customer value", according to Bowersox et al. (2000, p.1). End-consumers have at least three different perspectives regarding value: economic (including efficiency, profitability and lowest landed cost, service) to achieve low prices for the end-customer; market (effectiveness of channel relationships) to get assortment and convenience; and relevancy value (make things that are really relevant) to business and lifecycle accommodation; Bowersox et al. predict that relevancy value will increasingly take precedence: "The value proposition that creates end-customer value is a combination of efficiency, effectiveness, and relevancy" (Bowersox et al., 2000, p. 2). This means a paradigm shift from focusing on internal operational standards to relationship management implying customer success. Bowersox et al. (2000) predict ten mega-trends with the main messages: go to customer value and embrace relationship management, including information sharing and trusting; integrate functions internally and with external supply chain partners and other external partners. In conclusion, collaborate!

Relationship marketing replaces transactional marketing, focusing on cost; actors in the chain should be market and customer oriented. Gehlhar et al. (2009) express that to be market oriented (MO) is to produce what the current market wants. Kohli and Jaworksi, (1990, referred to in Costa and Jongen, 2006, p. 459) define market oriented companies as those "which have committed themselves to the continuous generation and internal dissemination of marketing intelligence relevant to the current and future needs of their customers, as well as to the continuous improvement of their responsiveness to such needs". Costa and Jongen (2006) found that most food companies rely on the retailers for information about the end users (i.e. MO companies are rare). An MO approach to new product development (NPD) means a sound understanding of the need of both technical knowledge and market information and to combine the two to new successful products. The trick is to translate subjective needs of the consumers into objective product specifications and development. Costa and Jongen (2006) suggest a process for consumer-led new product development based on: opportunity identification, product design, testing, introduction, life-cycle management. The most difficult

part is the opportunity identification and opportunity definition in the "fuzzy-front end". Methods for an effective integration of product development activities along the whole chain is an area for considerable improvement and actors need to strive for market-pull and technology-push to benefit from each other, an effective integration of the knowledge and efforts of management, marketing, R&D and production. "The time has come to do away with the clan mentality prevailing in the European agri-business and food-related research by encouraging cross-functional communication, multidisciplinary team work and the development of a common language for innovation that truly focuses on consumer needs without neglecting technological know-how" (Costa and Jongen, 2006, p. 463-64). Customer orientation is driven by four practices according to Pitta et al. (2004): "relationships, interactivity, valuing customers over time, and customization" (Pitta et al., 2004, p. 510).

Another word for customer orientation is "consumer centricity" used by Ross (2009, who defines it as "an enterprise-wide strategy to fully leverage consumer insights to drive integrated strategies – across marketing, merchandising and operations – aligned to priority consumers" (Ross, 2009, p. 450). Ross suggests that it is about time to focus on the consumer and become consumer-centric, instead of the previous focus on price. Ross has summarised in "Ten tips to winning at consumer centricity for retailers and manufacturers", five tips each for the retailer and manufacturer. Among the tips common for both are to gain more consumer insight and to synergistically collaborate with each other (Ross, 2009).

Sondergaard (2005) suggests a method to make market-oriented NPD by a "means-end chain" approach (MEC). It is based on the assumption that consumers demand products because of the expected positive consequences that will come from using them. Products are described by attributes and MEC links attributes to consequences and values.

Shen et al. (2000) build on Kano's model and the quality function deployment (QFD) technique for innovative product development. Kano's model takes into consideration customer satisfaction and product performance. Product features which affect customer satisfaction are divided into three categories: must-be attributes, one-dimensional attributes (spoken qualities), and attractive attributes (strong achievements here delight customers). Once the customer voices are known, QFD translates customer requirements into technical characteristics for each stage of product development and production (Shen et al., 2000).

To be market driven is a positive sign, but companies successful with radical innovations (IKEA, Tetra Pak, Starbucks, etc.) are better described as market driving (Kumar et al., 2000). The success is based on "a discontinuous leap in the value proposition and the implementation of a unique business system" (Kumar et al., 2000, p. 130). Radical innovations might be to better exploit existing technologies and change the business system and thereby create new benefits, such as Starbucks and Wal-Mart have done by creating a new product/service experience. In business systems activities like creating, producing and delivering, the value propositions to the customer are included. Market

driving is different from being sales, market and customer driven and aims to change the rules; and of course, some obstacles have to be faced. That is why market driving companies are often new entrants to the industry. Over time they become market driven, unless they search for another market driving innovation (Kumar et al., 2000).

3.7. Power in the supply chain and innovations

The power in the supply chain today is with the retailers who control the product supply from producers to consumers (Fernie and Sparks, 2009) contrary to before when power was with the manufacturers. Power is defined by Collins (2007, p. 3) as "the ability to institute change in another agent's behaviour in a direction which it could not freely tend and in a direction favouring the influencer's utility function". Retail power is "the ability to influence other channel members to make decisions which otherwise would not have been made (Dawson and Shaw, 1990, referred to in Collins, 2007, p. 3). Power might be there but not always exercised (Cox et al., referred to in Hingley, 2005) but with higher retail concentration, retailers might use the threat of de-listing. Retailers have different power strategies according to how much they depend on the suppliers and their brands (Dapiran and Hogarth-Scott, 2003). Ailawadi (2001) found in the USA that stronger store brands are more beneficial to retailers due to higher margins. They are able to negotiate lower wholesale prices on national brands and store loyalty is increased. He also found that the ability for retailers to exploit store brands is limited as consumers have strong preferences for national brands and that a competitive national brand assortment is critical for retail profit.

Two processes are particularly important for power (Collins, 2007): 1) retail consolidation to fewer and bigger actors and 2) controlling the interface with consumers with their mindset and the strategic actions by retailers to develop their brands. Higher retail concentration increases the retail power and a bleak picture emerges of a "business environment where retailers dominate with implications for the level of autonomy enjoyed by food manufacturers" (Collins, 2007, p. 14). Manufacturers may make specific investments and dedicated plants for private labels, including unique and retail differentiating products. The manufacturer is then locked in and dependent. Product monitoring is critical and can be done by retailers by using their own technologists who act as advisors to manufacturers and who also police manufacturing activities. Retailers can also exercise control through configuration of the supply chain, the use of centralised distribution and by introducing QA along the food chain. Retailers drive innovations especially in the short shelf-life categories. Collins (2007, p. 15) sees the future for manufacturers as either having strong ties with selected and "most probably non-competing retailers" or dealing with many retailers who compete.

The retail concentration and increased power has a detrimental effect on product innovations by manufacturers according to Weiss and Wittkopp (2005). They studied the German food market and found that the buying power exercised by retailers has an in-

novation-reducing effect but that firms with a high market share, which acts as a countervailing power, have a significantly higher rate of product innovations. Anselmsson and Johansson (2009) have a different opinion regarding the Swedish market and claim that there is no support for retail brands having a negative impact on the overall innovativeness in the grocery categories. But they share Weiss and Wittkopp's (2005) opinion regarding degree of innovativeness in a category and growth in market share of retail brands. This they explain by stating "that manufacturers in a category use product development of both existing products and the creation of new products as a strategy to defend themselves when retailer brands expand" (Anselmsson and Johansson, 2009, p. 15). Most new products launched are line extensions. Health and environment are trends and some categories have grown with more innovative products, such as yoghurt, cookies and cereals. These are, according to Anselmsson and Johansson (2009), examples of products that can be varied in taste and packaging/usage. They conclude that manufacturers should strive for more creative products, although it might mean that fewer products are launched.

Dapiran and Hogarth-Scott (2003) question if co-operation and trust are being confused with power after interviewing retailers and manufacturers in Australia and the UK. The retailers need private brand products from suppliers, and suppliers need distribution by the stores of their branded products. The suppliers recognise retailer information as a power base. CM has been adopted by retailers as a countervailing power to that of suppliers and their brands. The coercive power (high retailer concentration and low dependence on suppliers) has been transformed to expert/information power. This means that with CM, both parties can see and accept the removal of a non-performing product. This then becomes one less reason for conflict and suppliers do not view it as an exercise of power. Dapiran and Hogarth-Scott (2003) asked the interviewees about power and if it is separate from co-operation; the answer was "no". Hence, the definition of power by Dapiran and Hogarth-Scott (2003) is close to a definition of co-operation. They conclude that power is the basis of relationships and explains the behaviour of the parties.

In the UK there are plans to appoint a retail ombudsman to enforce a new code of conduct for retailer-supplier relations, which could shift some power back to food manufacturers (Halliday, 2010).

3.8. Trends for the *present* and the *future*

Consumers with purchasing power are the market, according to Lillford (2008). He takes the example of organic food which has more supporters than gene modified foods, "despite the power of the latter technology" (Lillford, 2008, p. 38). Fair trade issues are widely discussed. More processed foods are regarded as "junk", and the harmonisation of branded foods is seen as a reduction of choice. Food itself produces biodegradable waste and the excessive amounts of packaging are regarded as an unsupportable load on

the environment. Food trends for the future are diet and health, "naturalness", biotechnology, "food miles" and sustainability. Lillford (2008) calls it a new paradigm.

Alternative businesses in the supply chain via internet technologies, called ITC, are increasingly used to buy and sell goods and/or services, also called e-commerce, both via B2B and B2C (Edwards et al., 2010). Edwards et al. (2010) go on to discuss how these new ways will impact the environment in both cases. Regarding B2C, the topic of this thesis, on-line retail shopping has grown tremendously in recent years, with the UK leading. This growth is expected to continue as retailers increasingly are establishing an on-line presence and consumers are willing to use this new way of shopping, "e-tailing". Some issues are pending such as mistrust of on-line companies, quality issues and return of goods, security of payment, etc. There are different types of retailers in the B2C: multi-channel ones (both the physical store and on-line presence), pure play retailers (only present on-line), mail-order companies (starting from catalogue sales), wholesalers or producers selling directly to consumers, and e-auction companies. The flows of goods from high volumes to smaller customer orders require a restructured supply chain and have environmental consequences. Although the big lorry transportations may diminish and lessen the environmental impact, other factors will work in the other direction (i.e. smaller and often single orders, home delivery, sometimes split deliveries of one order, difficulties to combine orders, transportation of customers for other purchases, etc.) (see Edwards et al., 2010, p. 332). Home delivery is an issue, attended-unattended and high product return, and the demands of different products: frozen, chilled, etc. To provide new housing with refrigerated/frozen delivery cabinets or to fit them into existing housing could be a future alternative if made cost efficient and/or to establish collection-and delivery points (CDPs) if environmentally defensible.

Cochoy (2010) suggests going from self-service to self-marketing by more efficient and more interesting use of the packaging and notably the label. He described a project called "Geowine" and an interactive label. By using a smartphone to access a website and a data matrix, and by encouraging the curiosity of the consumers to use it, consumers would excite and inform themselves about the product and process (i.e. self-marketing).

3.9. Other recent studies of the Swedish food sector

This section summarises recent research of related food areas by other researchers in Sweden that can have some bearing on the results presented in this thesis.

Wikström et al. (2010) investigated the influence of different actors in Sweden, including consumers, on how people choose and consume food: "the hunt for the 'valuable' meal" (Wikström et al., 2010). They found, among other things that: food manufacturers have too little consumer insight; trust between suppliers and the trade is lacking, meaning no real collaboration; trust is lacking between consumers and the

food industry; the whole sector must increase its credibility. Consumers worry about safety and particularly in connection with additives and nutritional quality. That is why consumers tend to cook themselves instead of buying convenience foods that they so much need – at least on weekdays. Some of the proposed remedies for food manufacturers are: better market intelligence; more collaboration between trade and supplier; work to gain the trust of the consumers; differentiation in quality as price is not the only way to compete; offering adapted overall solutions; and focus on information and communication. Wikström et al. (2010) found trends among consumers for local food, ecological products, ethical-fair trade products, environmental concerns, food that is easy to prepare but not processed since use of convenience foods creates guilt. The producers' goals are not exactly the same as those of the consumers; producers tend to put cost efficiency first. The trade feels ignorant about consumer needs and realises that the shopping experience should be improved. Common visions are needed and collaboration between producer and retailer. As the retailers are both customers and competitors to the food producers, a deeper collaboration seems difficult. The oligopolistic retailer situation in Sweden adds to the complexity (Wikström et al., 2010).

Arwidsson and Haglund (2008) studied "the consumer's role in the innovation process" in one food industry group, Lantmännen, in Sweden. The group has one development process but it is not communicated sufficiently or adapted to different projects. Arwidsson and Haglund (2008) conclude that too few radical innovations occur; this is not only a responsibility for R&D but also for marketing and production. A two-way communication with consumers is lacking and consumers can become more involved virtually via internet, and could contribute to more bottom-up innovations. They found that it is particularly important to involve consumers in functional or completely new products or for new packaging design. Arwidsson and Haglund (2008) suggest a policy of using 20% of the time for innovations in the company, that innovations are discussed at each meeting with the management, and that one person is responsible for driving and developing the innovation work.

