# Food in tubes: a “retro cool” Swedish innovation

## Industrial History and Consumers’ Perspectives

KARLA MARIE B. PAREDES


**MASTER´S THESIS**

Packaging Logistics
Lund University


This Master's thesis has been done within the Erasmus Mundus Master Course FIPDes, Food Innovation and Product Design.

www.fipdes.eu


FIPDes has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

# Food in tubes:

# A “retro cool” Swedish innovation

## Industrial History and Consumers’ Perspectives

Karla Marie B. Paredes


LUND
UNIVERSITY

Food in tubes: A “retro cool” Swedish innovation

Industrial History and Consumers’ Perspectives



*Published by*

Division of Packaging Logistics
Department of Design Sciences
Faculty of Engineering, Lund University
P.O. Box 118, SE-221 00 Lund, Sweden

This Master’s thesis has been done within the Erasmus Mundus Master Course FIPDes, Food Innovation and Product Design.

www.fipdes.eu

ISRN LUTMDN/TMFL-13/5111-SE
ISBN 978-91-7473-588-8 (electronic version)

# Abstract


**Title (in English):** Food in tubes: a "retro cool" Swedish innovation
Industrial History and Consumers' Perspectives

**Title (in Swedish):** Mat på tub: en "retro-cool" svensk innovation
Näringslivshistoria och konsumenters perspektiv

**Author:** Karla Marie B. Paredes

**Supervisor:** Malin Olander Roese
Packaging Logistics, Department of Design Sciences, LTH

**Issue of study:** "Tube food" is a fascinating facet of Swedish food culture. From an international perspective, it is interesting how a packaging type that is not very common in other parts of the world can encompass a wide range of food products in Sweden.

It is not well documented why tube food is commonly consumed in Sweden; there is a knowledge gap regarding consumer behavior in this product category. Also, unlike other product-package categories that are present in the market, such as ready-to-eat meals, frozen food, etc., tube food and its emergence in Sweden has not been thoroughly discussed in existing literature.

From recent studies of the Swedish food industry, it can be said that there is still a great potential for innovation in the Swedish food sector; however, food manufacturers have too little consumer insight, which can be a problem since understanding what the end consumer wants is essential in product development.

**Purpose:** The purpose of this thesis is to look at the historical background of tube food in Sweden and to understand the perspective of current tube food consumers. Aside from determining what tube food products Swedish consumers are buying, the thesis aims to discover insights on why they buy it.

By knowing the values and meanings that tube food gives to the consumers, we get an understanding of how consumers think and feel about this category; thus, marketers can create more effective marketing strategies and product and packaging developers can apply this knowledge of consumers' intrinsic motivations to their product innovations.

**Method:** In this study, an abductive method was used, involving an iterative process between deductive and inductive approaches. A deductive framework was derived from a literature analysis of different methods of understanding consumer behavior in the context of studying values, and then this was evaluated empirically and

inductively in order to uncover new insights about tube food consumers.

Since tube food consumption in Sweden is not yet a well-defined phenomenon, an exploratory research was done through a qualitative approach, involving literature review and empirical research in the form of in-depth interviews with professionals in the food and packaging industries and in-depth interviews with tube food consumers.

**Conclusions:** The rise of tube food in Sweden occurred during the years after the Second World War, which was an important period involving the growth of the modern food industry in Sweden when technological innovations seemed to coincide with social and cultural innovations. In the case of tube food, the technological change was the introduction from the US of this new way of processing and packaging food into tubes, and the social and cultural aspect was the burgeoning of a new consumer culture, as evidenced by the emergence of popular brands like Kalles Kaviar. Caviar was an important product that brought about the rise of the tube food category because the fishing industry in Sweden was booming during this time, and there seemed to be a "natural connection" between caviar producers in the harbors and the tube packaging companies nearby.

The current tube food products that are being consumed can be grouped into two categories—spreads for sandwiches, or condiments and sauces. Although each type of tube food can be consumed differently, there are products that may be used in similar situations. To try to understand why consumers buy these products, the different types of product knowledge that consumers associated with tube food were studied, specifically by using the means-end chain model to show the linkages between product attributes or elements, benefits or consequences, and values.

A value diagram was constructed, thus visualizing the linkages between the product elements, the consequences (functional, behavioral, or emotional), and the values that were associated with tube food. In essence, tube food attributes such as brands, package type, package size, and package material were ultimately linked to terminal values of *inner harmony, sense of accomplishment,* and *comfortable life*, as well as instrumental values of *tradition, family, clean, fun and adventure, health,* and *social responsibility*.

**Key words:** Tube Food, Food Packaging, Food Innovation, Swedish Consumers, Consumer Behavior, Consumer Values

# Executive Summary


**Introduction**

A modern supermarket in Sweden today contains a large assortment of different food products in a variety of packages, designs and brands, but most of these appear to be based on food technologies that were introduced decades ago. One of these is food in aluminum or plastic tubes. "Tube food" is a fascinating facet of the Swedish food culture. From an international perspective, it is interesting how a packaging type that is not very common in other parts of the world can encompass a wide range of food products in Sweden; in markets outside Sweden, food in plastic tubes may be available, but those in aluminum tubes are rare, or even absent.

From recent studies of the Swedish food industry, it can be said that there is still a great potential for innovation in the Swedish food sector; however, food manufacturers have too little consumer insight, which can be a problem since understanding what the end consumer wants is essential in product development. Many firms do not find it easy to effectively connect with consumers and learn about them in a relevant and flexible way that would eventually lead to successful product innovations.

Despite tube food being widely available in the Swedish market, it is not well documented why it is commonly consumed; there is a knowledge gap regarding consumer behavior in this product category. Also, unlike other product-package categories that are present in the market, such as ready-to-eat meals, frozen food, etc., tube food and its emergence in Sweden has not been thoroughly discussed in existing literature.

The purpose of this thesis is to look at the historical background of tube food in Sweden and to understand the perspective of current tube food consumers. Aside from determining what tube food products Swedish consumers are currently buying, the thesis aims to discover the insights on why they buy it. By knowing the values and meanings that tube food gives to the consumers, we get an understanding of how consumers think and feel about this category; thus, marketers can create more effective marketing strategies and product and packaging developers can apply this knowledge of consumers' intrinsic motivations to their product innovations.

**Methodology**

Since tube food consumption in Sweden is not yet a well-defined phenomenon, an exploratory research was done through a qualitative approach, involving literature review and empirical research in the form of in-depth interviews with professionals in the food and packaging industries, and in-depth interviews with tube food consumers.

Relevant literature about historical data on tube food was not available, thus, secondary information and personal insights were instead collected through semi-structured, in-depth interviews with current and retired professionals in the tube food industry and the packaging industry, such as employees from Abba, Kavli, Tectubes, Nestle/Findus, and Tetra Pak.

Twelve tube food consumers, with varying consumption habits and frequencies, were interviewed in this study. In understanding the consumer behavior, it should be noted that there are many organizing principles offered by psychologists that enable researchers to make sense of how people live and make choices, and one of these is by looking at their values. For the purpose of this study, the framework of the *means-end chain* model was chosen to investigate the perspectives of the tube food consumers. All the learning and understanding from the consumer interviews were collapsed into "sound bites" and were organized into three categories: elements (or product attributes), consequences (or benefits), and values; with these information, a graphic model in the form of a *value diagram* (also called a hierarchical value map) based on the means-end chain theory was constructed to try to understand *why* tube food is being consumed today.

By investigating the historical background of tube food and by studying present consumer perspectives through the consumers' insights on product attributes, the consequences and benefits that they get from tube food, and the underlying values that are associated with it, the study aims to explore and understand the phenomenon of tube food consumption in Sweden.

**Findings**

*Industrial History*

The rise of tube food in Sweden occurred during the years after the Second World War. This was seen as an important period involving the growth of the modern food industry in Sweden, when technological innovations seemed to coincide with social and cultural innovations. After the war, mass-produced food started to be developed in Sweden and sold at reasonable prices, following the US as a model. Modern food packaging evolved with the society and the food industry, as the need for more individually packaged goods surfaced.

In the case of tube food, the technological change was the introduction of this new way of processing and packaging food into tubes, with examples like caviar and soft cheese spread. The timing was right, as this was also a period when the fishing industry in Sweden was booming. A natural connection seemed to have existed between the caviar producing companies in the harbors and the tube manufacturers in the surrounding area. Eventually, the range of food applications for the tube package widened, in the way that a packaging system can often drive product development by being tested on a variety of products, and then later adapting the package or further developing it.

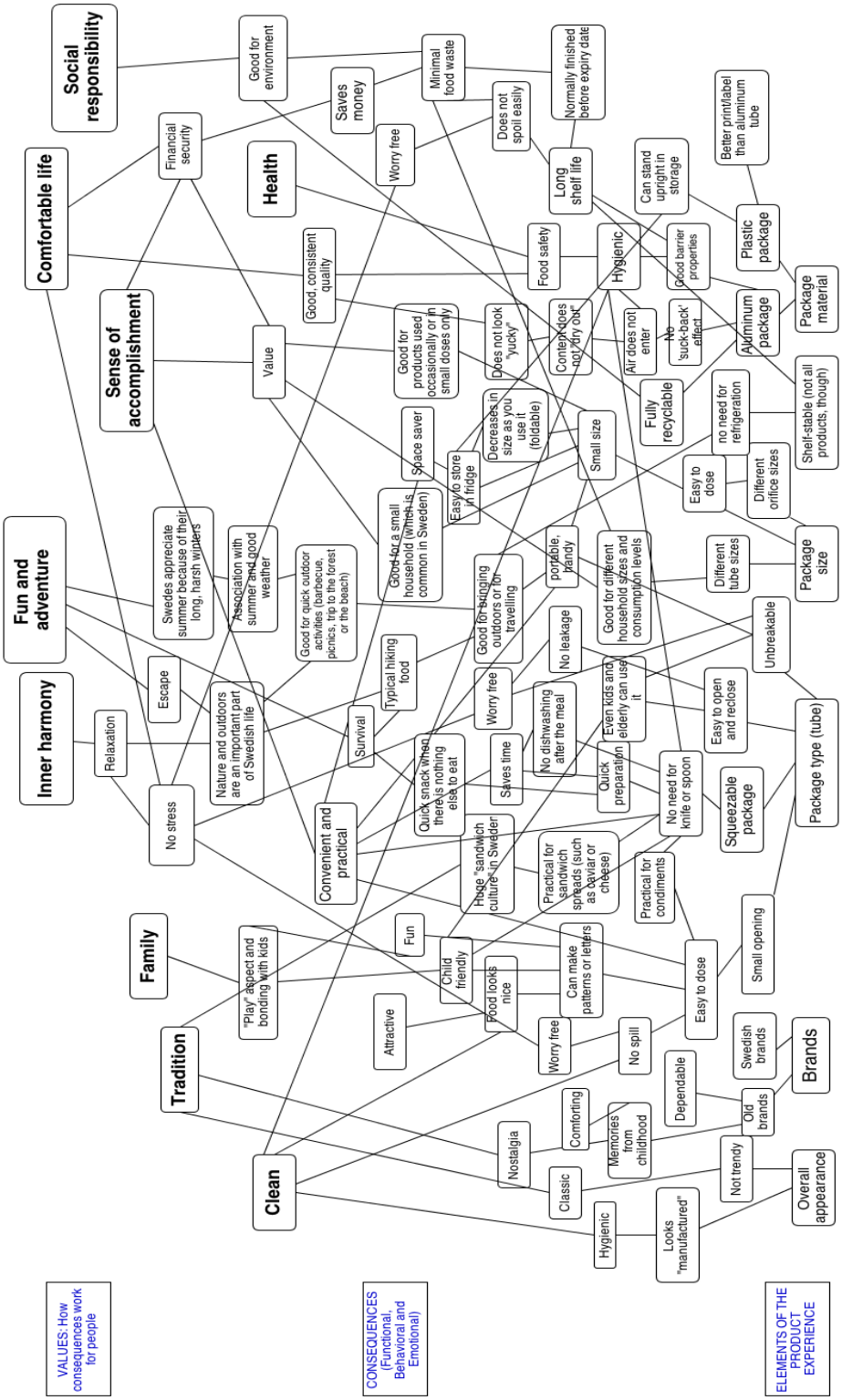
Aside from technological advancements, consumer culture also developed significantly in Sweden after the Second World War and in particular during the 1950's. The social and cultural change was the burgeoning of a new consumer culture. There was a strong belief in the future, and increased welfare lead to increase in consumption. Branding became more important as well, and Kalles Kaviar, which is one of the most important tube food brands until today, was established during this period.

*Consumers' Perspectives*

The current tube food products that are being consumed can be grouped into two categories: (a) spreads for sandwiches, or (b) condiments and sauces. Tubes were perceived to be a practical package for food items that are being spread, such as caviar and soft cheese on sandwiches, and consumers believe that tubes have many benefits when used for this purpose. It is a quick, simple, mess-free way of putting caviar and soft cheese on bread, without the need for a knife or spoon; moreover, it can be a fun way of creating nice-looking patterns on a sandwich. The second category of tube food consists of condiments and sauces, the most common of which are mustard, mayonnaise and concentrated tomato purée. These have more variety in terms of consumption situations, but they can basically be consumed directly (e.g. mustard on sausages), mixed with other ingredients (e.g. mayonnaise-based sauces), or used in cooking (e.g. tomato purée as a flavor enhancer in tomato-based dishes).