Lareke (2007) investigated how "tyrannical" and well informed consumers in Sweden regard food safety and the demands they place on the whole food value chain. Consumers' demands are based on values and uncertainty about who to trust regarding food. Lareke (2007) describes a Value Creation Model where the whole value chain co-operates and where the base of consumer thinking is trust in the retail store and the food manufacturers' brands. In addition, Lareke (2007, p. 14) identified five supporting components of consumer thinking: degree of self-confidence in their own food preparation; degree of food refinement and processing by the producer; ethical and environmental concerns; hygiene in production and handling of products; taste as a mark of quality.

Hultman et al. (2008) investigated how manufacturers of Swedish branded goods deal with the increasing private labels (i.e. retail brands), as Sweden is said to be the market where private labels have grown the most among Western markets. In their interviews Hultman et al. (2008) identified a number of advantages with private labels

over manufacturer labels, mainly connected with retailers' control of the market and their stores but also a growing competitive threat to the manufacturers as the quality of private label products is improving. The manufacturers identified that they have two advantages over private labels: the better reputation of the manufacturers' brand names; quality and product development. The strategy of the manufacturers is to provide customers with added value, to continuously develop, and to take the threat from private labels seriously, according to Hultman et al. (2008).

Opportunities and barriers for alternative food distribution and sales in Sweden were studied in 2010 (Andersson, 2010) in the light of that 95% of the market share is held by the six major retailers in Sweden. Examples from the remaining 5% are farmer's markets, home delivery companies and niche companies. As could be expected, the smaller companies cannot provide a full range but satisfy special needs among consumers. The smaller ones often operate rather locally and their advantages are linked to simplicity, traceability and the direct and personal contacts between consumer and company/owner/producer. In addition, they can quickly respond to trends such as local and ecological food, although once a trend is established it is also quickly followed up by the bigger actors, who in addition can provide a fuller range. It becomes a question of how much time the consumer can spend on purchasing food. Lack of time and more convenience is the niche where home deliveries operate – and usually source much of the raw materials and ingredients from ordinary retailers, although local and/or organic in some cases play a role (Andersson, 2010).

Torell et al. (2010) have edited and contributed to a book entitled *Cans, Pouches and Packages* and their history in Sweden. They explore the changing messages they feel that packaging reveals over time, how that influences us – the consumers – and Swedish society and vice versa. The introduction of self-service shops in the 1950s was the beginning of packaging starting to communicate with the consumers about known and unknown needs which not everyone appreciated (Torell et al., 2010). Packaging as an essential part of the self-service concept was sold to "the food industry, who should invest in new packaging technology and new distribution systems; the trade who should see increased profitability and new sales ideals; consumers who should be persuaded that self-service gave then freedom, independence and more time" (Torell et al., 2010, p. 54, translated).

4. Results and analysis

This is a longitudinal study of the Swedish food sector and innovation with one case study (Beckeman, 2006) from the **past** and one study with three cases from the **present.** Hence, this chapter starts by summarising the main results and analysis from the study of the **past**, followed by the **present**. The resulting papers are then summarised, before comparisons are made between the **present** cases and between the studies of the **past** and **present**.

4.1. Main results and analysis from the study of the ***past***

The *purpose* of the licentiate research, *The Rise of the Swedish Food Sector after WW II – What, why, how and who?* (Beckeman, 2006), was to identify and describe the factors and reasons behind the growing Swedish food sector after the Second World War, and particularly those underlying the major innovations. In addition, it was to identify possible ways to proceed today based on the experience after WW II in developing radical or really new technologies and food products, to launch them on the market and be accepted by the consumers.

The *research questions* were formulated around what, why, how and who is behind this development and are presented in Table 7 with a summary of the results for each question.

Table 7: Results from *The Rise of the Swedish Food Sector after WW II*

Research question	**Summary of answers:**
What were the major innovations?	Frozen food, self-service, chilled/fresh food, dual income, political decisions, distribution, food safety, information gap, traceability, etc. (in falling order)
Why did these innovations occur?	Accumulated needs, the right conditions in the country and timing, demands for convenience, inspiration from the US, alert and driving producers and 'Edisons' around, collaboration in the chain
How was the work done?	A spontaneous cluster formed in the south and a network was established, "Djupfrysningsbyrån"
Who became involved?	Individuals from inside and outside of companies and organisations, 'Edisons'
What can we learn today?	Collaboration in clusters, networks, and participants, 'Edisons', were allowed to contribute also from the outside; a creative climate for innovations and trust in the chain existed

The last question and answers in Table 7 were a result of the study of the **past** and part of the analysis and conclusions made at the time.

Frozen food was brought to Sweden as an idea during the War and a committee for "cold treated food" was formed with support from the government and the Royal Swedish Academy of Engineering Sciences (IVA). KF, the co-operative with food production, wholesale and retailing, test-launched the idea in 1944, but it was Findus, a food manufacturer, which became the prime mover on the consumer market starting in 1945. The first self-service store came in 1947 and added to the demands on packaging and a new and controlled supply chain. The way the work was carried out and how people became involved became an early example of "Open Innovation" (Chesborugh, 2003) and with collaboration both vertically in the chain and horizontally with "outsiders" in a cluster and a network (appended paper 1). Quality was built by selecting, developing/modifying agricultural varieties that suited the climatic conditions in Sweden and which could tolerate the handling process, (i.e. agricultural specialists and growers played a major role).

At the time I considered both frozen food and self-service to be radical innovations. If the definitions in Table 6 in section 3.2. (Garcia and Calantone, 2002) are applied, though, they are instead examples of really new innovations. But, interpreting Deschamps (2008) both can be considered radical.

The prevailing factors behind the development turned out to be the "right conditions in the country" when analysed according to Porter's Diamond (Porter, 1990) and found to match many of the factors Porter suggested for a nation to be competitive. The factors of importance according to Porter (1990) are listed below – with brief comments on Sweden at the time:

1. *Factor conditions:* The nation's position in factors of production, such as skilled labour or infrastructure, necessary to compete in a given industry. Sweden could successfully produce, skilled labour was in place with women increasingly going to work outside the home and creating demands for more convenience and for education and infrastructure to become available.

2. *Demand conditions:* The nature of home demand for the industry's product or service. In Sweden increasing demands for more convenience as society changed and introduction of self-service accelerated demands for packed food of a growing variety.

3. *Related or supporting industries*: The presence or absence in the nation of supplier industries and related industries which are internationally competitive. Swedish supplying industries started to grow (e.g. Å&R and Frigoscandia) and could also export and be internationally competitive (food industries could not export). Also knowledge could be exported as Nestlé bought Findus – the brand and the knowledge – in 1962 with the ambition to expand frozen food in Europe.

4. *Firm strategy, structure, and rivalry:* The conditions in the nation governing how companies are created, organised, and managed, and the nature of domestic rivalry. In Sweden the food companies, retailers and supporting industries competed and were

joined by the wholesalers who became retailers and invested in their own food production, including frozen food.

Porter (1990) added the role of *chance* and the role of *government* to his diamond. In Sweden the role of chance was attributed to Sweden not being involved in the Second World War and thus having an intact economy for expansion. The roles of government changed as they become more active in forming the economic policy and were strongly influenced by theories particularly by J.M. Keynes (Schön, 2000). Another contributing factor was the positive attitude to industry at the time and the expectations for a better life with the help of industry and innovations.

In addition to the main findings above, 'Edison' was the name attributed in my licentiate dissertation to the enthusiastic individuals who contributed to the quick acceptance of frozen food and who came from both within organisations or from the outside. The 'Edison' attribute is elaborated in depth in appended paper 2.

Relating to the overall research questions of this thesis, respondents in this study of the **past** were not asked to define "innovation" but to give examples of the major ones and elaborate on why these innovations happened, how they were performed and who participated. Hence, some of the results can and will be compared to results about the present situation, in section 4.6.

In conclusion: After WW II (the **past**) frozen food and self-service were the major innovations changing the Swedish food sector. They fulfilled consumer needs, were introduced at the right time with the right conditions prevailing in the country (Porter, 1990) and by collaborating in a cluster and a network and allowing individuals – 'Edisons' – from inside and outside to contribute. This was an early example of Chesbrough's Open Innovation (2003). Trust existed among different actors, including the consumers.

4.2. Main results and analysis from the study of the ***present***

The research *purpose* was to investigate if there is a gap between how retailers, food manufacturers and packaging suppliers view innovations by investigating them separately and then comparing them to each other – and against relevant theoretical framework. The work was guided by the two *research questions*:

- Q 1) What does "innovation" mean to the different actors?
- Q 2) How is innovation performed and what are the key issues?

In order to gain in-depth information, the respondents were asked a number of questions (Appendices 1-3) and their answers were analysed, as illustrated in Table 3 previously. The study consisted of three cases/actors: retailers, food manufacturers and packaging suppliers active in Sweden.

4.2.1. What does "innovation" mean to the different actors?

The respondents from the three groups defined innovations similarly but with some differences and focus, and as more than incremental development, as for example to create a new category. The retailers suggested new ways of doing things, services, etc., as part of innovations and gave examples. Food manufacturers mentioned new ways of consuming, working or selling/communicating and "out of the box" thinking. The packaging suppliers were more technical and fact oriented than the other two groups and did not explicitly mention to lower cost, but it underlay many of their suggested "invisible" (not seen directly by customers/consumers) innovations. A need or wish to lower costs was explicit among the other two groups, whereas adding value was not that pronounced. From examples given by the respondents to illustrate the meaning of innovations in the market, it was evident that the three groups did not see and judge innovations in the same way, which partly can be explained by having different roles and focuses. However, several of the examples suggested to be innovations – and more than incremental – are in fact incremental according to the definitions of Garcia and Calantone (2002) and others.

The trends formulated by the three groups are to some extent similar, and all agree on the importance of sustainability/environment, although expressed differently by the groups. The packaging suppliers are more focused on functionality and identify shorter orders and designs as a trend, whereas the others focus on the causes of that, such as the need for more basic foods, pure/natural, local and ecological. Directly comparing the trends with the examples of innovations in the market is not fair, as the examples should answer to yesterday's and some of today's trends. Still, the trends give an indication of where we might be heading and the kind of innovations we might need in the future.

4.2.2. How is innovation performed?

There is limited collaboration among retailers and food manufacturers in Sweden regarding innovations and when it occurs, mainly limited to developing private labels. The collaboration around private labels and the competition between retailer' and manufacturers' brands may be an example of coopetition (i.e. competing and collaborating simultaneously) (Bengtsson and Kock, 2000). This could be particularly true if "the field of competition is distinctly separate from the field of cooperation" (Peng and Bourne, 2009, p. 377) and some food manufacturers do have separate organisations for developing their own and private brands.

Nevertheless there is a lack of trust between food manufacturers and retailers and a lack of shared consumer insight in the whole chain. Both manufacturers and retailers develop *for* the consumers and not *with* them and very much in-house, not entering into a wider "open" (Chesbrough, 2003) development system with participation from inside and outside of the chain or using the consumers/users for input (Von Hippel, 2005; Grunert et al., 2008 and others).

The retailers expect the manufacturers to develop really new products, preferably unique. Most manufacturers agree that new products should be more unique and fear that the retailers will quickly copy anything successful for private labels; still if unique it takes a bit longer. The word "unique" is also used by many packaging suppliers in Sweden as the way forward for innovations.

However, the food manufacturers and packaging suppliers collaborate, as they have much in common regarding innovations combining products and packaging, but they are still far away from developing together from the start of a project (Bramklev, 2007; Olsson and Larsson, 2009). The packaging suppliers, collaborating among themselves and with their customers, have noted an increased interest for packaging from the retailers, seeing it as a way to differentiate their ranges. Some respondents, however, from each group mentioned that they would like to contribute and help others in the supply chain, which could be an opportunity for more innovations in collaboration – or co-opetition.

Retailers have the power in the chain, but also among retailers there is a strong imbalance of power. ICA today dominates with about 50% of the consumer goods market (Fridholm, 2010) and quickly follows the retail development in the UK market, as the UK is leading this development in Europe. In essence it means that the retailers see their role as that of pushing for their private labels and differentiated offerings, sourcing them inside or outside Sweden; ICA at least has hired food technologists in order to control the manufacturers, like in the UK (Omar, 1995). For imports, the name of the actual manufacturer is not noted on the package, only the country of origin. The next step might be that also Swedish retailers follow the example of the UK and practice open innovation (Reynolds and Hristov, 2009). Retailers could then increase their innovation capabilities while the food manufacturers will be bypassed, if they do not change their way of innovating or ways are found to work together in or outside the chain.

Food manufacturers see their role as to continue to collaborate with different suppliers and develop new products and they confirmed a need for more innovations and a need to grow. The smaller niche companies often have a special asset, a patented product, a story to tell, etc., and see their role as that of continuing to develop from this base. A few of the bigger and mainly national food manufacturers are actively looking for non-competing partners abroad or in Sweden to increase their range of products (including packaging) without their own investment. They admit that they have not been thinking enough about exporting or going abroad, except for some niche companies with really new and usually patented solutions.

Packaging suppliers are not a homogenous group and have different roles in the packaging supply chain, but they are more global in their activities than retailers and food manufacturers in Sweden, although availability and cost play a role for how global they can be in supplying. They see their role as that of serving their customers (food manufacturers, retailers or other packaging suppliers) with the most applicable packaging, material, converting, etc. But they do not really see and serve the end consumers. Packaging suppliers do not compete with retailers or food manufacturers and are free

to collaborate with anyone, but rely on their customers for information about what is wanted or needed. The packaging suppliers need to find ways of their own to gain more consumer insight for more long-term development. Many of them have over the years become quite successful internationally, and some still are, which the food manufacturers and retailers in Sweden are not really taking advantage of as an opportunity to innovate together.

Examples of major drivers and barriers for innovation in the chain are: lack of trust; lack of transparency; limited collaboration; more demanding and individualistic consumers; demands for more differentiation of products/packaging; more attractive and exiting products and shopping; shorter orders and delivery on demand; more convenience and provide solutions but more locally produced, ecological, no additives, cost pressure.

The picture emerging from analysing the three groups of actors appears at first sight to be one of little common ground for radical or really new innovations. Retailers have the power in the chain, private labels grow, manufacturers find themselves being squeezed on cost but work in the same traditional in-house manner to develop new products as they always have, and packaging suppliers thrive on their own. In addition retailers and food manufacturers do not trust each other – and the consumers do not trust the industry (Wikström et al., 2010).

However, there are some signs of an emerging shift from focus on cost to focus on value. In each of the three groups some respondents expressed a wish that they could help the others in the chain, if they would only ask and talk to each other. Meetings do (sometimes?) take place in a wider circle of people when really new product launches are discussed. And to produce private labels is not only seen by every manufacturer as bad; it can be good business and the way some manufacturers handle them signals that they can compete and co-operate simultaneously, that is to say manage coopetition (Bengtsson and Kock, 2000). There are associations in Sweden that can act as intermediate actors (Bengtsson and Kock, 2000; Osarenkhoe, 2010) from both the retailer and food manufacturer sides to co-ordinate and set the rules for coopetition. Gehlhar et al. (2009) noted that the survival of a manufacturer brand depends on being a leader or else a low-cost manufacturer of private labels. With coopetition and the consequences of it (i.e. the right organisation and people involved) there is a possibility to do both.

In conclusion: Today, in the **present**, innovations are defined similarly by the three groups as something more than incremental development, but with some differences and focus. A gap exists between them about what they actually mean by innovation, reflected by examples given and how they see their roles and contributions in the chain. There is limited collaboration and trust, retailers and manufacturers develop *for* the consumers, not *with* them and packaging suppliers rely on their customers for information of what is needed/wanted. Beside a lack of trust, a number of other barriers exist for innovation, as well as some drivers that at times are identical to barriers. However, there are signs of an emerging shift from cost to value focus, as some respondents from each group expressed a wish to contribute and help others in the supply/value chain

– and private brands are not always bad for manufacturers and can be seen as an example of coopetition.

4.3. Summaries of papers from *past* and *present* studies

The research in total has resulted in seven papers, of which five are appended. However, all seven are summarised below in the order listed in Table 8.

Table 8: List of papers from **past** to **present** studies of the Swedish food sector

Title	Published in	Co-authors	Comments
Development of successful food packaging and logistics in Sweden since 1945	Logistics Research Network, 2004, Conference Proceedings, 58-66.		Part of licentiate dissertation; **not** appended
Driving forces for food packaging development in Sweden – a historical perspective	IUFoST 2005, www.worldfoodscience.org	Annika Olsson	Part of licentiate dissertation; **not** appended
Clusters/network promote food innovation	Journal of Food Engineering, 2007, Vol. 79, No. 4, 1418-1425.	Christina Skjöldebrand	Part of licentiate dissertation; appended paper 1.
The 'Edisons' behind radical innovations	The International Journal of Management Practice, 2008, Vol. 3, No. 2, 164-178.		Part of licentiate dissertation; appended paper 2.
The role of Swedish retailers in food innovations	The International Review of Retail, Distribution and Consumer Research, 2011, Vol. 21, No. 1, 51-70.	Annika Olsson	**Present** study; appended paper 3.
The role of manufacturers in food innovations in Sweden	Accepted for publication in British Food Journal	Michael Bourlakis; Annika Olsson	**Present** study; appended paper 4.
The role of packaging suppliers in food innovations in Sweden	Selected for publication in a NRWC anthology; will be revised	Annika Olsson	**Present** study; appended paper 5.

4.3.1. Two papers (not appended) about food, packaging and logistics development from the *past* study

The *first* paper, *Development of successful food packaging and logistics in Sweden since 1945* (Beckeman, 2004), describes the development of a modern Swedish food sector after WW II and focuses on what happened of major importance in the food sector: frozen food and self-service. These innovations required suitable packaging and distribution, and a number of companies grew with and around frozen food, as they contributed with technology, equipment, packaging etc. The foundations for Findus (prime mover for frozen food products), Frigoscandia (Helsningborg's Fryshus at the time) and Åkerlund & Rausing to expand were laid, and other packaging companies such as PLM

(now Rexam) expanded, some also outside Sweden that later became part of international companies. Food export was strictly regulated at the time as practically no export was possible, whereas the packaging and technology supplying companies could expand over borders. And so could knowledge and brands; Nestlé bought Findus in 1962. The paper contributed by giving an overview of the development of the Swedish food sector after 1945 and indentifying the major innovations/events that drove the development of new packaging and logistics.

The *second* paper, *Driving forces for food packaging development in Sweden – a historical perspective* (Beckeman and Olsson, 2005), focuses on the actual packaging development alongside the introduction of frozen food and self-service. Surprisingly few respondents mentioned the importance of new packaging behind frozen food and self-service, and yet this development required packaging. Until then most of the food in Sweden was sold in loose weight and not pre-packed. When analysing the answers, it became evident that packaging in the context of frozen food and self-service was developed in parallel and in close co-operation with the food manufacturers and hence seen as a necessary part of the food product development.

New packaging systems may also drive product development and marketing, as illustrated by canning and aseptic carton systems. Once developed, the can system has been tried and adapted to the requirements of many food products. Similarly the aseptic carton system has created more or less the European market for orange juice and been further adapted to accommodate many other products.

Conclusions: Driving forces for packaging development can come from new technologies and new requirements placed by the product/concept, new consumer and retail demands, distribution requirements, legal aspects and changes in society as well as from competition and globalisation.

4.3.2. Appended paper 1 from the *past* study: Clusters/network promote food innovations

At the time when frozen food was launched in Sweden, networks and clusters were not widely known or discussed in the literature. However, the notion is old that a number of companies with similar and/or complementary activities, located close to each other, could find ways to not only compete but also collaborate. Marshall in 1920 (in Tallman et al., 2004) talked about industrial districts, Porter (1990) about clusters and networks and others about new industrial areas, agglomeration, embeddedness, milieu, complex, etc. (Gordon and McCann, 2000).

The committee formed in Sweden for "cold treated food" was succeeded in 1953 by the Frozen Food Institute and with four founding companies: Findus, KF (co-operative retailer, wholesaler and own food production/brand), Helsingborg's Fryshus (to become Frigoscandia, specialising in frozen storage, distribution, equipment and technology

development) and Elektrohelios (frozen cabinets). A network with the four founding companies and related interested actors was formed. The Institute had to be neutral and worked as an open and active organisation, which co-ordinated most of the activities and guided, informed and educated the public and the supply chain all over the country (Bäckström et al., 1992). The Frozen Food Institute became the "spider" in a network of interested companies and individuals from within or outside organisations. It had links to the government and laws and regulations to ensure quality could quickly be enforced. Also the trade media supported and acted in the network and contributed to the acceptance on the market. The network for frozen food more or less dissolved once frozen food was established, but the Institute still exists, mainly handling statistics and marketing activities for the trade.

A spontaneous cluster of food producers, contract growers and supporting industries, such as packaging, technology/equipment and logistics, assembled in the south of Sweden, particularly around frozen food and with more or less close links to the network. The cluster was an example of a bottom up cluster coming from the members themselves and not imposed from the top (Fromhold-Eisebith and Eisebith, 2005). The main reason to locate in the south was the good conditions for berries and vegetables there, which was the start of frozen food. Findus, KF and Felix, competing food manufacturers, Frigoscandia and Åkerlund & Rausing (packaging) were examples of companies in the south that took part in the cluster. The original cluster started to die out in the 1980s when frozen food started to become a commodity.

Some of the *conclusions* in the paper were:

- After frozen food, no major new food innovation has been introduced in Sweden, except for chilled products in the 1980s
- Clusters/networks in the previous forms might not be replicated directly today but different actors could take the lead and find ways to collaborate, much in the same way as for frozen food in the past.

These conclusions are part of the background for the study of the actual situation today.

Beckeman carried out the empirical study, provided the theoretical framework and analysis and did most of the writing, while Skjöldebrand contributed to the structure and parts of the writing. The paper is published in *Journal of Food Engineering,* 2007, Vol. 79, No. 4, 1418-1425.

4.3.3. Appended Paper 2 from the *past* study: The 'Edisons' behind radical innovations

A number of individuals contributed in the clusters and the network that formed in Sweden to support the introduction of frozen food as well as self-service stores. In the literature many kinds are mentioned in innovation projects, and the various denomi-

nations point at many different roles and functions needed in the innovation process. However, the different denominations are mainly used for individuals taking part in innovations within organisations.

In the case of frozen food, the technology and the products were quickly accepted on the market in spite of being practically unknown before. This happened even though consumers are usually not interested in new technology and reluctant to accept changes and take risks (Galizzi and Venturini, 1996). According to the interviews, the quick acceptance was mainly due to the products being of a much higher quality than the preserved food offered previously; they were much closer to home-prepared in quality and offered a large variety of new or familiar products all year round. In addition, the technology could be used at home for one's home-grown berries or vegetables or home-cooked dishes, a "human touch". Naisbitt (1982) claimed that in order for a new technology to gain acceptance there must be a counterbalancing human response.

Still the introduction required considerable research on suitable varieties of produce, development, equipment, testing, information and marketing from various people from inside and outside of the established organisations in the supply chain. Those who participated were called 'Edisons' here, for lack of a more suitable term and in order to include people from the "outside". From the interviews, it was also evident that one person might at different stages of the development assume more than one role as an 'Edison'.

Supported by at least two interviewees commenting on the involved individuals, we agreed that to be an 'Edison' was to:

- make extraordinary efforts and do more than one's job;
- be active within organisations or from the outside and be allowed to contribute to the development;
- assume different roles and functions when needed;
- not primarily to be driven by money but by intrinsic motivation and a creative climate.

Coming from the inside an 'Edison' could be an entrepreneur, innovator, work with development or production, be in marketing, etc. From the outside he/she could be a politician, professionally active in health and nutrition or science, or in the media such as trade journals. And he/she could participate in the network and/or in the cluster when needed. This seemed to have been an early example of "Open Innovation" as suggested by Chesbrough (2003) as opposed to in-house innovation. Some of the participants appeared to have fulfilled roles similar to those mentioned in the literature, such as champions, gatekeepers, etc. Beside the positive attitude to industry at the time, one could speculate if the acceptance and success were also due to a rather early involvement of people from the outside and, not the least, the positive and promoting attitude of the trade journalists.

Many interviewees mentioned the "fun" aspect, the "feeling" in the pioneering companies and the togetherness as most people in the companies and trade knew each other. This generated motivation and an open climate for innovation. To quote Amabile

(1997, p. 42), "creativity is most likely to occur when people's skills overlap with their strongest intrinsic interests – their deepest passions", and concludes, "You should do what you love, and you should love what you do" (Amabile, 1997, p. 55). This quote is one of the lessons of this research: to have fun while reaching success, that individuals matter and that the wider the variety of competences the better, and to also let in a number of 'Edisons' from the outside.

In conclusion: A number of individuals, 'Edisons', contributed to the success of frozen food after WW II. They contributed from the inside and outside of organisations and were not primarily driven by monetary gains but by intrinsic motivation in a creative climate, including having fun in an open innovation climate as suggested by Chesbrough (2003) much later.

Märit Beckeman is the author of this paper that was published in *The International Journal of Management Practice*, 2008, Vol. 3, No. 2, 164-178.