There is no single way of completely understanding a phenomenon as broad as tube food consumption, but one useful approach was by looking at the links between high-level perceptions about tube food (such as values and benefits) and actual attributes or elements of the product experience. The main product attributes of tube food that seemed to be most significant to the consumers are: brands, package type (tube), package size, and package material. Each main attribute leads to more specific attributes, which then leads to different responses about functional, behavioral, and emotional consequences or benefits. A more in-depth understanding of tube food consumption was achieved by ultimately determining the specific values that are associated with the tube food category. Values are important to study because they can influence a consumer's attitudes and behavior by serving as preferential standards in his or her mind. The following terminal values, or end-states of existence, seemed to be associated with tube food consumption: *inner harmony, sense of accomplishment,* and *comfortable life*; in addition, the instrumental values, or preferable modes of behavior needed to achieve the consumers' desired end, were: *tradition, family, clean, fun and adventure, health,* and *social responsibility*. A summary of the consumers' perspectives is shown graphically in a *value diagram*, shown in the figure on the next page.

In essence, Swedish consumers consume tube food because it is seen as a product that caters to particular needs and provides certain benefits, and the value diagram was able to show the links between the tangible product-package attributes (e.g. package type, package size) and intrinsic motivations, which are the perceived benefits and values (e.g. comfortable life, health). It should be noted, however, that these results are not meant to be representative of each respondent's personal values, but were meant to show the understanding of the aggregated responses of all the consumers.




*Value diagram for tube food*

**Recommendations for further research**

Although this research was meant to be exploratory in nature, it was valuable to look forward, and to initiate a possible discussion of its implication on product innovation and marketing. After this preliminary study of getting to know tube food consumers and trying to understand their product knowledge on tube food, further research may be able to translate this study's findings into realizable, but innovative ideas.

The results of this research can be used as a springboard for further studies—a next logical step would be to quantify these small-scale results to a larger scale audience of tube food consumers in order to confirm the findings quantitatively.

For further studies, perhaps it can be also be explored whether tube food, or products considered to be similar with it, may succeed in other cultures that have the same value constructs as the one concluded from this research. Another approach is to investigate several key "mega trends" in relation to tube food product or packaging innovations, such as the need for healthier alternatives, increasing demand for convenience, and changing demographics such as the ageing population.

More rigorous studies may be done later on to translate this study's findings into realizable product or packaging innovations, with the ultimate aim of creating a strategic product platform that would prove to be relevant to today's tube food consumers.

# Acknowledgments

This thesis was done in a 20-week period, but it actually marks the end of a two-year journey, which couldn't have been possible without the EMMC FIPDes (Erasmus Mundus Masters Course in Food Innovation and Product Design) consortium. I am thankful for the people who made it possible, especially Barbara Rega of Agro ParisTech, and Daniel Hellström and Erik Andersson of Lund University.

I would like to thank the best supervisor that a student could ask for, Malin Olander Roese, for being supportive in every step of the way, for always giving the most helpful feedback, and for pushing me to do the best that I can. This whole learning process would not have been as fulfilling without her guidance and encouragement! I would also like to thank Märit Beckeman for her invaluable help in my thesis; even though she was not my supervisor, she was very accommodating and shared her time and knowledge with me, as well as helped me in contacting possible interview respondents.

*Tack så mycket* to all the consumers and industry professionals that I have interviewed, without whom this thesis would not have been possible. I highly enjoyed talking with everyone and I felt that I learned a lot, not just about tube food, but about Swedish culture, in general.

I would like to thank my examiner, Annika Olsson. Despite her very busy schedule, she still managed to talk to her thesis students whenever we had questions or needed advice. Thank you to the Packaging Logistics department for helping us students in one way or another, especially to Erik who has been very helpful when I was looking for tube food consumers for my interviews. I would also like to express my deep gratitude to Packbridge Sweden for their support in my master's thesis.

I am grateful for my aunt, Dulce Paredes Tadena, and her colleague Jacqueline Beckley, product development and consumer insight specialists in the US, for their help and guidance in my thesis, and for motivating me to set high standards in my work. These are people I highly admire, and I get inspired whenever I read their publications, or even just their email replies!

Lastly, I would like to express my sincere gratitude to the people who have been with me throughout my whole masters journey. To my family (Papa, Mama, Miks, Vince and Trisha) and my friends in the Philippines, *maraming salamat* for keeping in touch and for being supportive despite being thousands of kilometers away. To all the friends, classmates, international students, and teachers I've met along the way, thank you—it was such an interesting experience to meet people from all over the world. To my FIPDes classmates whom I've spent a year with in Paris and Dublin, thank you for all the memories—I couldn't have asked for better people to share this program with. Lastly, to my fellow FIPDes girls here in Lund, for simply being such wonderful friends, thank you for making this one of the best years of my life!

Lund, June 2013
Karla Marie B. Paredes

## Table of Contents

# 1. INTRODUCTION

## 1.1 Background

A modern supermarket in Sweden today contains a large assortment of different food products in a variety of packages, designs and brands, but on closer inspection, most products appear to be based on food technologies that were introduced decades ago (Beckeman, 2006). One of these technologies was the filling of foodstuffs in aluminum tubes. "Tube food" is an interesting facet of Swedish food culture. In retail stores in Sweden, a wide variety of food items in this type of package format can be found.

Products are usually a food item of a creamy or pasty mixture packaged in tubes made of polyethylene plastic, aluminum or laminate, sold in the chilled or ambient section, depending on the food type. The tube package allows the user to apply the product directly and in precise amounts when required (Robertson, 2012). In Sweden, common examples of food items filled in tubes include a local version of caviar (usually made from cod roe), soft cheese spread, concentrated tomato purée, and condiments like mayonnaise and mustard.

From an international perspective, it is interesting how a packaging type that is not very common in other parts of the world can encompass a wide range of food products in Sweden. Food products packaged in plastic tubes may be available in other markets, but those in aluminum tubes are rare, or even absent. Sweden.se, Sweden's official website, even writes tube food as one of the few societal norms that are distinctly Swedish (Akinmade-Åkerström, 2011). Some foreigners who have visited Sweden have also expressed their curiosity for this food category, as reported in some articles in travel magazines and online food blogs. In *Saveur Magazine*, Fisher (2013) wrote, "there was something both retro cool and sleekly futuristic about them, with their bold colors and graphics."

In Sweden, although a great number of new products are launched every year, offering a variety of tastes, appearances, shapes, sizes, and brands, many of the products appear to be similar (Beckeman, 2011). This implies that there is still a great potential for innovation in the Swedish food sector. The first step in product development is to identify what the consumer wants (Moskowitz et al., 2012). Indeed, getting to know the end consumer has been acknowledged as the key to a food

manufacturing company; unfortunately, many firms do not find it easy to effectively connect with them and learn about them in a relevant and flexible way that would eventually lead to successful product innovations. Wikström et al. (2010) as cited in Beckeman (2011) investigated the influence of different actors in Sweden, including consumers, on how people choose and consume food, and they found that, among other things, food manufacturers have too little consumer insight.

People buy and eat food in situations and in contexts that may be as important as the food itself (Moskowitz et al., 2012). Not knowing what and where to look for these insights contributes to the delay or even the failure to innovate (Beckley et al., 2012). Studying consumers and their consumption habits, however, is a complex task. Consumer behavior is influenced by many factors, which have been observed through different lenses. Still, it would be interesting to have an initial study of the tube food phenomenon in Sweden by looking at how it came to be, and what the current perspectives of consumers are.

It is not well documented why tube food is commonly consumed in Sweden. As far as the author is aware, there is a lack of published studies regarding consumer behavior in this category. Also, unlike other product-package categories that are present in the market, like ready-to-eat meals, frozen food, etc., tube food and its emergence in Sweden has not been thoroughly discussed in existing literature.

## 1.2 Research questions and purpose

The research issue was to find and analyze the answers to the following questions:

- What is the historical background of tube food in Sweden? *How and why did tube food emerge in Sweden?*
- What are the tube food products that Swedish consumers buy? *When, where and how are these consumed?*
- How can we understand how consumers think and feel about tube food? *What approach to consumer behavior can be used for this study?*
- Why do Swedish consumers buy tube food? *What are the attributes, benefits, and values that they associate with tube food?*

With a better understanding of tube food consumers, marketing and product or packaging development of tube food products can be improved, thus giving way to successful innovations in this category. Consumers are viewed as an integral component of the development and marketing process, and this study is meant to start an initial discovery of tube food consumers in general because they have not been studied as an entire market segment.

A practical application of the study is to address the concern that there is a gap in the knowledge of consumer insights towards tube food in Sweden, despite its ubiquitous presence in the retail market. The study intends to contribute to this knowledge, which can be relevant to those interested in the consumer behavior towards Swedish tube foods, such as managers in companies in the food industry that are currently manufacturing tube food, managers in companies that are looking into potentially developing tube foods, and people with academic interest on the subject. By knowing

the values and meanings that tube food gives to the consumers, we get an understanding of how consumers think and feel about this category; thus, marketers can create more effective marketing strategies and product and packaging developers can apply this knowledge of consumers' intrinsic motivations to their product innovations.

There has been much advancement in the study of consumer behavior in terms of consumers' product knowledge. Most marketing research focuses on only one type of product knowledge, such as attributes or consequences, whereas values are examined less frequently and in isolation. The problem with this is that there is usually an incomplete understanding of consumers' product knowledge, and the critical connections between attributes, consequences and values are missed (Peter and Olson, 2005). The theoretical application of the thesis is to contribute knowledge to the academic field in the area where consumer behavior studies relate to product and packaging attributes, in the context of looking at products as value satisfiers.

## 1.3 Demarcations and Limitations

The author learned that there is no direct Swedish translation for the English term "tube food"; in fact, Swedish consumers would not automatically associate the term "tube food" with what it actually is, unless the term is explained further, such as by giving examples like soft processed cheese or caviar in tubes.

The products described as "tube food" in this thesis are food items packaged in collapsible aluminum tubes and squeezable plastic or laminated tubes sold in the Swedish retail market. Unlike food products in plastic tubes that are more available in the rest of the world, the availability of a wide range of food in aluminum tubes seems to be only apparent in Sweden and in other Scandinavian countries, such as Norway. In a few other countries in Europe, like Germany and Italy, a select range of products in tubes can also be seen, although perhaps not quite as varied as the Swedish range. Although many food products are available in tube packaging, certain products were given more attention in the interviews since they are the ones mainly consumed by the respondents. Thus, the results of this research on "tube food" will not completely represent all the available tube food products in the Swedish market.

The study takes both an industry approach and a consumer approach, to address the different research problems. To investigate the history of tube food and how this category emerged in Sweden, knowledgeable representatives from the food and packaging industries were consulted and interviewed. As for the part of the study dealing with consumer behavior, the perception of product attributes and the reasoning behind these were all made on an individual basis during one-on-one in-depth interviews with tube food consumers.

Analyzing the results from the interviews, particularly those of the consumer interviews involving the laddering technique (which is discussed later), would normally require extensive coding and categorizing, requiring two to three researchers with experience in coding qualitative information. It should be noted, though, that there is only one author in this study, and this should be considered as

one of the limitations of the research. Nevertheless, methods ensuring the reliability and validity of the study were executed throughout the entire research process, which are to be discussed later.

Due to the exploratory nature of this research, the results presented are not meant to generalize a larger group of consumers, such as the entire Swedish population. For instance, one of the limitations of the study is that the consumers interviewed were mostly from the Skåne region, thus they might have different food habits from people living in other regions in Sweden. The study is meant to have an initial investigation of the phenomenon of tube food consumption in Sweden, which may perhaps facilitate the execution of more rigorous studies in the future.

Another limitation of the study was that the author does not speak Swedish, which was an important obstacle while doing literature research, especially about historical and recent studies on the Swedish food sector. Not all references were available online, and thus could not be translated on the computer. Beckeman's publications (2004; 2006; 2011) were used as references for one part in the literature review about the Swedish food industry, and the author asked for her permission to use her English translations of the Swedish publications that she cited that were also used in this study.

## 1.4 Chapter overview

Chapter 1: Introduction

- This chapter gives the reader a starting point in order to understand the thesis. It aims to give a background on the rise of the thesis topic. The problem discussion is presented by identifying specific research questions and the relevant purpose of the study. In addition, a discussion on the study demarcations is given.

Chapter 2: Methodology

- This chapter presents the approach and research strategy used in the thesis. Motivation of the research strategy chosen is given, along with a discussion of how the methodology was developed in order to find the answers to the research questions. The method is customized for the thesis accordingly in order to obtain the information needed in fulfilling the purpose of the study.

Chapter 3: Theoretical Frame of Reference

- In this chapter, a summary of relevant theories to the thesis is presented. An overview of the Swedish food industry is presented, both from a historical perspecitve and from recent studies. A discussion of food packaging and its general functions is then given, followed by a specific focus on the tube as a food package. A look at the consumers and their consumption habits is next presented, specifically, within the context of product knowledge, consumer values, and how the means-end chain model can be used to link these together. This chapter ends with a discussion of the importance of the consumer in food product development, and a practical strategy on how insights from consumer behavior studies can be translated into successful product innovations.

Chapter 4: Results and Discussion

- The research findings are discussed and analyzed accordingly to answer the research questions presented above. The historical background of tube food in Sweden was first discussed, and then the present tube food products were enumerated, followed by a discussion of the consumers' perspectives on tube food with the aid of a value diagram.

Chapter 5: Conclusions and Suggestions for Further Research

- In the final chapter, the conclusions of the study are presented. The author also gives recommendations for areas of further research.

# 2. METHODOLOGY

## 2.1 Overall approach and rationale

In order to find the answers to the research questions presented earlier, a research strategy had to be chosen. Since tube food consumption in Sweden is not yet a well-defined phenomenon, an exploratory research was done. According to Solomon (1994), the exploratory approach to consumer behavior research is relatively flexible and unstructured, and often involves in-depth probing of relatively few consumers. Carson et al. (2001) reports that in marketing and consumer research, it is often required to have "a balance between a structured approach (where research is a logical, sequential, step-by-step process following a clear plan and protocol), and an unstructured approach (where research may evolve, emerge and develop as it progresses)." Carson et al. (2001) also stated that this balance could be managed through careful use of literature as a foundation to the study by using literature review to construct a conceptual framework, which will form the background of subsequent inductive empirical research.