4.3.4. Appended paper 3 from the *present* study: The role of Swedish retailers in food innovations

The purpose was to investigate how Swedish retailers today define and view innovations, their own roles in the supply/value chain, and that of customers and suppliers in the development process and for the future. The retail concentration in Sweden is the highest in Europe (Defra, 2006) with the largest, ICA, having about 50% market share of the consumer goods market in 2009, followed by Coop, Axfood and Bergendahls. Respondents from these four retailers were interviewed plus some with a background in retailing or a related branch organisation.

It is estimated that 17% of grocery trade revenue in Sweden comes from private labels, with the main categories being frozen foods and household products (Market Link, 2009). Earlier research indicates that Swedish retailers should be on the 3rd stage of retailing development (Anselmsson and Johansson, 2007) with a strategy of "me-too" in big category products, utilising a technology close to the brand leader with acceptable quality at a lower price (Laaksonen and Reynolds, 1994). Swedish retailers, like the ones in the UK, control the product supply from producers to consumers.

In Europe, retailers in the UK lead the retail development, and hence it was of interest to compare with them regarding the development in Sweden. The major ones in the UK have become brands of their own, offering products with three levels of sophistication and pricing: value, standard and exclusive (Burt and Sparks, 2002). They have a food technology department supporting these activities (Omar, 1995). The UK retailers are heading into the 5th stage of retailing development, with some of their products having a quality, image and price equal to or above that of food manufacturers' leading brands. Retailers' degree of innovation in the UK has increased (Reynolds and Hristov, 2009), as they are exploiting open innovation and using sources such as customers and suppliers.

The retailer respondents in Sweden defined innovations similarly as in the literature as a broad range from incremental to more radical or new ways of doing things; in other words, something that changes shopping habits or consuming, drives the category and sales or uses existing products in a new way. They exemplified with a number of innovations that could be divided into products, packaging or services and new ways of doing things. Packaging is of growing interest as a means to differentiate and service innovations are very much a concern for the retailers. Trends focus on environment, natural, local production, no additives, etc., and on base food at basic prices to provide convenience as well as premium products to bring home instead of going to restaurants.

Swedish retailers are going the same way as in the UK with three levels or more of differentiation, often via new packaging and new products via food producers in or outside Sweden and not only incremental innovations. But an interesting difference between the retailers in Sweden and in the UK is, that the price of products in different categories (size, location) is the same everywhere in the UK (Sparks, 2009), whereas it differs between store categories in Sweden.

ICA dominates and leads retail development in Sweden, with the UK as the example, and is highly regarded and respected by its competitors in spite of its success. At least ICA is on its way to the 5th stage of retailing and employs a number of food experts, and other retailers mentioned similar needs. In Sweden retailers also have access to information about consumers and their purchasing habits, but do not seem to share that information to any major extent with producers and they do not seem to be developing *with* the consumers but rather *for* the consumers. It is not a habit of Swedish retailers, contrary to in the UK (Reynolds and Hristov, 2009), to practice open innovation (using internal and external sources from "everywhere", Chesbrough, 2003), or to involve, for instance, selected suppliers and users for more long-term development (Von Hippel, 2001; Van Echtelt et al., 2008 and others).

Innovations in service such as loyalty cards, self-scanning or individual offers are driven by retailers to improve customer/consumer service, but there are some concerns that consumers regard the shopping experience as rather boring.

In Sweden there is limited collaboration between retailers and food manufacturers, who are the main suppliers to the retailers, and very little trust between them. Usually sales and purchasing people meet to discuss price. Retailers expressed a lack of support and understanding from suppliers for product launches and are of the opinion that food manufacturers should develop more unique products based on new technologies. The retailers have noted a certain resistance by some manufacturers to produce private labels, but collaboration exists to some extent with food manufacturers regarding private labels and their production. Otherwise retailers are sourcing in networks with those in the "family" (i.e. Coop and other co-operatives, ICA and Ahold affiliates, etc.). But retailers want more collaboration with packaging suppliers to differentiate their product range. Co-branding with a manufacturer was discussed and dismissed by most respondents; they do not believe in the idea or that the manufacturers would accept it.

The fact that the power in the chain lies with the retailers, fronting the consumers, controlling the shop, how goods should be exposed and the information about the consumers' purchases, could mean that less really new or radical product innovations will be developed by the food manufacturers. Are we looking at a future with only two major brands in major stores as in the UK (Burt and Sparks, 2002; Smith and Sparks, 2009)? Will that be differentiated retailer brands and A-brands from global producers and perhaps a third national brand? Will that be exciting enough for the consumers (Mascarenhas et al., 2004)?

In conclusion: Swedish retailers define innovation similarly to what is in the literature and regard food innovations as something that should be provided to the consumers, not something to be achieved together with them. The retailers in Sweden follow the UK developments, becoming brands of their own, differentiating, employing food competence, etc., which might lead to stores offering only two, perhaps three brands – and the risk that consumers get bored. For more successful innovations and to meet the trends, collaboration efforts from the whole value chain and from outside, are needed to create "consumer delight" and excitement (Mascarenhas et al., 2004).

Beckeman carried out the empirical study, provided the theoretical framework and analysis and did most of the writing, while Olsson contributed to the structure, parts of the writing and as the supervisor. The paper has been published in *The International Review of Retail, Distribution and Consumer Research,* 2011, Vol. 21, No. 1, 51-70.

4.3.5. Appended paper 4 from the *present* study: The role of manufacturers in food innovations in Sweden

A number of food manufacturers active in development in Sweden, but not necessarily Swedish owned, were interviewed. The purpose was to investigate how the food manufacturers define and view innovations, their role and the roles of others in the chain and if any collaboration takes place. The food producers vary in size from SME to multinational and represent food products in most packed product categories on the Swedish market.

The majority of respondents among manufacturers in Sweden defined innovations as more than incremental development, and that more sales and increased profits should be involved. In addition, innovations included the creation of a new category/segment and/or a new way of consuming or working or selling/communicating, as well as thinking outside the box. The respondents also added the continuous development of unique products/concepts of market and/or technological impact. The examples, illustrating what the respondents meant by innovations, were mainly new products (some incremental), often supported by a new process and/or packaging or a patented technology. The examples illustrate the complexity of food of a wide variety with different shelf lives and requirements.

Manufacturers realise that they need to develop more innovations and to add value, but that many of their innovations are invisible to the consumers, intending to cope with environmental and cost demands. Manufacturers feel squeezed by the retailers on cost and are also aware of that retailers tend to copy successful new products and get them under private labels – but with really unique products it takes longer. Still, the manufacturers do not believe that retailers can or want to take over the present role of manufacturers in innovations. Manufacturers with their brands need to be listed by all major retailers and consequently they do not believe in co-branding with one retailer. Manufacturers would like more understanding from retailers for the complexity of small orders and deliveries of different foods. In cases with really new product launches, it happens that more people from both manufacturers and retailers meet, according to the respondents.

In addition to a strong trend towards sustainability in all aspects of food production and sale, there are trends towards locally produced products or raw material, pure and natural products, no additives and ecological.

The food manufacturers in Sweden appear to develop products in-house *for* the consumers, not by working *with* them, and not meeting the trends described in the literature with innovations involving the whole chain, selected suppliers, users or even external competences. According to the biggest manufacturers in Sweden, structured development processes are in place, but often top-down (Deschamps, 2008). Only one (the largest multinational) manufacturer mentioned that they involve external competences as suggested in open innovation (Chesbrough, 2003). However, retailers in the UK are said to exploit open innovation and as Swedish retailers tend to follow the UK, Swedish food manufacturers might find themselves bypassed.

Manufacturers have a strong role to play in launching offerings that are unique and difficult to copy, by using the knowledge of different suppliers in and outside the chain and by constantly aiming for continuous development. They also have the chance to take the lead and establish ways to utilise the concept of coopetition for suitable innovations.

A number of barriers for manufacturers to integrate into the supply chain were identified, such as lack of transparency – and trust – in the chain, the need to be listed by all the major chains which prevents development projects together with one chain, shared resources (i.e. serving many retailers) and the lack of pride and vision among the food producers. There is also a limited interest from the manufacturers to collaborate with the retailers regarding private labels, and not every manufacturer is keen to produce private labels. The manufacturers collaborate with packaging suppliers and other suppliers of equipment, raw material, etc. Some manufacturers actively look for collaboration horizontally in alliances and networks with producers not competing on the Swedish market. Smaller companies are present in niches and feel they have a special asset, from which they can innovate and become category leaders, and they often have a story to tell, which helps in communicating.

In conclusion: Manufacturers define innovations similarly to what is in the literature but more than incremental. Innovations should create a new category and/or new way of consuming or working or selling/communicating. Many innovations are invisible to customers and consumers but are needed to cope with demands for lower cost, shorter orders and sustainability. Manufacturers develop mainly in-house and for the consumers, not with them. There is s lack of trust in the chain, limited collaboration and limited exchange of information. Some manufacturers pursue horizontal collaboration with other manufacturers abroad. Food manufacturers have a strong role to play in launching unique offerings that are difficult to copy and by continuously developing. They could take the lead and work on new ways to utilise the concept of coopetition with retailers and other competitors.

Beckeman carried out the empirical study, provided the theoretical framework and analysis and did most of the writing. Bourlakis contributed to the structure and parts of the writing while Olsson contributed to the structure, parts of the writing and as the supervisor. The paper has been accepted for publication in *British Food Journal.*

4.3.6. Appended paper 5 from the *present* study: The role of packaging suppliers in food innovations in Sweden

The purpose was to investigate how selected Swedish packaging suppliers define and view innovations in food packaging, their role and the roles of others in the chain and if any collaboration takes place. The most innovative packaging suppliers were interviewed according to suggestions from previously interviewed retailers and food manufacturers in Sweden.

The packaging suppliers define innovations as something more than what others have already done, causing some changes in the market, a unique idea with potential, a package with additional value, an "invisible" change as for example increased capacity, cost and/or environmental advantages. The definitions are in line with those in the literature, but suggest something additional and based more on facts than perceptions. Most of the examples mentioned of more recent innovations on the market were packaging related and some are really new, perhaps even radical. From cost and customer points of view, it is interesting to note that some of the innovations mentioned can directly replace existing packaging solutions in a customer's production line, or use existing parts of a production line which lower investments.

The interviewed packaging suppliers are not a homogenous group and differ in their offerings, how they work and operate and how they collaborate with others in the supply chain. They can be material producers, packaging converters, machinery suppliers, etc., and work with each other as partners, sub-suppliers and/or competitors, depending on the situation and the demands (i.e. some are closer to end customers or consumers than others). Most of the interviewed packaging suppliers have a rather international perspective but one limiting factor for expansion is availability at competitive costs near

the customer and another that a sales force with food competence is sometimes needed, as one company came to realise.

The functions of packaging can be summarised as logistical, marketing and environmental (Jönson, 2000) and as part of a larger integrated system (Chan et al., 2006). This requires that product and packaging are developed simultaneously (Chan et al., 2006; Bramklev, 2007; Olsson and Larsson, 2009), which is not often the case.

Trends mentioned focus on environment or rather sustainability, attractiveness, cost and shorter order sizes as a result of demand for differentiation, collaboration with other packaging suppliers and on how to gain more consumer insight. In addition a number of issues were raised of a more technical nature related to different parts of the packaging supply chain or the trends, many invisible to the customer/consumer.

As the interviewed packaging suppliers in Sweden are very diverse, they have different roles in the packaging supply chain depending on their distance to end customers and consumers. Hence, their role in food innovations is to primarily serve and support their customers in the packaging part of the chain or food manufacturers and retailers. Most packaging suppliers do not appear very interested to find out for themselves the trends and developments in the market, but rely on information from the nearest customer, who sometimes is the food manufacturer or retailer. The way packaging attracts consumers and can influence their purchasing behaviour is of major importance and hence one of the interviewed companies has gone into partnership with a design company.

All the interviewed packaging companies collaborate with different packaging related suppliers of raw material, semi-fabricates, machinery suppliers, etc., in vertical or even horizontal relationships and take part in networks. Costs are often shared when running development projects with customers. Customer service is very important and some system suppliers have service contracts with the customers. Many customers want test-packing and this is managed by the packaging supplier or arranged with a customer or a professional co-packer. Some respondents predict a wider outsourcing of packaging by some of their customers in the future.

The trend towards sustainability in the whole supply chain should favour collaboration among all actors in the chain, and be particularly appealing to packaging suppliers to put the debate about packaging waste in proportion. Another reason for collaboration is the trend towards more services, where packaging can contribute, and this also favours joint development of products and packaging.

The packaging suppliers wish that their customers in Sweden would use their competence more as much packaging innovation takes place here. This should be an opportunity for collaboration in the chain to support the trends in the market, and make the packaging suppliers more knowledgeable about the end customers/consumers.

In conclusion: Packaging suppliers define innovations as something more than what others have already done, such as a package with additional value and function and that some innovations are "invisible". Packaging suppliers are very focused in their areas of technology, which reveals itself in their examples of innovations. They wish for

but have rather limited consumer insight and rely on information from their customers. Packaging suppliers are not a homogenous group and as such they co-operate with other packaging suppliers, food manufacturers and, increasingly, retailers in Sweden and globally. The packaging suppliers perform much of their innovation in Sweden and want more collaboration in the chain, which provides an opportunity for the other actors in the chain.

Beckeman carried out the empirical study, provided the theoretical framework and analysis and did most of the writing, while Olsson contributed to the structure, parts of the writing and as the supervisor. This paper was presented at the 2nd Nordic Retail and Wholesale Conference – NRWC 2010 in Gothenburg, Sweden November 10-11, 2010 and has been selected for publication in an anthology of some of the papers presented at NRWC, 2010. The paper is now under revision.

4.4. Comparison of the three ***present*** case studies

The research *purpose* was to investigate if there is a gap between how retailers, food manufacturers and packaging suppliers view innovations with the two *research questions*:

- What does "innovation" mean to the different actors?
- How is innovation performed and what are the key issues?

The main results and analysis have been summarised in section 4.2., and the resulting papers 3 to 5 in section 4.3. In this section, it is mainly additional results and analyses of interest for comparison that are included, along with relevant issues and translated comments provided by the respondents.

4.4.1. What does "innovation" mean to the different actors?

The three groups do not differ very much in their definitions of innovation and, as could be expected, the definitions are quite similar to those in the literature like Kotler's (in Grunert et al., 1997, p. 4) – an innovation "refers to any goods, service, or idea that is perceived by someone as new" – but the interviewees tend to go further in their definitions, in the direction of the OECD's (2005). However, in the OECD definition (section 3.2. in this thesis) packaging is mentioned under marketing innovations, although packaging is rather to be regarded as part of the product (Beckeman and Olsson, 2010, appended paper 5). Service as an innovation is included in the OECD definition under product innovation but of growing importance in the whole supply chain (Vargo and Lusch, 2004, 2008), and noted in two of the four innovation groups identified by Deschamps (2008). A modified definition related to food innovations is thus suggested in section 4.5.

What is meant by radical or disruptive or breakthrough, really new or incremental innovations was not defined or discussed by the interviewees. When aiming to "typify" the suggested examples in the results in appended papers 3 and 5, it was done by the author by using and interpreting the definitions by Garcia and Calantone (2002), and not by applying the levels shown in Table 6 (in section 3.2.). The examples mentioned by the three groups have been compiled in Table 9.

To create a new category is one criterion of success mentioned by retailers and manufacturers when defining innovation, and many examples shown in Table 9 have done just that. Retailers are particularly active in service innovations, but so are the other actors, without recognising or communicating it. A well functioning packaging solution or a very convenient product (like frozen food once was) is in reality a service to the consumers.

All interviewed food manufacturers in Sweden confirmed a need for more innovations and growth, because "with price and product we might not have as much success. We have been early in having a dialogue with customers about how to grow together" (company 2). One smaller food company (8) confessed that they realise they must grow but not at any cost, implying a problem if it means moving away from their origins, losing their local touch and sense of belonging to the area and the people. Other similar food companies are in the same situation and discuss along the same lines. Retailers in general want to grow (although ICA appears to want to tone down its dominance), and the same is true for packaging suppliers but in selected areas, in markets where they can support and serve their customers.

Compiled examples of innovations mentioned by the respondents

In order to better understand what the respondents really meant when defining innovation, they were asked to give examples of innovations on the Swedish market. They were specifically encouraged not to think only about their own achievements but the whole food sector (products, packaging, services, new ways, etc.), but were not asked about the "radicalness" of their suggested examples. In section 3.2., definitions and types/levels of innovation based on Garcia and Calantone (2002 and Table 6 in 3.2) and Deschamps (2008) are described. This information was applied by the author in Table 9 to estimate the type and level of radicalness of the examples and is further discussed after the table. Some of the innovations are established on the market and have proven themselves, whereas others have not yet reached the point where success or failure can be evaluated, which is why there are some question marks in the table. Suggestions from the three groups are presented and compared in Table 9.

Table 9: Examples of innovations on the Swedish market suggested by the respondents (+ indicates that it was mentioned by one or usually more than one in that group of actors)

Example of innovation	**Retailer**	**Manufacturer**	**Packaging supplier**	**Type and level of innovation** (estimated by the author using Garcia and Calantone* and Deschamps** typologies)

Gooh!		+	+	New category, new way of selling and new packaging/processing (MicVac); really new*; radical?**
MicVac		+	+	Process/packaging; unique and patented concept; really new* but could become radical**
GoGreen in Tetra Recart		+ in Tetra Recart	Tetra Recart	Revitalise product category by new packaging; the packaging really new* or radical **
Proviva		+	+	New category, patented; incremental* or really new**
Functional food in general		+	+	New products/ingredients, process, patents sometimes and new categories (?); incremental*
Valio lactose free		+		First in new category; incremental*; really new** when launched
Nespresso		+		New concept/product/packaging/way of consuming and selling; really new* or radical**; market driving
Oatly	+	+	+	New category, patented products and process; incremental* or really new or radical**
Santa Maria	+	+		Successfully launched as new category (similar products existed before); incremental* or really new at the time**
Vie shots		+		New category; incremental*
Kelda soups and sauces		+		Aseptic, long shelf life and "almost" new category; incremental*
Arla köket sauces		+		New products with many recipes; incremental*
Touch of Taste		+		Shots in new form (concentrated) and new convenient packaging; incremental*
Yalla/Yoggi		+		First liquid yoghurt, a new category; incremental*
Becel		+		Targeted marketing, new product; incremental*
Saltå quinoa		+		First on the market, ecological and biodynamic; incremental*
Ica Selection	+			New way of doing things; incremental*
Änglamark	+			New ecological category and branding; first on the market; incremental* now; really new at the time**
Cappucino	+			New product; incremental*
Frozen *Smoothie*	+			New product and category; incremental*
Ecolean packaging system	+		+	New packaging system; incremental* or really new**
Centrally cut and packed meat (fish); ICA	+			Idea: improve quality and use of whole meat and high and even quality; new way of doing things; could become really new*
Microwaveable soup in bowl	+			New packaging, product and service; incremental*
Honey in squeeze bottle	+			New convenient packaging; incremental*

Individual offers to consumers	+			New way of doing things; really new?* or even radical?**
IT and supply from raw material on demand	+			New and proposed way to do things and minimise waste; really new?*
Self scanning	+			New convenient way; incremental*
Plastic pallet	+			New tertiary packaging/distribution; incremental*
New IT "port" for small suppliers to sell at ICA	+			New way of assisting small and sometimes local producers, a service; incremental* or really new**?
Fibreform/ PaperLite			+	New packaging material, possible to form and use in existing lines for trays; really new?*
Twin package for patties			+	New double packaging, less product waste (?); incremental*
Twin cup for *Risifrutti* and others		+	+	New and convenient product and packaging and better shelf-life; incremental*
Flexible pouch with a vent			+	New packaging; incremental*
Re-closable plastic packaging			+	Convenient new packaging; incremental*
Salad mixtures, gas packed in pouches, ready-to-serve			+	New packaging "system"; incremental*
ESL milk in Tetra Top and new process (Pastair)		+		New product/process less heat/rather new packaging; incremental*
New Deli frozen veg. mixtures		+		New product/packaging with zip, a service; incremental*
Squeeze bottle for marmalade		+		New packaging; incremental*
Polar frozen bread		+		Recipes and shapes suitable for freezing; distributed frozen at favourable costs south, own sales force; incremental*now but really new** at the time
Daily range of fresh bread by producer		+		Freshness the key and base of consumer acceptance; own distribution and sales force; incremental*
Pastair process		+		New process/equipment – "cold" pasteurisation, less heat; incremental* or really new**?

* Estimated by the author according to Table 6, section 3.2., based on Garcia and Calantone (2002, p. 121)
** Estimated as a result of Deschamps' typology (2008), see section 3.2.

When using the definitions, types and levels of innovation based on Garcia and Calantone (2002) in the examples in Table 9, the estimated results are some "really new" innovations, no "radical" and many "incremental" ones. If we accept this classification, there are indeed very few radical innovations around. Costa and Jongen (2006)

stated that only 2.2% of new products are radical (no definition) and that 77% are only incremental (referring to data from Ernst & Young in 1999). Anselmsson and Johansson (2009) also found in Sweden that most new products launched are line extensions (i.e. incremental).

Applying Deschamps' (2008) typology of innovations, there are some radical or really new innovations in Table 9. Innovations such as Tetra Recart and Nestlé Nespresso are explicitly mentioned and described by Deschamps (2008) as examples of radical innovations. The Nespresso concept could even be claimed to be market driving (Kumar et al., 2000). If the definition of "breakthrough innovation" by O'Connor et al. (2008) is used, it supports Deschamps' typology when interpreting the examples. For instance, if a new category has a "high impact on current or new markets in terms of offering wholly new benefits..." (O'Connor et al., 2008, p. 11) it could be labelled a breakthrough innovation, which Assink (2006) defined as a radical innovation that "disrupts its former key players and creates whole new business practices or markets with significant societal impact" (p. 218).

Hence, the nomenclature of levels and types of innovation is confusing. Perhaps we should rather go for the term "real innovation" according to Fornari et al. (2009, p. 32), defined as being "able to create concrete market revitalisation by means of introducing products new from the point of view of both the companies developing them and for the market in which they are proposed". Later on (p. 34) they refer to a real innovation as being "products which have been able to satisfy both consumers' and distributors' requirements".

Comments on examples of innovations in Table 9

Comparing the examples, respondents from the three groups of actors do not have the same opinions about what and how they see innovations available on the Swedish market. The following and more detailed description/analysis of some of the examples in Table 9 has been made by the author, based on input from the respondents and available information on the market:

- Only one innovation, *Oatly*, is recognised by all three and has created a totally new product category, perhaps even a radical innovation according to Deschamps (2008). *Oatly* is a range of products intended not only for cow's milk intolerant consumers, but marketed as healthy products in general and based on a patented oat base and process and good clinical support for oats.
- New dairy products or dairy substitutes (oat, lactose free) and dairy-containing semi-fabricates, like soups and sauces, are quite successful but the "dairy industry is not very active in technology development but rather finding smart solutions for the consumers" (company 2).
- Only one, *Santa Maria*, is suggested by both retailers and manufacturers and created a new category, Tex-Mex, and a new way of consuming it, a Friday night treat

in the family. (*Santa Maria* was not the first Tex-Mex brand on the market, but *Santa Maria* established the concept and has since continuously developed it.) When launched with the usually given time of 6 months on the shelf to prove its viability, the Tex-Mex category by *Santa Maria* would not have survived, but was given more time, according to one retailer, and has become a success. *Santa Maria* today has spices and mixtures for different ethnic foods in a variety of concepts and packaging but the company initially started to grow with its Tex-Mex range.

- Manufacturers and packaging suppliers have much in common and not the least some examples of collaborative innovations, combining product and packaging – and packaging is part of the product according to Rundh (2005) and Hawkes (2010). Suggested examples by both manufacturers and packaging suppliers are: *Gooh!* by the MicVac process and packaging system, *GoGreen* in Tetra Recart and twin plastic cup used for *Risifrutti* and other products. *Gooh!* (Lantmännen) is a new range of refrigerated one portion foods based on recipes developed by a very prestigious restaurant, Operakällaren, and processed by "patented microwaves" in a patented package with a vent. Initially *Gooh!* was sold only in shop-in-shops but can now be found in retail stores. *GoGreen* (Lantmännen) has a green message but consists of ordinary "green" products – but in a new "carton can", Tetra Recart by Tetra Pak, a radical innovation according to Deschamps (2008).
- *Proviva* and functional foods in general are suggested examples by manufacturers and packaging suppliers. *Proviva* is based on a patented bacterium added to fruit products (and lately also to dairy products) and developed by a dairy company, Skånemejerier. Very recently Skånemejerier sold *Proviva* to Danone. Garcia and Calantone (2002) mentioned health food as an example of incremental innovation but health food is a wide category, and many products marketed as health food also make the claim of being functional. They base this on proven functional effects of certain ingredients. Backing up this claim are usually many clinical studies and the technology behind is often based on patents. Deschamps (2008) would probably have labelled *Proviva* a really new innovation when launched.
- The Ecolean packaging system is suggested by retailers and packaging suppliers to be an innovation. Ecolean is a system for chilled and recently also aseptic liquid products, in a stand-up pouch of a unique material consisting of mainly chalk and plastics. The main target today is said to be markets outside Europe and claims made are low cost and more environmental packaging material.
- More manufacturers mention examples of new products and new categories than retailers do. The survival of a manufacturer depends on being a leader (Gehlhar et al., 2009), which is in line with creating new categories and perhaps becoming category manager (Lindblom and Olkkonen, 2008). Some of the interviewed companies are in fact category leaders and suggest "planogram" (i.e. plans for how different products in a category should be placed on the shelves and the number of brands), but it is unclear

if private labels in the same category are part of the planning made by manufacturers. But "the trade listens to us as long as we have knowledge to add" (company 4).