The main approach of this thesis has been of qualitative character, involving literature review and empirical research in the form of semi-structured in-depth interviews with professionals in the food and packaging industries and semi-structured in-depth interviews with tube food consumers. Qualitative research is characterized as "multi-method in focus, involving an interpretative, naturalistic approach to its subject matter, implying collecting a variety of empirical materials and trying to make sense of it, interpreting it in terms of the meaning people bring to it" (Denzin and Lincoln, 1998).

The study is positioned within the interpretive paradigm, which is to say that the research philosophy behind the study was of an *interpretivist* nature rather than *positivist*. Positivists "seek to maintain a clear distinction between facts and value judgments, search for objectivity and strive to use a consistently rational, verbal and logical approach to their object of research" (Carson et al., 2001). Interpretivism, on the other hand, "uses a more personal process in order to understand reality," instead of trying to explain causal relationships by means of objective 'facts' and statistical analysis (Carson et al., 2001).

Carson et al. (2011) states that a balance of inductive and deductive approaches is often needed for an interpretative approach to research. In deductive theory, the researcher deduces a hypothesis that must be subjected to empirical scrutiny, that is, theory is used as a basis and guide. With an inductive stance, however, theory is the outcome of research. In this study, an abductive method was used, involving an iterative process between deductive and inductive approaches. A deductive framework was derived from a literature analysis of different methods of understanding consumer behavior in the context of studying values, and then this was evaluated empirically and inductively in order to uncover new insights about tube food consumers.

## 2.2 Data collection

Answering the research question about the historical background of tube food in Sweden proved to be a challenge, because tube food in itself is not a well-defined food category, and thus relevant literature about historical data of tube food was not available. There was a difficulty in finding key persons with first-hand experiences during the period when tube food was first manufactured in Sweden; therefore, secondary information and personal insights were instead collected through semi-structured, in-depth interviews with current professionals in the tube food industry and the packaging industry. Representatives from the retail industry (Handlare, ICA Maxi), the tube food industry (current R&D and marketing professionals from Kavli and Abba), and tube packaging industry (sales manager of Tectubes) were interviewed for this study. Two other professionals (from marketing and R&D) from the food industry were interviewed; they are now retired but have had a long experience in their respective companies. Topics covered were about the general history of tube food in Sweden, present situation of the tube food business, and their opinions regarding consumer behavior of tube food consumers. An interview guide for the different interviews can be viewed in the appendices.

The second research problem was about finding an approach of understanding the consumer behavior of current tube food consumers for the purpose of this particular study. Consumer behavior is a very broad field and a complete literature research of its different perspectives is beyond the scope of this research. There are many organizing principles offered by psychologists that enable researchers to make sense of how people live and make choices, and one of these is by looking at their values. A few methods on the study of consumer values were researched, and the framework of the means-end chain model was ultimately chosen to be applied to this study, and this was also related to a practical approach by Moskowitz et al. (2012) towards successful consumer understanding.

Moskowitz et al. (2012) suggested a four-stage practical approach to understanding the consumer, which involves the key phases (i) Focus, (ii) Frame, (iii) Find Out, and (iv) Quantify. This method, which has been proven in practice to be successful in food product development, was also investigated and adapted to this thesis to be able to achieve an initial level of understanding of tube food consumers. This method was modified accordingly to be able to answer the research question of why Swedish

consumers consume tube food by looking specifically into the product attributes, benefits and values that they associate with it.

In accordance with the first phase ("Focus") in this suggested approach to consumer understanding, a preliminary *knowledge map* was created to synthesize the information that was available to the author during the earlier period of the research. It was meant to visualize the author's existing knowledge on the topic of study in order to grasp its complexity. This preliminary knowledge map can be found in the appendices. The "Frame" phase involved developing hypotheses regarding what consumer linkage is believed to exist, and these hypotheses were created from expert thinking on this subject, obtained during the in-depth interviews with the industry professionals. On the third phase ("Find Out"), these insights were then related to thinking among consumers who use these products by conducting semi-structured in-depth consumer interviews.

Twelve tube food consumers, with varying consumption habits and frequencies, were interviewed for this study. Four of them were interviewed via telephone or Skype, and eight were interviewed in person. The interview guide for the consumer interviews is attached in the appendices. All interviewees were from Sweden but interviews were done in English, since the author does not speak Swedish. The interviewees were chosen through convenience sampling, which is a non-probability sampling technique involving the selection of respondent due to their convenient accessibility to the researcher. The main requirement was that all interviewees should be consumers of tube food and should currently have at least one type of tube food in their home during the time of study.

Due to the limitations of the thesis, the fourth stage ("Quantify") was not included in the scope of the study, but recommendations for its future research is discussed at the end of the thesis.

The in-depth interview data collection method was used heavily in this thesis for the interviews with both industry professionals and tube food consumers. It captures the deep meaning of experience in the participants' own words (Marshall and Rossman, 2006). Kahn and Cannell (1957) as cited in Marshall and Rossman (2006) describe interviewing as "a conversation with a purpose." Interviews have particular strengths, such as the possibility to have immediate follow-up and clarification, and when combined with observation, the researcher can have the opportunity to understand the meanings that everyday activities hold for people (Marshall and Rossman, 2006). On the other hand, interviewing also has its limitations. Since it involves personal interaction, cooperation is essential. Difficulties may arise when interviewees are unwilling or uncomfortable to discuss the issues that the interviewers want to explore, or they may be unaware of recurring patterns in their lives; furthermore, from the interviewers' side, a lack of skills for listening and personal interaction might result to a failure to encourage discussion from the participants (Marshall and Rossman, 2006).

Another interview technique, used particularly with the tube food consumers, is called the "laddering technique," based on the means-end theory proposed by Reynolds and Gutman, (1988). It attempts to identify the product attributes that elicit preference within a particular product class category. When the interviewees gave

descriptive answers, they were continually questioned with "Why?" or "Why is that important to you?" questions, with the intention of uncovering the reasoning and values behind their answers. However, it should be noted that although the means-end chains can discover relevant consumer insights, the standard methods applied cannot fully cover the understanding of consumers because the research field of consumer behavior inherently involves deep and unconscious meanings (Peter and Olson, 2005).

## 2.3 Data Analysis

A complete historical account of the rise of tube food in Sweden could not be possibly achieved from the limited number of resource persons contacted for this study, but from the interviews with these industry professionals, a suggested explanation of the emergence of tube food in Sweden was derived from their personal insights and knowledge.

The transcripts of the consumer interviews were reviewed and analyzed for components and data fragments that seemed to be of potential significance. Reading and rereading of transcripts resulted to a set of notes with remarks and observations that were helpful in the next stage of data analysis.

Graphic models are an invaluable aid in both visualizing and analyzing data. According to Carson et al. (2001), creating models in any research allows for the lateral thinking aspect of the intellect to come to the fore. He adds that models "allow the researcher to construct a framework that not only enables the description of the research, but also ensures that the researcher is confined to and focused on a clear course of action and research" (Carson et al., 2001). In this part of the research, a model in the form of a *value diagram* (also called *hierarchical value map*) based on the means-end chain theory was constructed to explain why the tube food category exists in Sweden today. All the learning and understanding from the consumer interviews were collapsed into "sound bites" (Moskowitz et al., 2012) and were organized into three categories: elements (or product attributes), consequences, and values.

Elements are the product attributes that can be controlled, such as product-relevant factors like quality, package type, etc., and business-relevant factors like brand, image, etc. These are the initial factors related to how consumers first experience a product. Consequences can be functional, behavioral and emotional in nature, resulting from the whole product experience. Values are defined as the end-stage phase for a consumer's experience with a product (Gutman, 1991). The value diagram is made by placing the elements at the bottom of the base, the consequences in the middle of the structure, and the values on the top, resulting to a hierarchical map.

With these visual and textual representation of the results, in the form of a value diagram (or hierarchical value map), a discussion was made to describe the product attributes of tube food, the consequences and benefits that consumers get from tube food, and the underlying values that the consumers associate with it. Along with the discussion of the historical background of tube food, and the initial knowledge map

created, this is used to understand the phenomenon of tube food consumption in Sweden.

## 2.4 Reliability and Validity

Reliability refers to the extent to which a study can be replicated, which implies that a researcher who uses the same methods can obtain the same results as those of a prior study. Validity, on the other hand, "determines whether the research truly measures that which it was intended to measure or how truthful the research results are" (Joppe, 2000). Reliability and validity are important criteria in establishing and assessing the quality of research for quantitative studies; however, the view of their significance on qualitative studies has progressed through time and with various paradigms. Although some researchers treat reliability and validity separately in quantitative studies, these terms are often not viewed separately in qualitative research.

According to John (2009), because the qualitative researcher is often perceived as the research instrument, he or she must ensure that the information reported must be accurate and not oversimplified or misinterpreted. Several methods of enhancing "reliability" and "validity" in a qualitative study were applied in this research.

Maxwell (1996) described that threats to a study's validity include how observations are described and interpreted, and how the data might be consciously or accidentally manipulated to fit a specific theory. For instance, interviews should be recorded accurately and completely. In the study, this was avoided by using a tape recorder for all interviews; moreover, the interviews were transcribed immediately, word for word. For interviews with consumers that occurred in their actual households, pictures were taken as additional documentation. Their tube food and the storage space (refrigerator) were documented in pictures, as these may prove to be insightful during the analysis of the interview results. Maxwell (1996) also said that in order to avoid compromising interpretation validity, "researchers should use open-ended questions that permit the respondent to elaborate on answers." The questions used in this study were open-ended questions, and were not misleading or directional in an attempt to solicit a "real" (as opposed to an expected) response from the interviewee.

In qualitative studies, the concept of "triangulation" is done by using a multitude of sources to compare findings in order to determine the validity of a certain theme or category. When using triangulation, the findings become more valid than explaining an event from a single incident or observation (Maxwell, 1996). In this research, interviews were done involving different stakeholders in the food and packaging industries. From the food companies, representatives from marketing and research and development (R&D) were interviewed. From the tube packaging company, the interviewee is the sales manager for food clients, although he has had a long history in the company and has been accomplished in other responsibilities aside from sales and marketing. Two "veterans" from the food industry, who are now retired, were also interviewed for their personal insights on the tube food phenomenon in Sweden. For the consumer interviews, there is a relatively wide variety among the interviewees' profiles, coming from different age groups and demographics. Lastly, aside from having interviews, other sources of information were used such as theory,

previous research literature, personal observations, and other sources of data (i.e., internet blogs, magazines, etc).

Lincoln and Guba (1985) state that "the member check, whereby data, analytic categories, interpretations, and conclusions are tested with members of those stake-holding groups from whom the data were originally collected, is the most crucial technique for establishing credibility." Transcripts of the interviews with the industry professionals were sent to them immediately for confirmation and agreement on the content. The analysis of the interview results were also sent to them during the later period of the research so that they may provide feedback on the author's interpretation and analysis of the interviews.

These methods mentioned above, when used in combination, help enhance the evidence of reliability and validity of the study. However, it should be noted that since this is a qualitative study involving unique situations that may not be recreated precisely, even the most exact replication of the methods used may fail to produce identical results. Replication of situations is not required, though, if refinement and validation of constructs are done properly. Also, Carlson et al. (2001) states that a qualitative study may cover a wide variety of respondents to try to ensure that results are transferable across that wide range, but no study can be generalized beyond its own range. He adds that "generalization beyond the data in each study will have to wait for other research studies or for a statistical survey done later on; thus, each individual study must make clear what its range of contexts is, so that later researchers will know the boundaries beyond which they may want to move" (Carlson et al., 2001). In this thesis, the boundaries and limitations of the study are explicitly stated to give the reader an understanding of the implications that the conclusions of the study will have.

# 3. THEORETICAL FRAME OF REFERENCE

In this chapter, a summary of relevant theories to the thesis is presented. First, to be able to investigate the emergence of tube food in Sweden, an overview of the Swedish food industry is presented. The rise of the modern food industry in Sweden occurred after the Second World War, as more food and packaging industries were being developed. It is helpful to see how the food industry was developing during this period because it was a crucial time when more individual-packaged food products were being sold to consumers in local stores, giving rise to the need for the modern food package. After looking at it from a historical perspective, a summary of recent studies of the Swedish food industry is then given to understand it in the present context.

Since the focus of the thesis is tube food, which is a category of manufactured food products sharing a similar type of packaging, a discussion of food packaging and its general functions is presented, followed by a specific focus on the tube as a food package. To be able to understand the presence of this food category in Sweden, it is necessary to take a look at the consumers and their consumption habits. A focus on the consumer is thus made by looking at aspects of consumer behavior; specifically, the study of consumer values is highlighted because consumer values are central to consumer decision-making.

In understanding the connection between consumer values and physical products, it is befitting to study the different types of product knowledge that a consumer has. The means-end chain is also discussed because it is a model that can be used to connect the product knowledge types, with the end goal of discovering consumer insights. The chapter ends with an emphasis on the importance of the consumer in food product development, and a practical guide on how insights from consumer behavior studies can be translated into successful product innovations.

## 3.1 The Swedish food industry

### 3.1.1 Rise of the modern food industry in Sweden

During the time of the Second World War, most of the food in Sweden was sold in loose weight or by volume, in either small specialty shops or in country stores, and

the food industry consisted mainly of mills and factories producing sugar, chocolate, and margarine (Throne-Holst, 1973, as cited in Beckeman, 2004). Sweden did not participate in the war and had a rather good economy in 1945, and the anticipated depression did not occur (Magnusson, 1997 and Olsson, 1993, as cited in Beckeman, 2004). Although the war meant rationing and regulations of some food (Bäckström et al., 1992, as cited in Beckeman, 2004) and raw materials like tin plate, it also offered export possibilities for the industry in general.