- Retailers are the only ones with suggestions of new ways for doing things, services, etc., and ICA claims at least one really new or radical innovation, individual offers to consumers based on earlier purchases. This service is the first of its kind in the world of this scale.
- Packaging suppliers are much focused on packaging and do not seem aware of what is going on in the market regarding new products/categories/services, areas they could contribute to (paper 5).

In conclusion: A gap exists between the groups about what is meant by innovation. The three groups may define innovations similarly but they do not see and judge innovations and offerings on the market in the same way, which to some extent can be explained by having different roles and focus in the supply/value chain and lacking a joint vision.

*Trends at the **present** and for the **future***

According to Merriam-Webster (2010) a trend is "a line of general direction or movement", "a prevailing tendency or inclination". Among the retailer and manufacturer groups there is rather good agreement of what they call trends (not in any particular order but matched versus similar trends):

Table 10: Most common trends according to retailers and manufacturers in Sweden

Retailers	**Manufacturers**
Environmental and global concerns, ecology, fair trade, waste	Sustainable, local and ecological; environmental issues
Locally produced food	Local, see previous
Natural/genuine materials/ingredients/food, health, simplicity, fresh food	Simple, pure, authentic without additives promoting component products instead of meals
Non-allergenic foods	
	Adapting to weekdays versus weekend shopping
Need of basic foods at basic prices to provide convenience	Simplify for families to cope and shop
Premium products to bring home instead of going to restaurants	Industry food should taste like good restaurant food.
	Traditional Swedish food
	Note: Convenience, health, cost/price, safety, functional food and globalisation are relevant but not driving innovations alone, according to the manufacturers.

The packaging suppliers mentioned similar trends (but they could not easily be matched and fit into Table 10 as they are very much packaging related):

- *Environment* or rather *sustainability* that includes corporate social responsibility.
- *New attractive packaging* for *differentiation* and *more sales* and *sustainability* will possibly become part of this.
- *Shorter order sizes*: a real problem technically and cost wise (for packaging but also for food suppliers).
- *Lower cost:* goes against the trends for more variety and shorter orders but is a strong driver alongside sustainability and more attractive packaging.
- *Consumer insight*: of major interest among major packaging suppliers who feel that they are far from consumers and today rely on food manufacturers and retailers for information.
- *Collaboration*: suppliers and customers are searching for partners for packaging collaboration.

Practically all the trends the packaging suppliers quote are the same background trends for the whole chain, but consumers and customers want the trends to result in something tangible and the suggested examples, that meet yesterday's and some of today's trends, are listed by retailers and manufacturers in Table 9. Answering some of the generally recognised trends – such as sustainability, simplified shopping, improved quality and getting closer to one's own or restaurant food, locally produced, "pure" food, control costs – will require collaboration in the whole supply chain and a joint vision.

Many of the suggested new products and categories in the previous innovation examples in Table 9 correspond to trends towards health and convenience. These are among prevailing trends reported by Gelhar et al. (2009), which also include technical aspects and the utilisation of strategic resources, to be acquired if not available. Manufacturers remarked (in Table 10) that convenience, health, safety, etc., are relevant trends but that they do not drive innovations alone.

If the trends are indicative of the future, much needs to be done, not the least of which are invisible/technical innovations while still keeping costs under control. Many respondents claimed that they now focus on removing all non-value adding activities in their part of the chain, and that streamlining the logistics play a major role in that. One respondent (12, multinational company) emphasised the importance of securing the industrialisation phase of new development. According to him, this is an often neglected aspect which demands as much, if not more resources than the actual development phase. It is also a factor stressed by Huston and Sakkab (2006) when describing Proctor & Gamble and their open network development structure. The ways non-value added activities are described show strong similarities to "lean" production and are of little interest to customers or consumers, unless information of lower costs for the same or better quality and greater sustainability can be communicated in a trustworthy and understandable manner.

Environmental concerns and overall sustainability are trends that everyone seems to agree on and may result in "carbon footprints"[1] being declared on the package – or something similar. The biggest problems for actors in the whole chain will be to find ways to collaborate as sustainability requires participation from the whole chain and to explain the meaning of carbon footprints (or similar "branding") to the consumers (i.e. trying to understand consumers' risk perceptions and developing an appropriate information strategy) (Frewer et al., 2003; Calantone et al., 2006). The packaging suppliers believe that carbon footprints will have to be declared, and they push for that, hoping it will take the heat off on packaging and environment.

According to the packaging suppliers, food manufacturers face much bigger problems than the packaging side, particularly concerning energy and water consumption. One retailer (C) commented, "Sustainable development has not yet been recognised as a strong driver of innovation. Still one talks of environmental labelling and ecological", and "ecological is a door opener and you've got to have it but nobody wants to pay" (packaging company 2).

The need to communicate is also obvious when talking about "locally produced", a strong trend among consumers according to the respondents. The term is not yet defined, but the way it is used indicates a vision of production almost next door, and often in combination with "ecological" food. According to one food manufacturer (company 6), "ecological is a chance for farmers to get higher price". For food to be designated local at farmers' markets in Sweden, the distance from origin should not exceed 250 km (Andersson, 2010). This trend reflects a strong mistrust towards the industry, focusing on costs and not on value (Mascarenhas et al., 2004; Mena et al., 2009; Costa and Jongen, 2006; Cruz and Boehe, 2008; Lareke, 2007; Wikström et al., 2010).

Another result of the mistrust is the trend towards "pure" food without additives, shown as a wish for products without e-numbers on the labels. Some food companies emphasise "clean labels" (i.e. few and pure ingredients) as a remedy against the previous debate about additives and e-numbers. Most of the bigger food companies, with a wide range of products, now keep themselves busy by reformulating their products and taking out most of the "additives". They are also pushed to do so by the retailers. Another way for the future, suggested by the respondent of one company (9), is that all ingredients and raw material that go into a product should be described by name on the label with an e-number to prove that they and the product are safe.

Both sustainability and safety are more or less taken for granted as essential components of value, but cannot stand alone; the offerings have to be good and exciting (Mascarenhas et al., 2004) and give the consumers a good conscience (Wikström et al., 2010). Semi-fabricates are seen as a possibility for consumers to feel as though they are doing the cooking on their own, yet still with convenience: "Semi-fabricates are convenient and maintain the experience of cooking, smelling ..." (retailer C). Some of

1 "Measure of emission of fossil carbon dioxide and other greenhouse gases given off by a product or activity", Skogsindustrierna, 2008-2009.

the food manufacturers are of the same opinion, believing more in components and semi-fabricates than ready meals for the future.

4.4.2. How is innovation performed?

Roles, collaboration and trust are interlinked and relate to power in the chain. In Sweden the retailers definitely have the power in the supply chain, similar to in the UK (Fernie and Sparks, 2009). One actor, ICA, dominates the market with a 50.3% market share of everyday commodities (Fridholm, 2010) or as expressed by ICA (2009) having a 36.5% share of the retail grocery market. ICA together with Coop, Axfood and Bergendahls have around 70% of the market according to ICA (2009), whereas Axfood (2010) calculates that the four major retailers have together 91% of the market; probably Axfood bases its figure on share of everyday commodities, of which some are non-food items. Anyway, this is an evident example of retail concentration, one of the two processes that are important to create power (Collins, 2007). The other is strategic actions to develop the brand.

About roles

The retailers in Sweden see their role as that of developing their brands. They do this by driving food innovations through differentiation, often via new packaging, and their own brand development via food manufacturers in or outside Sweden. As expressed by one retailer (A), "A premium range should contain unique products, tastes and packaging". This role supports the first issue for retailers found by Grievink et al. in their worldwide study to create and retain store loyalty (2002; Table 4 in paragraph 3.1.). In addition, retailers in Sweden act according to the other issues mentioned in Table 4 by Grievink et al. (2002), such as to make significant use of available knowledge of the consumer, to recognise attractive areas for expansion and to increase involvement in the food chain; in the last case by creating more private labels and exercising power in the chain. Retailers have access to actual information about consumers, their purchasing and preferences, trends, etc. via IT based systems. Some of that information is used to drive some of the earlier listed examples of retail innovations. The information is, however, not generally shared, and it is unclear to what extent it is at all shared with any suppliers.

Swedish manufacturers define their role as that of continuing to develop and produce products, preferably under their own brand but increasingly, sometimes reluctantly, under private labels, i.e. retail brands. The retailers in Grievink et al.'s investigation expressed that food safety and guarantee, followed by product innovation should be at the top of the main issues for the manufacturers (Table 5 in 3.1.). Some comments from food manufacturers about Swedish retailers: "We think that the retailers are very bad at developing the category; they are more focused on buying than selling but starts

to improve" (company 10), and "The trade has misunderstood their role; they should sell the products more efficiently" (company 5).

Packaging suppliers have different roles in the packaging supply chain, but they are more global in their activities than retailers and food manufacturers in Sweden; although availability/cost plays a role for how global they can be in supplying. To some extent this has historic reasons, as food products were regulated with impact on export/import before Sweden joined the EU in 1995, but the expanding packaging companies were not. Packaging suppliers need to become aware of trends and consumer wishes early enough to develop appropriate solutions, which may take a long time; hence their wish for more consumer insight and the need to develop packaging together with the product (Chan et al., 2006; Olsson and Larsson, 2009; Bramklev, 2007).

Development

The retailers in Sweden expect manufacturers to develop more unique and genuinely new products. At the same time, retailers are aware of that consumers do not want new products that are too risky (Galazzi and Venturini, 1996), advanced or not linked to obvious consumer benefits (Frewer et al., 2003; Costa and Jongen, 2006).

The bigger food manufacturers in Sweden claim, that they have defined development processes in place, which was also found in the Swedish food company studied by Arwidsson and Haglund (2008). The manufacturers work very much on their own, in-house and often top-down (Deschamps, 2008), but also with suppliers of packaging, equipment, ingredients, etc., but they do not appear to work with consumers/users, as suggested in the literature (Von Hippel, 2001, 2005; Heiskanen et al., 2007; Grunert et al., 2008) or in the wider context of open innovation (Chesbrough, 2003). This is a similar situation to what Fortuin and Omta (2009) found in the Netherlands, where open innovation is not widely used either in the food industry. If Swedish retailers are going for open innovation models as in the UK (Reynolds and Hristov, 2009), they might leave the Swedish manufacturers behind.

Regarding retailer initiated development, the most common approach is that the Swedish retailer takes the initiative to obtain products for his own brand by interacting with a manufacturer, in Sweden or abroad. As a result, collaboration from the retailer side with food manufacturers appears to be on the agenda only if the resulting products are under retail brands (i.e. private labels). Some comments on private labels were: "Private labels have been driven by overcapacity in the food manufacturing due to overproduction of agricultural products, which is a consequence of politics" (retailer C). A food manufacturer (10) sees it differently: "The trade develops private labels because the margins on the products we give them are too small. Either we give them more margins – and we do with private labels – or we give them higher turnover of our products. We must have strong brands, better products, better packaging, better merchandising or else the trade will take over and develop their private labels." Yet another manufacturer (6) stated that "private labels can be a good way of quickly getting out a

product and getting volume" and "it can be very profitable; it is for us" (company 10). And there is some interest from manufacturers to collaborate with retailers: "We want to collaborate more and be seen as the solution and not the one creating problems" (company 5) and "If manufacturers and retailers could work together, many costs could be taken out of the system" (company 12).

You can compare this with the Hultman et al. (2008) study of one Swedish food company. They identified the advantages of private labels over manufacturers' in Sweden to be retailers' control of the market and stores and that the quality of private labels is increasing, which is confirmed in this thesis study. They also found that the manufacturers are said to have two advantages over retailers: better reputation of their brand and quality and product development. But in this study, one retailer (A) commented, that brand is often overrated and "many manufacturers believe that consumers are willing to pay more for their brands and they should be interested to see the market picture from the retailer side and agree on one picture".

Concerning quality and product development, the manufacturers in Sweden face stronger competition now with retailers with the ability to differentiate and source anywhere. With the high and unbalanced retail concentration and few inhabitants in Sweden, the food manufacturers have to develop their own brands and make sure that their products are available at least at ICA, but preferably at all the other major retailers as well. Some smaller producers have special niches and are doing quite well under their own labels, but they are also under pressure to develop and produce private labels, and sometimes they do.

The retailers in Sweden expressed a wish for more understanding and support from manufacturers – and vice versa. This and other results in this study correspond to the findings by Grievink et al. (2002) of mistakes made by manufacturers in relation to retailers: insufficient knowledge of retailers' problems and issues but also not enough investment in product innovation and to too narrowly focus on their own playing field. The Swedish retailer situation also corresponds to the Grievink et al. (2002) findings of the major mistakes made by retailers in relation to manufacturers: too little attention to long-term strategy, too much focus on cost, no added value and not paying attention to the added value that manufacturers can provide.