The rise of the modern food industry in Sweden took off directly after the Second World War (Beckeman, 2006). As Sweden did not take part in the war, the country got a head start, albeit with restricted imports and exports and some food rationing (Beckeman and Olsson, 2005). The food and packaging industries were then rather few and small; people knew each other and often worked together (Beckeman, 2004). The inspiration for the development of the food industry was from the US, which prior to the war, was already developing their food industry with self-service stores filled with packaged goods like cans, frozen food packages, milk cartons, etc (Goldblith, 1989). According to Beckeman (2004),

> *"The USA served as a model, and most of what we call innovations in the food sector, introduced in Sweden after the war, were copies adapted to local market conditions. The economic situation was good, as was the knowledge of what was going on in the States. Self-service stores had proven themselves, and needed packaging and distribution. There was an accumulated need to change and update the existing stores in Sweden. The timing was right."*

Beckeman also reported that "the changing demands of the increasingly urbanized consumers and the possibilities to buy most kinds of food under one roof, as well as the increased convenience offered by canned and frozen food, all flowed together" (Beckeman, 2004).

According to Earle (1997), "Innovations in the food industry combine technological innovation with social and cultural innovation. It occurs throughout the entire food system, including production, harvesting, primary and secondary processing, manufacturing and distribution," and Beckeman (2004) concluded that this seems to have been the case in Sweden from 1945. Specifically, the introduction of frozen food and self-service stores were seen as the major innovations in the Swedish food industry since 1945, followed more recently by chilled products (Beckeman, 2004), and these three were considered to have had the most profound influence on the food sector development in Sweden (Beckeman and Olsson, 2005).

The introduction of self-service shops in the 1950's was the beginning of how packaging started to "communicate with the consumers about known and unknown needs which not everyone appreciated" (Torell et al., 2010, as cited in Beckeman, 2011). Packaging as an essential part of the self-service concept was sold to "the food industry, who should invest in new packaging technology and distribution systems; the trade who should see increased profitability and new sales ideals; consumers who should be persuaded that self-service gave them freedom, independence, and more time" (Torell et al., 2010, as cited in Beckeman, 2011). Because of the introduction self-service retail in the 1950's, the role of packaging became important since it got

the role of providing mass-produced food at reasonable prices (Alerstam, et al., 1995, as cited in Beckeman and Olsson, 2005).

According to Holmberg (2008), during this critical period of the 1940's and 1950's, there was support for food technology not only from the industry, but also from the state; in fact, companies and state initiative were mainly aligned and allied. Homberg (2008) reported:

> *"The food sector had a bearing on welfare as well as warfare. Thus, it linked to anxieties felt society-wide about safety during the Cold War, as well as to the public health projects during a period in Sweden's history when strong state initiatives were important. Food technologists, scientists and other experts in state, industry and research saw food and the technologies for preserving, transporting, storing and distributing food as a vital and strategic resource both for Sweden's possibilities for societal development in peacetime and its ability to survive a future war. Food was a strategic resource for a neutral welfare state."*

Later, Sweden's membership in the European Free Trade Association (EFTA) in 1960 gradually, and in the European Union (EU) in 1995, finally opened up a large "home" market full of competition and opportunities, according to Beckeman and Olsson (2005). Prior to joining the EU, it was estimated that 80% of the Swedish food production was not exposed to international competition (SOU, 1997, as cited in Beckeman and Olsson, 2005). Food exports have increased four-fold during the last ten years, with a 7% increase in 2002, which may be seen as an example of the impact of the EU membership (Wrede, 2003, as cited in Beckeman and Olsson, 2005). However, Beckeman and Olsson (2005) suggests that there is still ample room for expansion because according to Ottoson (2003), only 20% of the food production is being exported, as compared with 65% for the rest of the Swedish industry.

### 3.1.2 Recent studies on the Swedish food industry

Despite the financial turmoil in the Eurozone, the Swedish economy has performed better than expected and consumers continued to increase their spending on food and drinks. According to The Economist Intelligence Unit (2011), Sweden is a wealthy country, the fifth highest in Europe in terms of GDP per capita as of 2011, and its market is largely mature. The same report (The Economist Intelligence Unit, 2011) summarized the five-year forecast for the food and beverage demand in Sweden:

> *"Demand for food is forecast to be relatively stable in 2012-16, with organic, locally sourced and health food set to gain market share. Because of lifestyle changes, consumption of packaged and easy-to-cook foods will continue to rise as a long-term trend. In the short to medium term, the economic climate and cost-consciousness will, however, also support growth of the discount sector for commoditized food products."*

The Economist Intelligence Unit (2011) reported that environmental concerns are driving a trend towards locally sourced food. Also, consumers are conscious about

eating healthy and fresh foods, and worry about safety, particularly in connection with additives and nutritional quality.

Socio-demographic changes have driven the demand for convenience foods in the form of easy-to-cook packaged-food products; moreover, packaged food accounts for around 75% of food consumption in Sweden, and this is even forecasted to rise until at least 2016 (The Economist Intelligence Unit, 2011).

> *"The packaged-food sector is relatively fragmented: the ten largest producers (mostly Swedish) account for about half of all food sales. A clear trend is the increasing dominance of larger producers at the expense of smaller players, as retail chains seek to deal with fewer suppliers and stock only the most popular brands."*

In relation to the innovation potential of the Swedish food industry, Beckeman (2011) presented a review of recent studies on the Swedish food sector and reported that according to Wikström et al. (2010), some of the proposed remedies for food manufacturing companies are: "better market intelligence; more collaboration between trade and supplier; work to gain the trust of 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) also found several consumer trends towards 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' (as cited by Beckeman, 2011).

Some problems in the food sector reported by Wikström et al. (2010), as cited by Beckeman (2011), include the following: "food manufacturers seem to have too little consumer insight; trust between suppliers and the trade is lacking, meaning [there is] no real collaboration; trust is lacking between consumers and the food industry; [and] the whole sector must increase its credibility." Arwidsson and Haglund (2008) also concluded that there are too few radical innovations that occur, which is not only the responsibility of a company's Research and Development (R&D) department, but also for marketing and production (as cited by Beckeman, 2011). They found that companies should involve consumers when developing functional or completely new products, or for new packaging design (Arwidsson and Haglund, 2008 as cited in Beckeman, 2011).

Lareke (2007) investigated how well-informed consumers in Sweden regard food safety and what their demands are in the whole food value chain, and concluded that these demands are based on values and uncertainty about who to trust regarding food (as cited in Beckeman, 2011). In addition, Lareke (2007) reported 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" (as cited in Beckeman, 2011).

## 3.2 Food Packaging

Prior to the industrial revolution, consumers were buying their food products from local producers, often the farmer, who provided meat, milk and vegetables at the farm without major handling and transport (Jönson and Johnsson, 2006). In the early food industries, there was little packaging of individual units and food products were made available to local stores and markets in bulk containers (Krochta. 2006). However, sixty or seventy years ago, the distances between producer and consumer began to decrease (Packforsk, 2001). Modern food packaging evolved with the society and the food industry, as the need for more individually-packaged foods emerged. Since the rise of the food can in the 19th century, protection, hygiene, product quality and convenience have been major drivers of food technology and packaging innovation (Coles, 2003).

In today's society, packaging is an integral part of the food product and it is arguably the single most important link in the distribution chain, facilitating the movement of the product from producer to consumer. With packaging now a representation of the product, the development of effective and attractive packaging is critical to the ability to distribute and deliver food that satisfies consumers (Brody, 2000).

### 3.2.1 Functions of Food Packaging

Based on Paine's (1981) definition as cited by Jönson (2006), packaging is defined as "a mean of ensuring safe and efficient delivery of the goods in sound condition to the ultimate consumer followed by an efficient reuse of the packaging or recovery and/or disposal of the packaging material at minimum cost." There are many ways by which packaging can be defined, reflecting different emphases, as reported by Coles (2003), and examples include:

- "A means of ensuring safe delivery to the ultimate consumer in sound condition at optimum cost."
- "A coordinated system of preparing goods for transport, distribution, storage, retailing and end-use."
- "A techno-commercial function aimed at optimizing the costs of delivery while maximizing sales (and hence profits)."

Food products put specific demands on packaging. Food packaging is generally discussed in terms of providing four basic functions, according to Robertson (2006) and Yam et al. (1992), as cited in Krochta (2006): Containment, Protection, Communication, and Convenience.

> (1) Containment involves the ability of the packaging to maintain its integrity all throughout its handling, from the product filling until the point of dispensing of the food by the consumer.
>
> (2) Protection depends on the food product it contains, but this generally includes prevention of biological contamination, oxidation of food components (such as lipids, flavors, colors, vitamins, etc.), moisture change

(which can affect microbial growth, oxidation rates, and food texture), aroma loss or gain, and physical or mechanical damage (such as abrasion, fracture, or crushing). Protection and preservation of the product is the most important function of packaging, according to Brody (2000).

(3) Communication function requires that the information in the package meets both legal requirements (such as in food labeling, traceability, etc.) as well as marketing objectives.

(4) Convenience, which is sometimes referred to as utility of use or functionality, has recently become a more important function of packaging; examples of providing convenience to the consumer through the packaging include range of sizes, easy handling, easy opening and dispensing, reclosability, and food preparation in the package.

In addition to these basic functions, other packaging functions have been defined include efficiency in production, distribution and storage; environmental responsibility in manufacture, use, reuse or recycling, and final disposal; and package safety (Coles, 2003).

### 3.2.2 Tube packaging

In understanding the phenomenon of tube food in Sweden, it is imperative to study the package, which ultimately is what makes this food category unique. The *tube* is one of the older package types made available to consumers, perceived to be able to fulfill the functions of a food package as mentioned above. According to the website of the Tube Council of North America, "the metal, lead, tin, or more often, the aluminum tube package, has been around since 1841" (Tube Council, n.d.). Today, aluminum, plastic, and laminates are used to make tube packaging that is used for food applications.

Monfitello, Inc. (n.d.) states that, generally, the benefits of tube packaging are: they can be lightweight (thus are portable and easy to carry); there is less breakage due to its shatterproof material; its compact size (which allows for variety packs or smaller packages that recognizes a society's changing demographics such as an increase in smaller households); they are easy to open and are re-closeable; they can have superior barrier properties; and lastly, the small opening can prevent cross-contamination.

The collapsible aluminum tube is a unique package for food and allows the user to apply the product directly and in precise amounts when required (Robertson, 2012). Robertson (2012) also reports that the aluminum tube is relatively rare with most food tubes being made of plastic laminates. In Sweden, however, the aluminum tube is not considered a rare food package. Food applications include condiments like, mayonnaise and sauces, as well as dessert sauces, soft cheese spreads, pâté (Robertson, 2012) and in Sweden, caviar.

From a raw material point of view, aluminum holds an exceptional position because it is the most common metal on earth; also, no technical properties are lost in the recycling process and thus it can be recycled all over again (Packforsk, 2001). Aluminum, which is made from the ore bauxite through a melt-electrolysis process, is a very energy consuming material per kilogram; however, since it is possible to manufacture very thin and light packaging out of aluminum, the energy consumption per package is low (Packforsk, 2001). In addition, if scrap aluminum is re-melted into new metal, the process needs only 5% of the original amount of energy needed to product aluminum for the first time. Packforsk (2001) states that aluminum recycling is very profitable, given that the collection of scrap metal is efficient.

Like glass, aluminum is a total barrier to gases, water vapor, and aromas, has good heat resistance, and can withstand physical and thermal shock (Krochta, 2006). Aluminum also protects against light. Because of its excellent barrier properties, aluminum is used in the pharmaceutical and food industries for sensitive products where durability and protection are essential (Packforsk, 2001). In addition to these barrier properties, The Tube Council of North America (n.d.) states that the metal tube has no "suck-back effect," because it collapses upon pressure and doest not retain its original shape, thus not taking in air from the outside; as a result, it can keep the contents uncontaminated for long periods of intermittent use. Unlike glass packaging, however, aluminum is not inert and thus needs to be coated directly with lacquer to avoid interactions with the food inside the package. Another disadvantage is that aluminum is not transparent so consumers would not be able to see the contents of the package.

Tube packages for food applications can also be made from plastic. According to Coles (2003), the main reasons why plastics are used in food packaging are that "they protect food from spoilage, can be integrated with food processing technology, do not interact with food, are relatively light in weight, are not prone to breakage, do not result in splintering and are available in a wide range of packaging structures, shapes and designs which present food products cost effectively, conveniently and attractively."

Many plastics can be used to manufacture plastic squeezable tubes, but low-density polyethylene (LDPE) and high-density polyethylene (HDPE) are the primary materials used today (Sathish, n.d.). Polyethylene, because of its non-polar chemical composition, is an excellent moisture barrier; however, it is a poor barrier to oxygen, carbon dioxide, and aromas (Krochta, 2006). Its lack of oxygen and flavor barrier has been improved with barrier coatings; ethylene vinyl alcohol (EVOH) based co-extruded tubes offer excellent barrier to oxygen and flavor. An advantage of the plastic tube is that it can go back to its original shape after squeezing; thus, it can maintain the package attractiveness throughout its shelf life because the tube can remain smooth after squeezing. It is also lightweight, leak-proof and durable.

Laminate tubes also exist and can either be aluminum barrier laminate (with an aluminum foil layer) or plastic barrier laminate (with an EVOH layer). Although the predominant application of this type of packaging is for toothpaste, cosmetics and pharmaceutical products, some food applications also exist. The advantage of laminate tubes is that they utilize the useful properties of various materials. They can

combine excellent barrier properties with maximum printing quality, thus also maintaining the attractiveness of the package throughout its shelf life.