Collaboration

Collaboration requires trust, commitment, information sharing and a common vision among supply chain partners (Spekman et al., 1998; Lindgreen, 2003; Vlachos et al., 2008). It also requires a move to relationship and pull innovation based on collaboration (Weaver, 2008). The collaboration in the Swedish supply chain between retailers and food manufacturers is mainly of a transactional nature and is not relational (Bowersox et al., 2000; Gehlhar et al., 2009; Costa and Jongen, 2006; Weaver, 2008). Evidence of the transactional contacts that Swedish retailers and manufacturers mention is that they mostly meet to discuss price. This meeting is usually between a purchasing and a

marketing person with very limited knowledge of the product/process/recipe they are discussing or what might be developed if a common vision of the future existed. On higher levels, meetings take place and relations are established in branch organisations, but how many of those participating are involved in innovations? There are exceptions, however, mainly among smaller successful niche companies.

In general, neither the retailer nor the manufacturer in Sweden appears to have moved out of the "silo" mentality mentioned by Weaver (2008) or the "clan mentality" mentioned by Costa and Jongen (2006), to truly become market and customer oriented. The trend towards relationship marketing is based upon the wishes and needs to create value for the customers/consumers (Weaver, 2008; Burt, 1989; Mascarenhas, 2004 and others), a trend which does not seem to have been developed enough in Sweden.

One reason for the limited collaboration in the supply chain in Sweden could be the lack of trust between retailer and manufacturer, whereas the packaging supplier does not compete with the other two but, on the other hand, does not seem very visible in the value chain. Trust is also lacking between the food industry and the consumers in Sweden (Wikström et al., 2010; Lareke, 2007) and in many other European countries (Lindgreen, 2003). According to Lindgreen (2003) trust consists of honesty, safety, credibility, previous experience and communication to the consumers. As one company (3) in Sweden explains, the success of their range is "built on communication and especially in the store, to tell customers how to use the products such as in arranging a buffet or Friday night treat, long-term".

An interest/vision among manufacturers to collaborate with other manufacturers and suppliers exists, as expressed by one company (1): "Collaboration between small and big companies and finding ways to work together without buying. The car industry has succeeded and has respected sub-suppliers". Some manufacturers in Sweden are actively searching for other non-competing manufacturers abroad to get access to more products and differentiated packaging without investment. "Add a new brand and look for small niche companies and for partners that complement us, and we do not need to build up that knowledge; building alliances is a quicker way than to do the development by ourselves or buy a company" (company 4). This is somewhat similar to what have been proposed by Ronnow Olsen et al. (2008), to form product development alliances of a horizontal and non-competitive nature or strategic technology alliances (Gilsing et al., 2007). If the manufacturers succeed, the result might be more imported products, which go against the ideas of the present agricultural minister, who wants more Swedish foods on the shelves.

Packaging suppliers in Sweden collaborate among themselves and with immediate customers, but apparently not involving consumers. When they run development projects with food manufacturers, cost is often shared. The packaging companies have much to offer as new packaging systems in combination with products can create new opportunities. Look at canning, aseptic systems, MicVac, Tetra Recart. These packaging systems are examples of collaboration projects between manufacturers and suppliers similar to what Dunne (2008) described. Today both manufacturers and retailers ex-

press a growing interest to collaborate with packaging suppliers, which is obvious from the list of innovation examples in Table 9.

ECR (efficient consumer response) (Vlacho et al., 2008; Lindblom and Olkkonen, 2008) has been mentioned as a means to collaborate, with category management (CM) as one component. It has been mentioned in the interviews by some manufacturers along the lines of Lindblom and Olkkonen (2008) (i.e. pushed by retailers to gain more control/power). "Category management is a way to break down leading brands by the retailers. If you destroy for the market leader, the whole category might be destroyed" was the comment made by one respondent from the retail group. There are category managers (or at least those responsible for planning the shelf and discussing with competitive brand owners) not only among the big manufacturers but also among smaller niche companies in Sweden. Corporate social responsibility (Porter and Kramer, 2006) was spontaneously mentioned by a few of the respondents among packaging suppliers (It was not a question but came up when asking about collaboration).

How value is delivered to the consumers (Teece, 2010) is a question of the business model and strategy chosen. Regarding innovations, the most common approach according to Teece (2010) is a mixture of the two extremes, an integrated business model and the outsourced approach (Teece, 2010). Some of the earlier mentioned barriers stand in the way for more integration in the chain. Outsourcing has been suggested for non-value adding steps in the supply chain to save costs (Hsiao et al., 2010) and logistics could be one such step. Some manufacturers in Sweden wanted third part logistics for chilled products and believed to be moving in that direction (retailer C). Today most goods of some quantities are picked up by the retailers and delivered to their central warehouses and from there to the stores. There are exceptions, like the biggest dairy company with direct store delivery and bakeries with daily-fresh bread. From a multinational food company's (12) point of view the trend in logistics is: "We minimise storage and move the goods all the time and have efficient logistics; avoid storage and when necessary have it in the factories and distribute directly to customers". Increased outsourcing of packaging of some not perishable or processed goods was predicted by some respondents. Similarly co-packing of at least test or even launch qualities can be arranged by the packaging suppliers, depending on the product.

Co-branding, which could be an example of co-operation or coopetition, was one of the questions raised with the interviewees, although there are not very many examples in the literature (Lieback, 2005; Winter, 2008; Gallagher, 2007). It did not turn out to be an interesting proposition among most of the interviewees, or among producers or retailers, blaming each other for not being interested. But co-branding between complementary manufacturers is another issue and examples of co-branding between confectionary and other food manufacturers in Sweden can be found on the market.

The limited collaboration that does take place to develop and produce private labels by the food manufacturers in parallel with their own brands, could be interpreted as an example of vertical coopetition (Bengtsson and Kock, 2000; section 3.4.3.). In addition, respondents from the three groups expressed a willingness to be able to help each

other more and some meetings between retailers and food manufacturers do take place before major new launches. These signs put together, plus the presence of intermediate associations that could co-ordinate (Bengtsson and Kock, 2000; Osarenkhoe, 2010), make an increased coopetition seem possible in the chain, with advantages for both parties (Bengtsson and Kock, 2000) and might be one road for the future.

4.5. A new proposed definition of innovation (related to food)

The word "innovation" tends to be used for anything that is new in the eyes of the beholder, reflecting the definition by Kotler (in Grunert et al., 1997). Most interviewees are aware that what we commonly call innovations can vary from very small improvements to radical changes but they define innovations as something more than incremental; one reason to lift "innovation". Interpreting the suggested definitions by the respondents compared to the shorter definitions in section 3.2., the latter are not sufficient to cover the complexity of innovations in relation to the food sector. To my mind the OECD definition is too long and not entirely correct, at least not in connection with food related innovations.

Hence, based on the OECD (2005) definition of innovation and input from the interviews in this study, I propose a shorter and modified version, at least regarding food related innovations: *"An innovation is a new or significantly improved product or process or way of handling services, logistics, marketing and organisational issues internally and externally that has significant value to the relevant unit of adoption",* (i.e. adding the last part of the definition by Assink [2006]). This definition covers the suggested definitions by the respondents and the examples given, meant to illustrate what an innovation means to the respondents in the food sector and lifts the concept up above purely incremental changes. As a consequence, purely incremental changes (a new packaging size, a new flavour, a new design, etc.) should be called "incremental development" rather than "incremental innovation".

4.6. Comparison of the food sector of the ***present*** and the ***past***

From 1945 until today, a number of changes have taken place in society, culture and attitudes which have changed the environment for innovations in the food sector. Some of these differences have been identified and the ones estimated to have the greatest impact on innovations are summarised in Table 11.

Table 11: Major differences influencing innovations between present and past

Issues of difference	***Present* , 2010**	***Past*, 1945***
Trust among supply chain actors	No	Yes
Consumer trust in industry	No (Wikström et al., 2010)	Yes
Media and society attitudes to new technology like once freeze technology	Negative and anti-industrial	Positive, incl. from trade media
Collaboration in the chain	Mainly limited to private labels (vertical)	Yes, in cluster and network (vertical and horizontal) in an open manner (Chesbrough, 2003)
Power balance	Retailers have the power	Manufacturers had the power
Import/export of Swedish produced food or packaging	No restrictions; packaging more global and multinationals global	Protected market; limited food import or export but packaging could be exported
Actual import of products from abroad and on the shelves	Over 50% of what is on the shelves (retailers)	Not allowed for (most) food
Private labels	Yes	Different; retailers were also wholesalers and producers with brands – but retailer names had not become brands
Cost versus relationships in the chain	Cost focus, not value	Mainly relational but later became transactional
Manufacturers with substantial R&D in Sweden	Few, as most companies are not Swedish owned	Were built up in Sweden along with innovations or located here by foreign companies as import of food was limited
R&D processes among food manufacturers	In-house processes and collaboration with some suppliers	"Open" in network and cluster with 'Edisons' allowed to contribute
Service as innovation	Yes, very evident and many service innovations among mainly retailers	Yes and No; self-service yes, frozen food was a service but probably not recognised as such, (i.e. rather a technology-product innovation)
'Edisons', individuals important in innovations	Not discussed or mentioned in spite of more individualistic consumers; more partners/firms	Several identified and praised, from inside and outside of firms
Packaging recognised and available	Yes, among both retailers and manufacturers but not enough recognised for innovations	No and had to be developed when new products, like frozen, were developed
Common vision in industry/ society	No (lack of it reported from respondents)	Yes, probably as it turned out with frozen food a success; (Porter's Diamond)
Governmental support	Yes? Sweden should become known for food according to the Swedish agricultural minister. No. Little support for food innovations until now	Yes, network formed with active support (Porter's Diamond)

*concerns introduction of frozen food and self-service in Sweden (Beckeman, 2006)

Since the past, some new technologies such as gene modified raw material for food, irradiation, high pressure processing, pulsed electric fields and nanotechnology have been proposed and more or less developed and tested. They have not, however, really gained acceptance on the market, illustrating the scepticism about technology (e.g. processed food, and science) (Wikström, 2010; Lillford, 2008) – and perhaps the lack of "human touch" (Naisbitt, 1982). However, new packaging/packaging systems and different services, mainly by retailers, have been introduced. The role of packaging and logistics has increased since the days when frozen food and self-service stores were launched and needed packaging and controlled distribution. At the same time there has been some on-going criticism of packaging as evident from the comments made by Torell and Lee (2010) when writing the history of packaging in Sweden. In the quote (in section 3.8.) it sounds as if packaging was a necessary evil when self-service was introduced and forced on the actors in the supply chain, including the consumers.

Perhaps we should list the major problems we see in the food sector of the **future**, not only limited to Sweden, and think about solutions. Christensen et al. (2007) argue that consumers want solutions. Teece (2010) emphasises that technological innovations should be matched with business model innovations, and communication with consumers is believed to foster trust (Lindgreen, 2003). In the business model and the strategy for the **future** we can learn from the past, as we will have to work much in the same way as was done with frozen food, and to consider how to co-operate, compete and regain trust. This will require 'Edisons' from inside and outside with a variety of skills, including the ability to link communication to problem identification and solving.

5. Conclusions and contributions

The **present** research *purpose* was to investigate if there is a gap between how retailers, food manufacturers and packaging suppliers in Sweden view innovations with the two *research questions:*

- What does "innovation" mean to the different actors?
- How is innovation performed and what are the key issues?

Some conclusions have already been presented in the results and analysis chapter related to the research questions, literature data and input from the respondents. However, some overall conclusions can be drawn, comparing the three cases of the **present** to the **past** and in regards to the **future**. More suggested actions based on personal reflections can be found in chapter 6.

5.1. Conclusions

*About the **present***

The three groups of actors studied in the Swedish food sector were retailers, food manufacturers and packaging suppliers:

- There is a gap between the groups about what they mean by innovation. The definitions may be similar, but from their examples it is evident that the respondents do not see and judge innovations and new offerings on the market in the same way. This can be due to different roles and focus and because they lack a joint vision and supply chain perspective.
- Examples of definitions of innovation given by the respondents were: to create or drive a new category/segment, something that changes shopping habits or consumption or use of existing products in a new way, a new service, a new way of working/ selling/ communicating, thinking outside the box, a unique idea with potential, a package with additional value, an "invisible" change (e.g. increased capacity, lower cost, more environmentally friendly).
- The definitions indicate that the respondents defined innovations as more than incremental (i.e. more than a new flavour, size, package, etc.). Yet many of their examples were incremental. It appears as if "innovation" is a rather misused word for everything new in the eyes of the beholder.