## 3.3 Consumer behavior

To be able to truly understand the presence of tube food in Sweden, it is necessary to take a look not only at the product and its package, but also at the people who consume them, as well as their consumption habits. The need to focus on the consumer is fulfilled by looking at aspects of *consumer behavior*. Consumer behavior is a broad, interdisciplinary field of study that covers a lot of ground. It is the "study of the processes involved when individuals or groups select, purchase, use or dispose of products, services, ideas or experiences to satisfy needs and desires" (Solomon et al., 2006). The American Marketing Association Dictionary (1995) defines it as the "dynamic interaction of affect and cognition, behavior, and the environment by which human beings conduct the exchange aspect of their lives." It involves the thoughts and feelings people experience, the actions they perform in consumption processes, and the things in their environment that influence these thoughts, feelings, and actions (Peter and Olson, 2005).

It is important to point out that consumer behavior is often understood from many different perspectives. Many theories, models, and concepts have been borrowed from other fields in attempts to understand consumer behavior. To date, there is no single approach that is fully accepted, and it is unlikely that a single, grand theory of consumer behavior can be devised that all researchers would agree on (Peter and Olson, 2005).

### 3.3.1 Consumer Values

The question of why tube food is consumed in Sweden is a broad, multi-faceted one, and not a single approach would be enough to understand this phenomenon fully. One valid means of exploring it, though, is by studying consumer values.

Consumption choices cannot be understood without examining the cultural context in which they are made (Solomon, 1994), which is why the subject of culture is a crucial aspect in understanding consumer behavior. Culture can be considered as a society's personality, or an accumulation of "shared meanings, rituals, norms, and traditions among the members of an organization or society" (Solomon, 1994).

These members share a system of beliefs and practices, including *values*, or sets of enduring beliefs. In many cases, values are universal, but what set cultures apart is the relative importance or ranking of values; this set of rankings constitute a culture's value system (Rokeach, 1973, as cited in Solomon, 1994).

Consumer values are central to consumer decision-making. A focus in this thesis is given to this particular aspect of consumer behavior, with the goal of understanding why tube food exists in Sweden. Researchers have given prominence to values for a long time; for instance, Clawson and Vinson, in 1978, suggested that 'values may

prove to be one of the most powerful explanations of, and influences on consumer behavior' (as cited in Hansen, 2010). Values serve as guiding principles in consumers' lives and direct much of their behavior, but do not pertain to any particular situation (Hansen, 2010), unlike attitudes, which are often more directed to a particular situation. According to Hansen (2010), while the individual consumer may share some of his or her values with many other consumers, other values may only be shared with a few others (or, even none at all); moreover, the way consumers choose to live their lives (i.e. their "lifestyles") may vary greatly among individuals or groups of individuals.

According to Solomon (1994), it could be said that "virtually all types of consumer research are ultimately related to the identification and measurement of values" since they drive much of consumer behavior, at least in a general sense. Munson and McQuarrie (1988) did a review of marketing literature and suggested that values have been used in consumer research in two primary ways: in *Value Hierarchies (VH)* and/or *Value Instrumentality (VI)* assessments.

#### *3.3.1.1 Value Hierarchies (VH) approach*

Value hierarchies (VH) involve the use of values to describe consumers using some preexisting list of general human values. This enables researchers to describe, in a quantitative fashion, the values of any group and to compare and contrast these values with those of another group; in market research, VH are used to better understand the differences between consumer groups (Munson and McQuarrie, 1988).

##### *Rokeach Value Survey (RVS)*

Under the values hierarchies (VH) tradition, one of the most widely-used methods is the Rokeach Value Survey (RVS), in which individuals rank order general values in terms of their importance as guiding principles in his or her life (Rokeach, 1973, 1979). Rokeach (1973, 1979) proposed two sets of values: 18 terminal values, or desired end states of existence (e.g., a comfortable life, inner harmony, pleasure), and 18 instrumental values, or preferable modes of behavior (e.g., being independent, cheerful, self-controlled). Instrumental values reflect behavioral characteristics that are seen as socially desirable, whereas terminal values refer to ultimate modes of living that have been idealized (Hansen, 2010). Terminal values can be considered as the goals that consumers seek to reach, while instrumental values can be considered as how consumers think they should behave to attain the goals (Hansen, 2010). The output of this ranking procedure is a values hierarchy. Since the survey questionnaire is standardized and everyone responds to the same set of items, the researcher can identify which values are most important to a group of consumers, and whether values differ for different groups of consumers; on the other hand, a disadvantage of the RVS is that some values are considered not very relevant to consumer behavior, such as salvation, and forgiving, for instance (Hoyer and MacInnis, 2001).

*List of Values (LOV)*

Another method that uses the values hierarchies (VH) approach is the List of Values (LOV), proposed by Kahle in 1983. The LOV was developed to isolate values with more direct marketing applications (Solomon, 1994). The LOV method asks consumers to rank order nine person-oriented values, which were originally derived from Maslow's hierarchy of needs and from RVS (Hansen, 2010). The nine LOV values are: fun and enjoyment, security, warm relations with others, sense of accomplishment, self-fulfillment, being well-respected, sense of belonging, self-respect, and excitement (Kahle, 1983). Compared to RVS, LOV relates more closely to people's daily lives and is more consumer-oriented than RVS (Hansen, 2010). Hoyer and MacInnis (2001) states that the LOV is a better predictor of consumer behavior than the RVS, is easier to administer, and can be useful in identifying consumer segments with similar value systems.

### *3.3.1.2 Value Instrumentality (VI) approach*

The second tradition in studying values in consumer research, as classified by Munson and McQuarrie (1988), is the Value Instrumentality (VI) approach, which has focused on the means-end chain linking values and behavior. According to Munson and McQuarrie (1988), in the VI approach, "values are viewed as desired goals or ends of consumption, and products and/or product attributes are perceived to be the means to realizing those values." The VI approach is quite distinct from the VH approach, as discussed by Munson and McQuarrie (1988):

> *"Unlike the VH approach, VI research is not necessarily concerned with indexing the consumer's value profile (i.e., values hierarchy) on an inventory of underlying values general to all human decision making (such as the RVS). Rather, the focus of VI is on identifying those "values" which can be linked to product attributes. Such values are not necessarily global human values, but can be less general, less abstract, and perhaps more consumption oriented outcomes. A product is a means to achieve some end, and features of the product (attributes) cause consumers to relate certain products to certain values."*

The Means-End Chain (MEC) model, a VI method, is discussed in more detail in a later section, relating it to the different levels of product knowledge.

### *3.3.1.3 Classifying values*

There are many ways to classify values, one of which is by differentiating whether they are *terminal values* or *instrumental values,* originally proposed by Rokeach (1973, 1979). Terminal values are highly desired end states of being, or broad psychological states (e.g., happy, at peace, successful), while instrumental values are preferred modes of conduct needed to achieve these desired end states (e.g., having a good time, acting independent) (Peter and Olson, 2005; Hoyer and MacInnis, 2001). Both terminal and instrumental values represent the most personal consequences people are trying to achieve in their lives (Peter and Olson, 2005).

Another way of classifying values is by looking at their specificity. At the broadest level are *global values,* which are centrally held, enduring beliefs that represent the core of an individual's value system, thus they are more abstract and generalizable (Hoyer and MacInnis, 2001, and Vinson et al., 1977). Global values consist of "closely held personal values which are of high salience in important evaluations and choices" (Vinson et al., 1977). *Domain-specific values,* on the other hand, are relevant only to specific areas of activity such as religion, family, or consumption. This implies that people acquire values through experiences in specific situations and that behavior cannot be understood except in the context of a specific environment; for instance, individuals arrive at values specific to economic transactions through economic exchange and consumption (Vinson et al., 1977). According to Hoyer and MacInnis (2001), global and domain-specific values are related in the sense that achievement of domain-specific values can be instrumental to the achievement of one or more global values. For instance, people may value health because it is considered as one way in which global values such as inner harmony, pleasure, or self-respect can be achieved (Hoyer and MacInnis, 2001).

## 3.3.2 Product Knowledge and the Means-End Chain Model

It is important for marketers and product developers to understand what consumers think about the product's attributes and related benefits. Consumers can have three types of product knowledge: knowledge about the product attributes or characteristics, the positive consequences or benefits of using the product, and the values the product helps consumers satisfy or achieve (Peter and Olson, 2005). Consumers can combine these different types of product knowledge into an associative network called the means-end chain, which "links consumers' knowledge about product attributes with their knowledge about consequences and values" (Peter and Olson, 2005). By establishing the means-end chain, product developers can find a way to position products by associating means (the physical aspects of the product) with ends (consumption of product) to achieve a desired end (value state) (Moskowitz et al, 2012).

### *3.3.2.1 Types of product knowledge*

Consumers can think of products and brands as bundles of ***attributes***, which can be concrete (e.g., physical and tangible characteristics, such as the texture or color of yogurt) or abstract (e.g., subjective and intangible characteristics such as the convenience of individual yogurt packages). However, it should be examined if consumers actually have knowledge of these attributes in their memory, and if they actually use it in their decision-making. Marketers and product developers need to identify which product attributes are significant to consumers, what they mean to them, and how this knowledge is utilized in their cognitive process such as comprehension and decision making (Peter and Olson, 2005).

Consumers can also think about brands and products in terms of ***consequences***, which are the outcomes that occur when the product is purchased and used or

consumed (Peter and Olson, 2005). A product can have two types of consequences: functional and psychosocial. Functional consequences are tangible results of using a product that a consumer can experience directly, such as immediate physiological outcomes (e.g., quenching your thirst by drinking Pepsi) or physical, tangible performance outcomes (e.g., a pen writes smoothly without skipping) of product use (Peter and Olson, 2005). Psychosocial consequences, on the other hand, are behavioral and emotional results of product use, and are more internal or personal (e.g., feeling rewarded after eating ice cream). Positive and negative consequences of product use can be seen by consumers as either possible benefits or potential risks. Benefits are desirable consequences consumers look for in using the product, while perceived risks are undesirable or negative consequences that they want to avoid (Peter and Olson, 2005). Benefits differ from attributes in that people receive benefits, whereas products have attributes; for instance "white teeth" is a benefit obtained from brushing your teeth with toothpaste with "teeth whiteners" (Gutman, 1982).

Lastly, consumers can see products and brands as ***value*** satisfiers. According to Peter and Olson (2005), values can be described as people's broad life goals, and often involve the emotional affect associated with such goals. The recognition of a satisfied or achieved value is an internal feeling which is intangible and subjective, unlike functional and psychosocial consequences which are more obvious when they occur.

#### *3.3.2.2 Means-End Chain model and the "laddering" technique*

The Means-End Chain (MEC) model is a research approach that assumes that very specific product attributes are linked at levels of increasing abstraction to terminal values (Solomon, 1994), and these product attributes are thus seen by consumers as a means to some end. The premise is that consumers learn to choose products that contain attributes which are instrumental to achieving their desired consequences, and the means-end chain theory specifies the rationale underlying why these consequences are important, namely, personal values (Reynolds and Gutman, 1988). A common representation of a means-end chain has four levels (Olson and Reynolds, 1983, as cited in Peter and Olson, 2005), and can be seen in Figure 1.

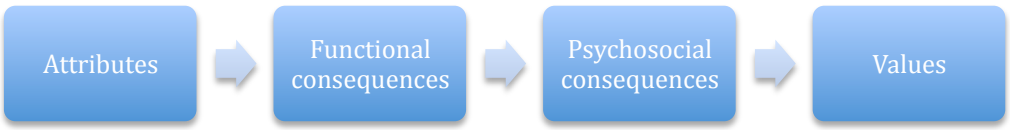



**Figure 1. A common representation of the means-end chain. (Source: Peter and Olson, 2005. p.81)**

The distinctions between the four levels can sometimes be unclear, but according to Peter and Olson (2005), the important point in using the mean-end chain model is to represent consumers' thinking in "knowledge structures that link tangible product attributes to functional and psychosocial consequences and, in turn, to more abstract and personal values and goals."

A consumer's means-end chains can be uncovered using an interview and analysis technique called "laddering," which is designed to reveal how the consumer associates specific product attributes to more abstract consequences and values (Reynolds and Gutman, 1988). Laddering refers to an in-depth, one-on-one interviewing method used to develop an understanding of how consumers translate the attributes of products into meaningful associations with respect to self, following the means-end theory (Gutman, 1982). According to Reynolds and Gutman (1988), "the combination of connected elements, or ladder, represents the linkage between the product and the perceptual process of consumers, which… yields a more direct and thus more useful understanding of the consumer."

In the paper by Reynolds and Gutman, (1988), the laddering method, its analysis and interpretation was discussed in detail. An excerpt from this paper is shown below:

> *"Laddering involves a tailored interviewing format using primarily a series of directed probes, typified by the "Why is that important to you?" question, with the express goal of determining sets of linkages between the key perceptual elements across the range of attributes (A), consequences (C), and values (V). These association networks, or ladders, referred to as perceptual orientations, represent combinations of elements that serve as the basis for distinguishing between and among products in a given product class."*

The laddering results can be used to create a hierarchical value map (HVM) that summarizes all interviews across consumers, which will then be interpreted as representing dominant perceptual orientations, or "ways of thinking," with respect to the product category (Reynolds and Gutman, 1988). In essence, the means-end chain can be used to discover consumer insights, which can then give way to the development of better products and more effective marketing strategies, wherein the product can be connected to important psychosocial consequences and values, thus making the product more personally relevant for consumers (Peter & Olson, 2005). Saaka et al. (2004) also published a detailed 'how-to' manual on the laddering methodology and analysis.