- Based on the OECD (2005) definition of innovation and the input from interviews in this research, I propose a modified definition for food related innovations: *"An innovation is a new or significantly improved product or process or way of handling services, logistics, marketing and organisational issues internally and externally that has significant value to the relevant unit of adoption"* (i.e. adding the last part of the definition by Assink, 2006). Innovation should be something of value and if it fulfils this definition, it meets what the respondents suggested.
- As a consequence of the new definition, incremental changes should be called "incremental development" rather than "incremental innovation". Interpreting the level or height of an innovation (radical, disruptive, discontinuous, breakthrough, really new, incremental) to what is in the literature is confusing and contradictory.
- Food manufacturers and retailers in Sweden develop *for* the consumer and not *with* them, relying on in-house development (food manufacturers) or sourcing all over the world (retailers). The bigger manufacturers have a defined process and the smaller ones rely on their niches and extending them. Most packaging suppliers rely on their customers to learn what to develop and realise they have too little consumer insight of their own for long-term innovations.
- When innovating or developing, there is limited collaboration between retailers and food manufacturers; when it happens it is mainly limited to developing private labels. Packaging suppliers are quite global and collaborate with customers anywhere, where they can supply at competitive costs.
- Cost is more in focus than value, and food and packaging suppliers feel squeezed by the retailers. Contacts in the chain are mainly transactional and not built on relationships. Retailers expect food manufacturers to develop unique offerings and food manufacturers claim that anything successful and new is quickly copied by the retailers, but with unique offering it takes longer.
- Among key issues are drivers and barriers. Some drivers are often also barriers for innovation (besides cost):
  - demands for more differentiation of products/packaging by retailers under private labels
  - more informed, demanding and individualistic consumers
  - consumer wishes for higher quality (could mean increased attractiveness, fewer additives, "purer" products) but at same or lower price
  - demands for convenience and more exiting (and efficient) shopping experiences and services
  - the wish and need to grow by the three groups
  - increased competition from national and international actors
  - prevailing trends such as local, fresh, etc., and sustainability in its widest aspects (waste, climate, recycle-reuse, etc.) starting to be drivers

    - health aspects
- Additional key issues:
    - lack of trust
    - power imbalance
    - lack of transparency (regarding cost and sharing of information about consumers) leading to limited consumer insight
    - limited collaboration in the chain and with "outsiders" (i.e. with 'Edisons' in a more open innovation manner)
    - traditional in-house development among manufacturers
    - the need for manufacturers to be listed by all major chains, which prevents innovation projects with one chain
    - lack of pride and vision among food manufacturers
    - shared resources at manufacturers for different customers and uncertainty of demand and shelf life
    - media's search for "news" and not for value

*Comparing with the **past***

The major innovations and events that shaped the Swedish food sector directly after WW II were investigated. The way they were achieved was entirely different from how the different actors work in the supply chain today:

- In the **past** (directly after WW II) frozen food and self-service were considered the major innovations that changed and developed the Swedish food sector. These innovations (radical?) fulfilled consumer needs, were introduced at the right time with the right conditions prevailing in the country (Porter, 1990) by collaboration in clusters and networks and allowing individuals – 'Edisons' – from inside and outside to contribute. They were early examples of Chesbrough's Open Innovation (2003). Trust existed among different actors, including the consumers.

*For the **future***

There is a major difference between how the supply chain worked in the past and how it works today according to the present study. Will the present way of working in the supply chain remain or will it change?

- There are signs of an emerging shift from a focus on cost to value. This is evidenced by some respondents from each group expressing a wish to contribute and help the others in the supply chain and by some manufacturers realising that to develop and produce private brands in addition to their own brand is not necessarily bad. Some manufacturers already have separate organisations for developing their own labels and private labels. These signs can be seen as indications of an interest to co-operate

and compete simultaneously, which is the definition of coopetition. It implies trust between the individuals involved in a defined task where resources are pooled to be used for mutual benefit, and it offers a way out of being locked in pure competition – and save costs.

5.2. Contributions

An overview of the Swedish food sector has been presented with the focus on innovations today. It has been achieved by input from retailers, food manufacturers and packaging suppliers (i.e. the maine "value creating" ones) in the supply/value chain.

The novelty of the results within each group can be debated, but part of the contribution is in taking them together and comparing them in order to create a holistic view of the present situation from different angles. The results reflect how the major actors in the chain view the situation and leads to the question: Is this how the actors (and/or the consumers, who were not asked in this research) wish it to remain or are changes needed or wanted? Sweden is not an island and compared to trends in other countries and theories from the literature about how innovations can be performed for a higher chance of success, the question has to be posed and debated by those in charge of creating value in the chain. From this research, it is obvious that I see possibilities for the actors to work together more to innovate in areas where the food sector in Sweden has a chance to reach some success, based on a realistic common vision.

The idea of exploring the concept of coopetition as a way around the general lack of trust and collaboration at the present can be an opportunity to revert to when analysing what was learnt when investigating the past, after WW II when the Swedish food industry started to develop. Then actors in the chain did collaborate in networks and clusters with an open mindset, inviting individuals from inside or outside who could contribute.

Another contribution is the proposed new definition of innovations related to food and based on input from those active in the chain. The personal reflections and suggestions in the next chapter can contribute to a discussion among practitioners in the food sector about innovations in the future.

6. Personal reflections and suggested actions for future work

I have indicated that my personal aim is to create a discussion about the results among concerned people in the Swedish food sector as to if the description is correct and if they want to change it or let it remain as it is. With past experience in product development and through this research, I have reflections and suggestions to fuel such a discussion.

Unnecessary costs in the supply chain should be eliminated, which ought to make collaboration in the chain the first priority (as suggested by one respondent representing a major multinational food manufacturer). Theoretical and empirical data support collaboration, along with the additional arguments presented in this research. With increased national and global competition in the food sector, selective collaboration must be of interest, when realistic, in order to pool resources in R&D, regionally and/or country wise. Or will Sweden increasingly rely on importing food?

As it looks today, the Swedish consumer food sector seems to follow similar supply chain development as in the UK. Retailers, there and here, are obviously doing a very good job to increase services to the consumers and increase the market shares of private labels as well as with differentiating and with high quality, not only incremental development. The risk is that there might be less development of new products or really new innovations in the country and fewer choices in the stores apart from A-brands and private labels. But will the consumers mind or even notice?

If the Swedish actors in the supply/value chain want to compete with innovative new offerings in the food sector, in Sweden and perhaps also by exporting, they must find out what the consumers want and might want in the future and then consider what would be beneficial to develop/innovate in Sweden. In this context it would be very interesting to apply the Porter Diamond (1990) analysis to the present situation in Sweden or perhaps per region(s) (e.g. starting with the south of Sweden alone or together with all or parts of Denmark).

How collaboration should be attained while maintaining competitiveness makes the concept of coopetition very interesting for further investigation. With selected coopetition, motivated individuals ('Edisons') are essential as well as the application of Open Innovation (Chesborough, 2003) as is increasingly being done by some multinational actors. Some of these ideas were intuitively applied in Sweden directly after WW II.

There are a number of issues that puzzle me from the **present** study such as:

- The debate about an excessive amount of e-numbers, often additives brought over as carry-overs from ingredients. This issue should have been possible to foresee and do something about. But to go from this situation to the other extreme of "no" additives reinforces the picture of an industry that cannot be trusted in the eyes of the consumers. To overdo the elimination of additives also involves risks, microbiological and for consistency in quality.
- The price of a product in Sweden is related to the size and category of the store; the bigger the store the lower the price. It is easy to understand why, as smaller volumes are more expensive. But the situation is different in the UK (Sparks, 2009 and my own observations) where the price of a product is the same in all stores of a chain. It appears to be a very efficient marketing tool to have the same price everywhere and helps to keep smaller stores alive – and city centres as well. Consequently, in the UK a number of "high street" located stores have been introduced. Looking at society, with an aging population and an increased focus on the environment, this could be an interesting proposition. And stores are often the meeting place in a community.
- Handling costs per item in the store: Why are they added on in percentage? As an example, one would assume that the cost of handling one carton of frozen food would be the same as handling another with different content and price (from the manufacturer). The effect, however, is that a more expensive product from the start becomes even more costly for the consumer; this does not promote higher quality.

But can we really learn anything from the **past**? With the retrospection we have, it is tempting to speculate. The success and quick acceptance of the new technology of freezing food came when the timing was right, the resulting products filled a need, were of high quality and had the human touch mentioned by Naisbitt (1982) as important for a new technology. It simply solved some problems. Can this be said about any of the more recent and **present** technologies suggested for food? Or is it so that we have not thought about them in those terms and evaluated them against the needs and opportunities? For instance, gene modification is intriguing; what can it offer? Can allergens be excluded, can we tailor-make ingredients and products with the right and nutritious properties without additives, increase the yield to support a growing population? And can nanotechnology really add to the microbiological safety and quality of food and packaging? Similar questions can be formulated for other issues.

We have to find a balance between opportunities and risks of all new developments and increase the transparency and communication. We should perhaps list the major problems we see in the food sector (now and for the future and not only limited to Sweden) and think about solutions and actions that lead to new innovations.

Here are some of my suggestions, based on the **present** and looking at the **future**:

- Create, validate and label a range of "sustainable products" (including packaging and services) in Sweden and in the global context. The products should meet a number of criteria that must be formulated by a small group of experts and re-evaluated

whenever new research results in a change, but also every (or every second) year, in order for a company to maintain the label "sustainable". The small expert group should consist of people knowledgeable in the field, who are recognised authorities with integrity. A scientific (and/or trade?) journal editor should also be included in order to define early on what needs to be tested and how it can be communicated to consumers. The products should be based on state-of-the-art knowledge. Examples of criteria to be defined by the expert group could be: to meet a realistic balance regarding taste, nutrition, acceptable yield, "additives", chemical residues, environmental criteria and cost. In this context the concept of approaching the "closed loop" thinking in the life cycle of a product might be one way to go.

- Packaging suppliers are quite global and some of them are very knowledgeable about products and trends in many markets. They could be valuable partners in system development/ innovation with the other actors in the chain, and those should also recognise the potential of such collaboration, especially to achieve sustainability.
- Identify projects with a potential for win-win as part of a joint vision of where we in Sweden want to be long-term and our place in the global context. What are we in Sweden competitive and good at? Select one or two projects of interest to the whole chain, including consumers, and organise (multifunctional, open, 'Edisons', etc.) according to advice and experience accumulated in the literature and among respondents in this study. We need good examples.
- Further exploit the "bundling" idea (Teece, 2010) of combining products and services that can interest actors in and outside the food sector. This was also suggested by some food manufacturers.
- Multinational companies and national and/or niche companies (in the food sector) might be persuaded to collaborate side by side in interesting developments similar to what is done in the car industry with sub-suppliers.
- Transparency in the chain must increase. Why not launch a couple of interesting products and let consumers see the cost structure? We are stuck with low cost, low quality/additives; industrial food is bad. I understand that this does not sound very realistic but something needs to be done to make consumers realise value for money.
- The media, starting with the trade media, might be persuaded to join a project of interest from the beginning. Their role at the start would be to formulate the questions needed to be answered before a launch and propose how to communicate afterwards. A theoretical example could be to objectively evaluate the pros and cons for gene modified ingredients and what those could and should contribute. Another topic is "local" food. Will a realistic future mean that we can get "local food" from all over the world, grown/produced and distributed under optimal conditions?
- Future trends must be identified among young people and services, information, offerings and promises adapted to the future. What about the new paradigm described by Lillford (2008) and the self-marketing suggested by Cochoy (2010) as an added role for packaging?

- Develop on-line shopping, "e-tailing", other outlets, home-delivery, pick up points, etc. (Edwards et al., 2010) to enhance and/or speed up the shopping experience and provide a solution for time-constraint shoppers. How about establishing "newsrooms" in stores for all new products (suggested by company 4) to make shopping more exciting and more informative?

Finally, corporate responsibility was mentioned briefly by some packaging suppliers, but sustainability by practically every respondent as a very strong trend. This corresponds with the results of a very recent survey, *Top of Mind Survey* 2011 (The Consumer Goods Forum, 2011). It was based on the ranking of issues by 443 decision makers in the consumer goods industry from 45 countries. In this survey, the list in order of importance starts with corporate responsibility (sustainability, social standards, corporate governance), followed by food and product safety (standards, traceability, consumer confidence), the economy and consumer demands (energy costs, demographic change, consumer trends), retailer-supplier relations (trade costs, pricing, collaboration), consumer health & nutrition (product development, labelling, education) and so on. As corporate responsibility includes sustainability, this (and several of the other issues such as safety) demands a joint approach by the whole chain, from growers to consumers. The focus will be on "invisible" innovations to minimise energy, water, emissions, waste; issues that are hard to communicate to the consumers but where Sweden might have a chance to innovate. Media, science and innovators will have to come together and formulate visions and goals, including benefits to be fulfilled and plans for communication.

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