Lopetcharat (2012) also discusses how laddering can be used as a method to identify consumers' intrinsic motivations (such as values) toward products, and how to apply it specifically in up-front innovation that leads to new product development in the food industry. He states that in developing a successful new product, it should be able to answer the needs of consumers, be recognized by consumers as a product that provides benefits for their needs, and be different from other products, and in order to achieve these, it is important to identify the needs, benefits, values and the associations among these abstract meanings (psychological constructs) and product attributes.

## 3.4 Consumer-centric food product development

The consumer is acknowledged as the key to all packaged goods and service-oriented companies, but effectively assessing individual experiences and making sense of

them is a skill; in the food industry, particularly, truly trying to understand the consumer and their interaction with food constitutes a relatively new concept, different from the standard stock-in-trade methods of the past 30-50 years (Moskowitz et al., 2012). Today, it is important to connect with people and to learn about them in a relevant and flexible way, unlike many of the past few decades' methods for consumer research that had a more clinical approach that treated consumers as *test subjects,* lacking a sense of personhood.

### 3.4.1 Practical approach to consumer understanding

For the purpose of this study, the author decided that an approach that was proposed by Moskowitz et al. (2012), including its incorporation of the means-end chain theory as a value-diagramming tool, would be used as a framework in analyzing the results of the consumer study. According to the Understanding and Insight Group (2011), there has been a lack of success in using popular segmentation approaches and their typing tools in finding the actual consumer and understanding their reasons for segment classification. The systematic, practical steps for consumer interaction that is discussed below allows for flexibility while having an "integrated approach to consumer testing, rather than episodic activities that characterize most product development projects" (Moskowitz et al., 2012).

There have been many methods to successful 'consumer understanding,' but Moskowitz et al. (2012) (also basing from previous works by Ashman, 2003, Karlsson and Ahlstron, 1997) proposed a practical approach that has 'worked in practice,' and which can be embraced by companies in the food industry, especially when it comes to innovating through product development. It has 4 main phases: (1) Focus, (2) Frame, (3) Find Out, and (4) Quantify.

The first phase, *Focus*, is the early planning stage, wherein the organization needs to understand 'what it knows and what it doesn't know,' by incorporating existing knowledge into each new project; this can be done through a method called *knowledge mapping.* Knowledge mapping, in essence, "combines the practices of thorough data selection and provides easy data summarization, idea organization, and concept linkage" (Moskowitz et al., 2012). Visualization of knowledge using a knowledge map is beneficial in understanding the complexity of a specific project.

In the *Frame* phase, one develops hypotheses regarding what consumer linkage is believed to exist; *Frame* addresses the question that came into focus during the first phase. Moskowitz (2012) states that this is the stage when a theory about what the product or topic really is should be developed, as well as a theoretical framework of consumer behavior that can be used for the next stages. Moskowitz (2012) states that this value framework should be structured by using features and benefits, and suggests the use of the means-end chain (Reynolds and Gutman, 1988) to associate the means (the physical aspect of products) with ends (consumption of products) to achieve a desired end (value state). An output for this phase is a value diagram, similar in structure to Reynold and Gutman's (1988) hierarchical value map, that visually presents three types of salient "sound bites"—elements (or attributes), consequences, and values—and the connections between them.

The *Find Out* phase is where interactions with consumers begin, through observation of actual behavior or interviews. Qualitative interviews and/or ethnographic, observation techniques are used to fully understand consumers' behaviors, emotions, and belief states relative to a product or service (Moskowitz et al., 2012)

The last phase, *Quantify*, is when quantitative methods are done on a larger scale to confirm the theories established in the previous phases, and to "develop initial strategic product platforms that grow and expand the proposition for product design" (Moskowitz et al., 2012).

Moskowitz et al. (2012) suggests that the product development process in food companies should result in product "insulation," or product differentiation that is more compelling and more ownable, that is, products that are different, better, and specific to the company's brand. He suggests that one of the few ways to achieve this is "to drive the product through the specific attributes a company can control and to integrate the attributes and elements so that they deliver the consequences that the customer wants or needs."

In this exploratory research investigating the existence of the tube food category in Sweden, the author wanted to look at it in the context of how the category emerged (a *historical* perspective), and where it is now in terms of consumers' perspectives towards it (*present* consumer behavior). The next chapter provides the empirical results and the discussion, with the aim of being able to take this analysis as an initial step towards the potential for innovation through "compelling and ownable" product differentiation.

# 4. RESULTS AND DISCUSSION

The Results and Discussion chapter shows the findings from the interviews with industry professionals and the empirical results gathered from tube food consumers. A discussion of the historical background of tube food in Sweden was obtained from the interviews with food and packaging industry professionals. The results from the consumer interviews, as well as the previously explained theoretical framework, were used to develop an analysis of tube food consumption in Sweden.

## 4.1 A historical background of tube food in Sweden

This discussion on the historical background of tube food in Sweden was made possible by getting insights from current and retied professionals in the food and packaging industries. Representatives from two companies that produce tube food, Abba and Kavli, and one packaging company that produces tube packaging, Tectubes, were interviewed, as well as retired professionals from Nestle/Findus with marketing and product development backgrounds. These companies have had a long history in Sweden and thus the author believes that a good approach of understanding the historical context of tube food in Sweden would be to look at it from their employees' perspectives.

From the packaging supplier's perspective, the earliest account of tube packaging in Sweden was in 1917 when a tube manufacturer, which was the origin of present-day Tectubes, was established in Kungsör, producing only lead tubes. The tube was then used as packaging for only non-food applications, like household and industrial products like glue. Its application to food products came later.

Olav Kavli, who founded of the Kavli company in Norway, developed "Primula" in 1924; it was the world's first cheese spread (Kavli website, n.d.). The company did not exist in Sweden until 1933, when the sales operations in Sweden began; during this year they also started to export to other countries. The interviewees from Kavli were not certain what year the company first produced tube food, but the first account of cheese in tubes according to the Kavli website was in 1938 when they launched what is to become their bestseller, cheese spread with bacon in a tube. Two years later, in 1940, Kavli AB was established in Sweden. According to the Kavli

interviewees, one of the probable reasons why Kavli started production in Sweden was because Norway was occupied during the Second World War.

According to the Tectubes website, Nordiska Tubfabriken (the company's predecessor), started in Hjo in 1949, and at this point, only aluminum tubes were being manufactured. After the war ended, aluminum became more available as a raw material. The interviewee from Tectubes, Claes Hult, believes that the technology of tube manufacture came from the United States and only took off in Europe after the Second World War, during the period when the US was bringing in technologies to the rebuilding nations in Europe. Around this period, he believes that tubes for food applications were starting to be produced as well. Mr. Hult said that during this time the fishing industry in the west coast of Sweden was quite big, and there was one tube manufacturer in each major harbor, which were all merged into one company eventually. His opinion was that the spread of tube food occurred because of the natural relationship that emerged from the tube manufacturing companies and the seafood industry, specifically with caviar production. He states that there was "one plant basically on each of the large manufacturing sites for fish products. It was a natural connection between them." He added that later on, the Rausing family (of Tetra Pak) bought all the factories and centralized them in Hjo.

A discussion of tube food history in Sweden is not complete without Kalles Kaviar of Abba Seafood. One of the interviewees, Jenny Smith, marketing manager of tube foods in Abba Seafood (now merged with Procordia), believe that Abba was able to move the direction of caviar in tubes to a broader market during the advent of Kalles Kaviar in the 1950's.

Abba Seafood is a 175-year old company that had its roots in Norway. Christian Gerhard Ameln, Abba's founder, belonged to a merchant family in Bergen, Norway who, for generations, had been running salt and herring trade and shipping, which inspired him to start his business (Abba Seafood website, n.d.). The company has had many changes and developments during its long history, but perhaps what is important to note when investigating tube food's history in Sweden was when the company moved its headquarters to Sweden in the mid-1850's, and when they eventually launched Kalles Kaviar in 1954.

The Procordia Food website (n.d.) shows a timeline that details the origins of Kalles Kaviar. According to the website, salted cod roe with a strong flavor had already become popular as early as 1850. In 1910, the "new age caviar" emerged by mixing oil to the salted cod roe, and 30 years later, the first smoked caviar was created. In 1954, Abba bought a recipe for mild smoked caviar, and they then began to sell this in unmarked tubes. The response, especially among young people, was positive. That same year, an advertising agency suggested that the tube should show an image of a boy with the popular name, and thus, Kalles Kaviar was born, the brand name coming from none other than the son of the company director. Since then, this product has been present in many Swedish homes and the brand has had a very strong position in the market.

The respondents seem to have a shared opinion that the tube food emergence in Sweden occurred during the years after the Second World War; it should be noted that this hypothesis would be in agreement with Beckeman's (2006) statement that

the rise of the modern food industry in Sweden took off directly after the Second World War, using the US as its model. According to Beckeman (2004), "The USA served as a *model*, and most of what we call innovations in the food sector, introduced in Sweden after the war, were copies adopted to local market conditions. The economic situation was good… The *timing* was right." The timing, was indeed right, as this was also the period when a "natural connection" seemed to have occurred between the caviar producing companies in the harbors and the tube manufacturers in the same area. Beckeman (2004) reported that this cooperation among food and packaging companies was also observed within the frozen food industry during this time, as "whatever [packaging] was needed was developed in close cooperation and not as a separate event from the food." The tube package might also have driven product development because eventually, the product range that was once just caviar and soft spread cheese increased to include other types of tube food. According to Beckeman and Olsson (2005), once a [packaging] system is installed, it is often tried for a variety of products, and the packaging system might then have to be adapted and further developed.

Beckeman (2004) states, "Technological changes largely copying the US, were combined with social and cultural changes…that influenced the development of society." In the case of tube food, the technological change was the introduction of this new way of processing and packaging food into tubes, and the social and cultural aspect might be seen as the burgeoning of a new consumer culture, evidenced by the rise of popular Swedish brands such as Kalles Kaviar. Ekström (2010) reports that "consumer culture developed significantly in Sweden after the Second World War and in particular during the 1950's. At that time there was a strong belief in the future and, as welfare increased, consumption also increased." Ekström (2010) believes that this period was also when branding and modern design became important, as can be seen with the Kalles Kaviar brand. She states,

> *"In those days the brand had competition from other caviar brands like Fyrtornet and Ejdern, but Kalles Kaviar symbolised modern design. The blue and yellow colours on the tube can be associated with the Swedish flag. Kalle, the smiling boy on the tube, expresses personality, healthiness and a positive outlook. Perhaps it also represents the societal belief in the future expressed during the 1950's? Those who were children at that time have often continued to buy Kalles Kaviar as adults and have become brand loyal." (Ekström, 2010)*

Currently, 8 out of 10 people eat caviar, according to Ms. Smith of Abba Seafood. According to her, there is no specific target market for caviar, everyone consumes it; however, the heavy users, those who eat it at least twice a week, are mostly males who are over 50 years old. The market for caviar is seen to be very stable. Families are the ones that buy the most caviar because they tend to buy more when they go food shopping, and caviar is a "normal" part of their grocery list. On the other hand, young people (below 30 years old) who live in single–person households were observed to be purchasing caviar the least.

The author cannot say for certain what the current sales figures of specific tube foods in the market are, but in terms of percentage of the total tube food market, Mr. Hult of Tectubes believes the seafood industry (i.e., caviar) is still the largest; however, soft

cheese spreads are catching up, and dressings are increasing as well. He states that their company also sells tube food packaging to countries outside Sweden, such as Norway, Denmark, Finland, and some countries in the Balkan region; nonetheless, he believes that Sweden is still the highest consumer of tube food. The specific food types that are currently available in the market, as discussed in the consumer interviews, are discussed in the next section.

## 4.2 Tube food products Swedish consumers buy

A total of twelve consumers with different tube food consumption habits were interviewed. This discussion of the tube food products that the interviewees talked about is not meant to be a complete account of all the available tube food products currently in the Swedish market; also, this discussion will give more focus to the items that are more commonly consumed, as reported by the respondents. From the results of the consumer interviews, the author suggests that the tube food products being consumed by the respondents can be grouped into two categories: (a) spreads for sandwiches and (b) condiments and sauces.

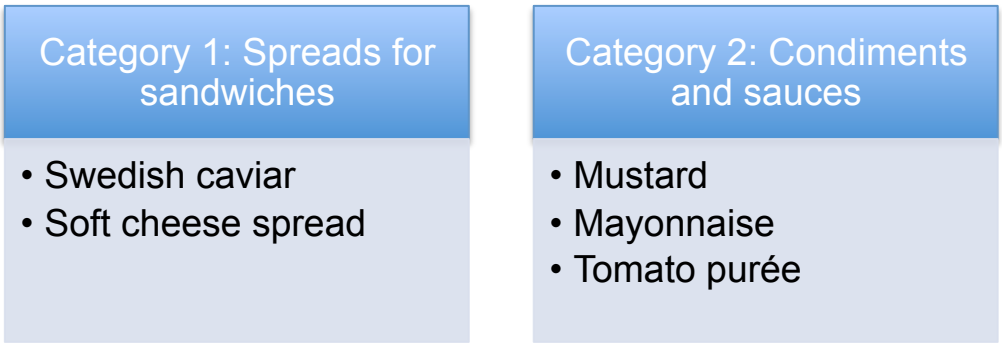



**Figure 2. Tube food types**

The first category of tube food consists of Swedish caviar and soft cheese spread, products that are normally used with bread to make sandwiches. According to Catarci (2004), caviar, a gourmet delicacy, is a product prepared from salt-cured fish eggs of sturgeon, although the exact product definition may vary according to country. The caviar in tubes that is found in Sweden is a local and cheaper version made from cod roe; it is called "creamed smoked roe" in other countries. Caviar brands in Sweden include Kalles Kaviar, Svennes, Ejderns, Isbjörnens Kaviar, Kavli, and private label or store brands like ICA and Coop. The second product in this category is soft cheese spread, which is a processed cheese product that has a soft, spreadable consistency. Kavli and Fjallbrynt are brands of soft cheese spread commonly found in supermarkets. Caviar and soft cheese spreads come in different flavors and varieties, and they may also be used as ingredients in cooked dishes; however, they are normally consumed in sandwiches.

The second category of tube food consists of condiments and sauces, the most common of which are mustard, mayonnaise and concentrated tomato purée. Mustard and mayonnaise can be squeezed directly on food or may be combined with other ingredients to create a mixed sauce. Mustard is also sometimes used in cooking.

Tomato purée was reported to be almost always used in cooking as a flavor enhancer for tomato-based dishes. Other kinds of condiments and sauces that were mentioned in the interviews, but were reportedly not regularly consumed, include the following: horseradish paste, wasabi, and hamburger and salad dressings.

Products that were classified in the two categories above are given more focus in this study, as they were the ones that were reported to be regularly consumed by the interviewed respondents. Other tube products that the respondents were aware of being available in the market but were not being normally consumed by them include the following: sweet sauces for ice cream, frostings for cakes and other desserts, whey cheese, and other fish products in tubes like mackerel and tuna.

### 4.2.1 Sandwich spreads

Respondents perceive tubes to be a practical package for food items that are being spread, such as caviar and soft cheese on sandwiches, and believe that they have many benefits when used for this purpose. It is a quick, simple, mess-free way of putting caviar and soft cheese on bread, without the need for a knife or spoon.

Respondents said that they like how it looks when squeezed on the bread ("looks clean and nice"), especially for families with children, because the children like writing letters and making "pretty patterns" on the bread using the tube. It is a child-friendly package because it is easy to use, and a "play" and "bonding" aspect can be experienced when the parents are using it with their children. Some respondents were even aware that caviar and soft cheese are being served to their children in schools and in kindergarten as a snack.

#### *4.2.1.1 Caviar*

The food product that was very strongly associated to "tube food" and which was commonly consumed by most of the interviewed consumers is Swedish caviar. A discussion of tube food in Sweden would not be complete without caviar, and for many of the respondents, tube food *is* caviar, and vice versa. According to the interviewees from Abba, the company that produces Kalles Kaviar, Svennes and Ejderns, the aluminum tube is the ideal packaging for caviar because caviar is a very oxygen-sensitive product; the fat in the product starts to get oxidized when exposed to air. Aside from aluminum's excellent barrier properties, the tube retains its shape when it is squeezed, so oxygen cannot get in.

Figure 3. Kalles Kaviar (image source: www.kalles.se)

Caviar is consumed by squeezing it from the tube onto a piece of bread such as crisp bread ("knäckebröd"), soft sliced bread, or flatbread ("tunnbröd"), and may be consumed with or without additional ingredients like butter, boiled egg in slices, onions, cucumber, and tomatoes. It is also used on whole boiled eggs with other ingredients like mayonnaise and dill; this is eaten by scooping spoonfuls of the egg with the caviar on top.


Figure 4. Respondent showing how he prepares caviar on knäckebröd

Words that were used by the respondents to describe the flavor of caviar are "salty", "tasty", "smoky," and "strong." They had different preferences regarding the smoky and strong taste, with some of them preferring the "original" smoky taste, such as

parents with children who also eat caviar, while some preferred smokier and stronger variants.

Eating caviar with eggs is usually done for breakfast, with some respondents saying that it was particularly associated with breakfast on weekends. Eggs with caviar were also associated by some of the respondents with food eaten during Easter celebrations. The caviar sandwich, on the other hand, was considered not only as breakfast food, but also a snack or food that is eaten in between the main meals ("mellanmål"). The respondents also differed in frequency of consumption of caviar. Some cited that it was a regular part of their breakfast, consumed at least once a week, some said that it was a snack that was consumed occasionally in a month, while some respondents said that their "craving" for caviar comes "in phases." Some older respondents also said they associate caviar to summer or when the warm weather makes them feel that they "need something salty."

From the interviews, and in some cases where an actual observation of caviar sandwich preparation was done, it was apparent that most of the respondents had a similar way of squeezing the caviar out from the tube, forming something similar to a swirly pattern (see figure). All respondents who consume caviar consider a caviar sandwich as a simple snack that is very quick to make.


**Figure 5. Common way of dosing caviar is in a "swirly" pattern (image source: Wikipedia)**

The brands that were mentioned by the respondents were Kalles Kaviar, Svennes, Ejderns, Isbjörnens Kaviar, and the ICA private label brand. Kalles was particularly on the top of the list and was the most associated to Swedish caviar. The brand recognition for Kalles is very high; in fact, the Kalles Kaviar website states that 96% of the Swedish population is "aware" of the brand and its logo (as of 2004). Kalles is seen by many respondents as "traditional," something that is "very Swedish", and something that they have always been used to, even stating that the brand elicits "childhood memories" because it has "always been there." Some of the respondents believe that Kalles has the classic taste of caviar with just the right level of flavor, although some believe that the Kalles original variant is slightly too strong for children. Svennes is viewed as a cheaper alternative, and those who said that they buy Svennes said that there is not a big difference in flavor and overall quality from Kalles. The respondent who said that she consumes Ejderns is from the higher age

range (70 years old) and believes that Ejderns is a stronger-tasting caviar than Kalles, with a higher cod roe content and better overall quality, and also with a more premium price point.

#### *4.2.1.2 Soft cheese spread*

Soft cheese, similar to caviar, is also consumed on sandwiches; bread, such as knäckebröd, was associated with it. It may, however, also be used in cooking. Unlike hard cheese, the consumers did not consider soft cheese spread as a staple in their diets, and some said that consumption of soft cheese only comes "in phases." There was also one respondent who said he does not consume soft cheese because he perceives it as an unhealthy food product.

The respondents who consume this product are aware that there are many available flavors and variants in the market, but the flavors that were mentioned in the interviews were cheese with shrimp ("räkost"), mild cheese ("mildost"), and cheese with smoked bacon ("baconost"). Kavli is the dominant brand in the market, and Räkost is Kavli's flagship product and their best-seller. Kavli also has a long history in Sweden, but the association with tradition is not as strong as that with Kalles, although some of the Kavli consumers in the interviews said that it was the brand that they were "used to." The respondents who consume mildost consider it as a product that is good for children because it does not have a strong flavor. Fjallbrynt was also mentioned in the interviews. Aside from flavored soft cheese, this brand is also known for its whey cheese.


**Figure 6. Kavli shrimp cheese (image source: www.kavli.se)**

Soft cheese in tubes is considered as food that is often brought to outdoor trips and summer activities, like in picnics, sailboats, and especially during hiking. In hiking trips to the mountains, which can last up to several days, and without available refrigerated storage, soft cheese is a good food to bring because it is a shelf-stable product with a long shelf life. Unlike caviar, which has to be refrigerated, soft cheese spread can last for a long time in ambient temperature; thus, respondents have reported that they normally bring caviar outdoors for shorter trips, such as in picnics or a day at the beach, but they bring soft cheese when they have longer trips with no access to refrigerated storage, such as in mountain hiking.

### 4.2.2 Condiments and Sauces

The second category of tube food consists of condiments and sauces, and three products in particular were reported to be consumed by the interviewees—mustard, mayonnaise, and concentrated tomato purée. Condiments are seasonings or prepared relishes used in cooking or at the table (Brown, 2008). Sauces, which have a wider range with many variations in consistency, temperature, seasoning and richness, are used to enhance a food's flavor, texture, moisture, and appearance (Brown, 2008).

#### *4.2.2.1 Mustard*

Mustard is a condiment made from the seeds of a mustard plant. It is a mixture of powdered mustard with salt, spices, and lemon juice, with wine or vinegar to preserve the mustard's pungency (Brown, 2008). All the respondents who said they consume mustard agreed that the Swedish type is slightly sweeter than other mustards abroad. Mustard is used both for cooking and as a direct complement to other foods. When used for cooking, mustard is mixed into soups and sauces to add flavor. When consumed directly, it is commonly eaten on top of hotdogs or sausages. Some respondents considered mustard as something "traditional" and "Swedish." One respondent even believes that Swedes are very proud of their own mustard and that many make their own at home. One brand mentioned by the respondents was Slotts, which was perceived as a traditional, old brand in Sweden.


Figure 7. Slotts mustard (image source: www.scandinavianstuff.com)

In the Swedish market, many mustard types (including foreign flavors like Dijon) are available and come in different package types, such as tubes, glass jars, and plastic bottles. The respondents believe that there is a greater selection of mustard variants available in jars, while the tube was more associated with the Swedish mustard type.

Two respondents also associated mustard in jars as a more premium product, saying that it is sometimes even used as a Christmas gift to friends or family.

A common response from the interviewees who consume mustard in tubes was that they see it as a good product for bringing to barbecues and picnics. Barbecues usually involve serving sausages and thus mustard in a tube is a good condiment for this occasion. Again, the tube package is considered as a convenient way of bringing food to outdoor activities.

#### *4.2.2.2 Mayonnaise*

Mayonnaise is a creamy sauce that is also often used as a condiment. It is a stable emulsion of oil, egg yolk, and either vinegar or lemon juice, and it may also contain other herbs and spices (McGee, 2004). According to the interviews, mayonnaise is often used in cold sauces mixed with crème fraiche, sour cream, or other herbs and spices. These sauces are consumed with seafood dishes, or in some cases, it is used in potato salad, which is often associated as a summer food. Mayonnaise can also be used on top of hardboiled eggs, similar to caviar. Mayonnaise was not considered as a staple in the consumers' diet, but most respondents who consume it said that it is good to always have it in the refrigerator for occasional use.


**Figure 8. Kavli mayonnaise (image source: Tectubes company report)**

Mayonnaise, like mustard, is available in other packages like glass jars and plastic bottles; however, the respondents who said that they preferred the tube packaging said that mayonnaise in glass jars can get dried out on the surface due to a greater surface area exposed to air, and so this "does not look good." The tube, on the other hand, is perceived to be hygienic and is able to better preserve its contents. One reason given for preferring the glass jar to the tube is when the consumers know that they will be using a large quantity of it in their food preparation, such as when preparing dishes for many people, i.e., in a party.

#### *4.2.2.3 Tomato purée*

Tomato purée is a thick liquid made by cooking and straining tomatoes. Tomato paste has a thicker consistency and is made by cooking tomatoes for several hours to reduce moisture, straining them to remove the seeds and skin, and cooking them again to reduce them to a thick, rich concentrate (Willis, 2010). Tomato sauce, which can be prepared from tomato purée or paste, is a popular base for many foods and can add moistness, flavor, texture, body, and appearance to a dish.

The tomato purée consumers interviewed had different consumption habits; some stated that it is the kind of tube food that is most regularly consumed in their household (i.e., consumed at least once a week), while others said that it was only for occasional consumption. All of them, however, agreed that they use it as a flavor enhancer when making tomato-based dishes.

Consumers of tomato purée in tubes said that because it is a concentrated product, only a small quantity is usually needed in cooking, and the tube is a package that is good for this application. Because it is a small, hygienic package, they can have the product for a long time, without having to worry about mold growth on the product. The small package size is good for the product especially if it is being used over a long period of time, and because the aluminum tube is hygienic and does not allow air to enter the package, the quality of the tomato purée is preserved. Some of the respondents said that have experienced seeing molds on tomato sauce in glass jars when they were not able to finish the content quickly enough, but this does not occur when they use tubes. Similar to the case of mayonnaise, some respondents say that they would choose tomato sauce in a bigger package, such as a glass jar, when they know that they would need a greater quantity of the product in their food preparation; however, they said that it would be good to have a tube of tomato purée always ready in their refrigerator.

## 4.3 Understanding the values Swedish consumers associate with tube food

This research attempts to explore the tube food phenomenon in Sweden by studying the links between high-level perceptions about tube food (such as values and benefits) and actual product attributes. This was done using the means-end chain model, which was constructed through the use of the laddering technique in the consumer interviews. Consumers usually express their product experiences through the use of sensory descriptors (i.e. taste, appearance) and middle-level cognitive descriptors, phases or examples (e.g. easy to use, reminds me of…), which are all words that are usually basic or top-of-mind level of their understanding, relevant to the actual product or situation; however, more complex descriptions (e.g. phases, examples, pictures) indicate a higher level of experience for their context (Lopetcharat and Beckley, 2012). What was crucial during the interviews was to ensure that enough insights about tube food were gathered to be able to create a clear explanation of the relationships being described by the consumers.

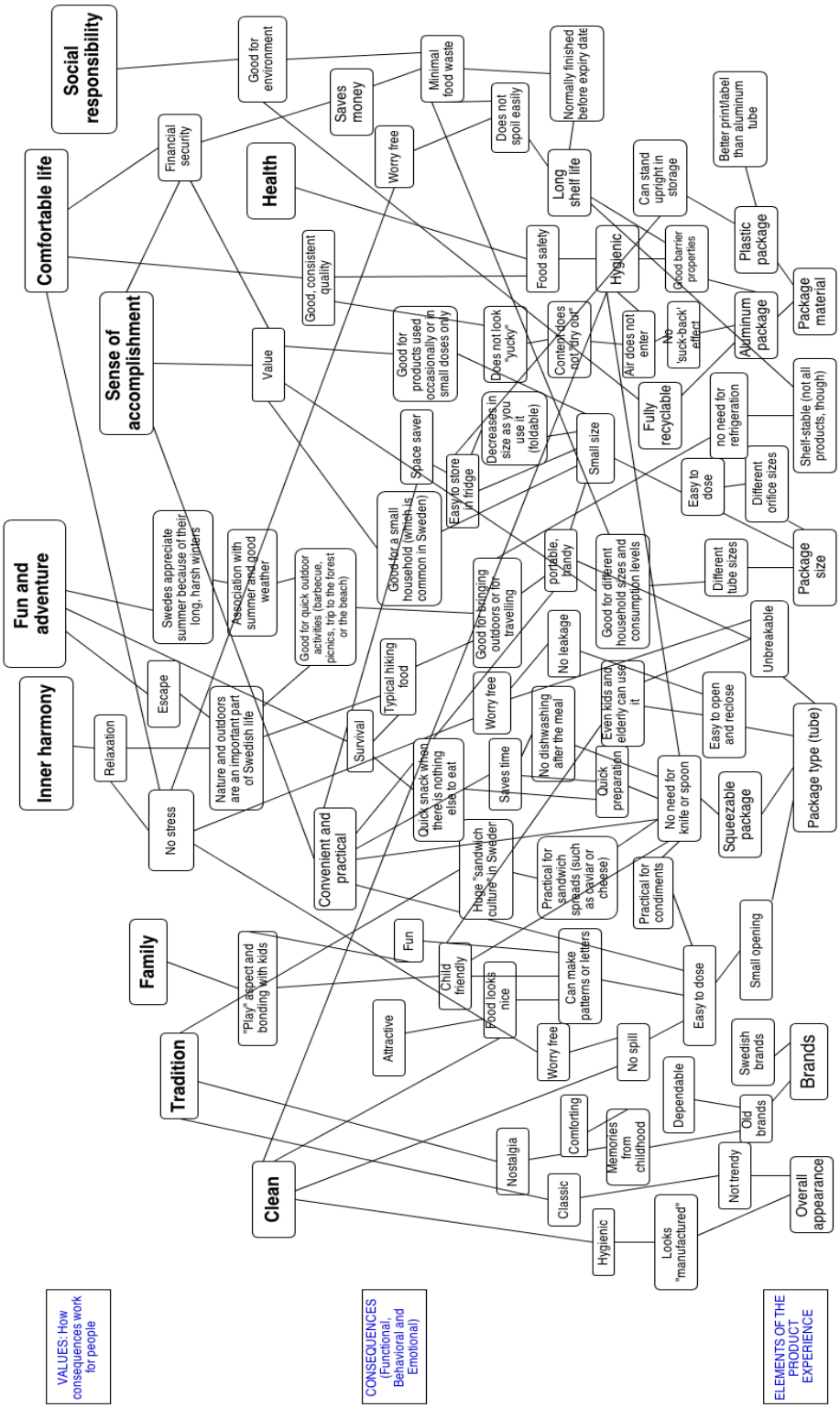



Figure 9. Value diagram for tube food

### 4.3.1 Product Attributes (Elements) and Consequences

Since the research aims to investigate consumers' perspectives on tube food as a single, unique category, the impacts of some attributes (e.g. flavor) were situational because the tube food category encompasses different food types. These product attributes and consequences that were associated with specific tube food types were mentioned in the previous section. In this section, attributes and consequences that were associated by the consumers with tube food *in general* are discussed.

#### *4.3.1.1 Brands*

In general, the respondents associated tube food with established, traditional Swedish brands. Kalles Kaviar, Kavli, and Slotts are specific examples. Kalles Kaviar, in particular, was the one that stood out in almost all interviews. The brand has strong values that Swedes are familiar with, and it can be seen that the brand is actually bigger than the product—even Kalles non-consumers were familiar with the name, the logo, and the product. Through these brands, tube food somehow elicits nostalgia and childhood memories from some of the respondents, associating them with dependability, comfort, and thus the value of tradition. Indeed, Ekström (2010) reports that those consumers who were children during the 1950's have often continued to buy Kalles Kaviar as adults and have become brand loyal.

#### *4.3.1.2 Package type (tube)*

The tube, being a squeezable package, proved to have many benefits for the consumers. Because of its small opening, it is easy to dose the product in a clean, precise way. It is a mess-free way of dosing condiments or sandwich spreads without the need for a knife or spoon, and it looks nice when squeezed on a surface; additionally, children like it when they can make letters and simple patterns using the tube, making it a child-friendly package. Because it is an unbreakable, airtight, portable package that avoids leakage or spilling, it is good for bringing to outdoor activities, including picnics, barbecues, going to the beach, and hiking in the forest. Almost all of the respondents mentioned travelling, nature or outdoor activities in the interviews, and their relation with certain types of tube food. In essence, the package type was viewed as a convenient, practical, and easy-to-use package for the particular types of food products it contained.

The tube, as a package for food, is able to provide all the basic functions of food packaging as discussed by Robertson (2006) and Yam et al. (1992)—containment, protection, communication, and convenience—albeit in varying degrees. Protection and convenience are perhaps seen as its greatest strengths, as can be observed from the respondents' insights. Communication, on the other hand, can be seen the package's weakness. Due to the package type, the shape and surface area, the graphic design and other communication attributes on a tube might be more limited than that of other packaging types. For instance, a tube's expiry date is usually printed at the

end of the tube (opposite end from the cap), so when a consumer folds or rolls it as it is consumed, the expiry date gets hidden from view. If a consumer wants to check the date, he or she will have to unroll the package to be able to read it.

#### *4.3.1.3 Package size*

The package size of tube food was seen as an advantage for consumers in small households. There is a growing number of single-person households in Sweden (48% of all households), and this has had a significant impact on eating and food shopping habits (Euromonitor International, 2013b). According to the same report by Euromonitor International (2013b), smaller packaging sizes appeal to single-person households' willingness to cut down on product wastage and demand for variety.


**Figure 10. Tubes stored in refrigerator compartment**

The respondents believed that the tube was of a good package size for the current food applications (i.e., sandwich spreads and condiments) because these were food products that were not consumed in big doses, nor were they consumed everyday. Because of its small size, it is also viewed as a product that is easy to store in the refrigerator (see figure); in addition, because many users roll or fold the aluminum tube as they use it, it decreases in size so it saves more space throughout its product life. Plastic tubes cannot be rolled or folded, but they can stand upright in storage, which was also viewed as an advantage by some of the respondents.

#### *4.3.1.4 Package material*

The aluminum in tubes provide for an excellent barrier against microorganisms, light, gas, water vapor, and aromas. Plastic tubes with barrier coatings or aluminum laminates have also good barrier properties. Unopened products that are shelf stable (in ambient storage) can especially remain safe for consumption for a long time. The tube's material can be perceived as highly contributing to the package's fulfillment of the "protection" function of food packaging.

Respondents said that "hygiene," which they associated with good quality and longer shelf life, was one of the top advantages of using a tube package. The metal tube, which is collapsible and does not allow air to enter (i.e., no "suck-back effect"), is especially considered as a package that greatly minimizes contamination. Because of this preserved quality of the contents and the long shelf life, respondents believe that the tube minimizes food waste that occurs from spoilage. Although they are aware that these products have expiry dates, they usually do not have to worry about the food being spoiled because the contents are usually consumed completely before the end of their shelf life.

The respondents see food waste as both a waste of money and as something that is bad for the environment, and for many of them, this was seen as an important thing to avoid. Sustainability and environmental concern has been reported to be one of the several consumer trends in Sweden (Wikstrom et al., 2010; Beckeman, 2011). For instance, in 2009, the Swedish government even unveiled new food guidelines that recommended eating habits based on emission levels of greenhouse gases (Euromonitor International, 2013a).

Food waste was seen as an important concept to most of the respondents, specifically when it came to avoiding leftovers from the tube's contents. Many of them showed awareness that it is possible to empty the aluminum tube as much as possible, if the "right technique" was applied when emptying it. Their descriptions of this "technique" were about folding, pressing, or rolling the tube properly to make sure that almost everything inside is squeezed out; they might have different methods of emptying the tube, but all had the same end goal of minimizing food waste.


Figure 11. Tubes are often rolled as they are consumed

The consumers generally did not have any particular negative associations regarding the environmental effects of having an aluminum tube; for most of them it was not considered as a "bad" package as long as they recycled it. Most of them knew how to recycle the package by disposing it in the metal bin. Some agreed that since tubes are not purchased as often as other packages (i.e., milk cartons), buying a few tubes in a year would not result to a substantial environmental impact. In addition, there were some respondents who perceived the plastic tube to be more harmful to the environment than the aluminum tube.

Since it is not possible to empty the tube 100%, and the aluminum tube is hard to clean before disposing, there is always some product residue left inside. Some respondents found the inability to clean the package before disposal as a nuisance and said that the product residue may give off bad odors in the recycling bin. On the other hand, some people like the fact that they do not have to empty it prior to disposal. The convenience aspect of the tube package in terms of product disposal was viewed in varying degrees.

### 4.3.2 Values

There is no direct connection between values and consumer choice behavior, but there are some intermediate steps that may explain how they relate with each other. The laddering technique during the in-depth interviews was done because it helps uncover the linkages between values and consumer choice, which are the

consequences (Gutman, 1991). All the attributes that were discussed above were ultimately linked to specific values, in one way or another.

Values can influence a consumer's attitudes and behavior by serving as preferential standards in his or her mind; thus, values are more closely related to behavior and attitudes than demographic measures (Lopetcharat and Beckley, 2012). In this study, rather than looking at the demographics of a wide range of tube food consumers, an in-depth understanding of tube food consumption was aimed at by focusing on one context, which is by determining the specific values that a small group of consumers associate with tube food. The value diagram that was constructed from the interview results is not meant to be representative of each respondent's personal values, but was meant to show the understanding of the aggregated responses of all the consumers. Each consumer is obviously unique, and thus the value diagram was constructed to show the generalizations found in the respondents' insights.

After a contextual analysis of the empirical data using the means-end chain model, the author suggests that the values that the consumers associated with tube food consumption are: *tradition, family, clean, fun and adventure, health, social responsibility, inner harmony, sense of accomplishment,* and *comfortable life*. The resulting value diagram, showing the linkages between the product elements, the consequences (functional, behavioral, or emotional), and the values can be seen in Figure 9. Among the values established, the following may be considered as terminal values, or end-states of existence: *inner harmony, sense of accomplishment,* and *comfortable life*. *Tradition, family, clean, fun and adventure, health,* and *social responsibility* may be viewed as being instrumental values, or preferable modes of behavior needed to achieve their desired end states.

In a hierarchical format, the value diagram shows a complex set of relationships between the different types of product knowledge (elements/attributes, consequences, and values) that the consumers associated with tube food consumption, in general. Swedish consumers consume tube food because it is seen as a product that caters to particular needs, and the value diagram was able to show the links between the tangible product-package attributes (e.g. package type, package size) and intrinsic motivations, which are the perceived benefits and values (e.g. comfortable life, health). The importance of creating this diagram is that it provided a visualization of the relationship of elements (triggers) for a tube food consumer experience and the ensuing events that were discussed by the individuals.

## 4.4 Summary of Research Findings

The rise of tube food in Sweden occurred during the years after the Second World War. This was an important period involving the growth of the modern food industry in Sweden, when technological innovations seemed to coincide with social and cultural innovations. In the case of tube food, the technological change was the introduction of this new way of processing and packaging food into tubes, with examples like caviar and soft cheese spread; the social and cultural aspect was the burgeoning of a new consumer culture, as evidenced by the emergence of popular brands like Kalles Kaviar.

These early tube food products are still seen in the market today, along with other types of food in tubes. These products can fall into one of two categories—spreads for sandwiches or condiments and sauces. Although each type of tube food can be consumed differently, there are products that may be used in similar situations. Caviar and soft cheese spreads are normally eaten on bread or boiled eggs, while mustard, mayonnaise, and tomato purée can be used as a sauce or as flavor enhancer in cooked dishes.

In order to know how consumers think and feel about tube food, different approaches to studying consumer behavior were considered. There is no single way of completely understanding a phenomenon as broad as tube food consumption, but ultimately, the author decided that one useful approach was by looking at the different types of product knowledge that consumers associated with tube food, specifically by using the means-end chain model to show the linkages between product attributes or elements, benefits or consequences, and values.

Using the means-end chain model and the laddering technique in interviewing tube food consumers, a value diagram was constructed, thus visualizing the linkages between the product elements, the consequences (functional, behavioral, or emotional), and the values that were associated with tube food. In essence, tube food attributes such as brands, package type, package size, and package material were ultimately linked to terminal values of *inner harmony, sense of accomplishment,* and *comfortable life*, as well as instrumental values of *tradition, family, clean, fun and adventure, health,* and *social responsibility*.

## 4.5 Moving Forward

For further studies, perhaps it can be later investigated whether tube food, or products considered to be similar with it, may succeed in other cultures that have the same value constructs as the one concluded from this research. The innovation potential of this research's conclusions may also be considered for further exploration by translating the results into actionable, innovative ideas. Several key mega trends that can be later explored in relation to tube food product or packaging innovations are the need for healthier alternatives, increasing demand for convenience, and changing demographics such as the ageing population.

Swedish consumers are increasing their spending on organic food and drinks. For instance, the Swedish market is witnessing increased interest in organic sauces, dressings and condiments; this can be explained by the fact that Swedish consumers are generally health-aware and thus are increasingly seeking out healthier options when buying sauces, dressings and condiments. This can be capitalized since grilling and barbecuing is still a favorite pastime among Swedes, despite Swedish summers being relatively short. Euromonitor International (2013c) reports that the main trend in the sauces, dressings and condiments category in Sweden over the forecast period (2012-2017) will be an increasing preference for more premium products, such as those with health and wellness properties. Population ageing is also seen to cause a

shift in general spending patterns towards health products (Economist Intelligence Unit, 2011).

The mega trend of the demand for convenience can also be observed in Sweden, as socio-demographic changes have been driving the development of convenience foods in easy-to-cook packaged-food products. One of the findings of this research, which was that the tube was perceived as a very convenient package, can be further studied regarding its connection with the trend for convenience foods. For instance, new food applications for the tube package can be investigated, depending on what kind of convenient food products the consumers need. Consumers are increasingly regarding of convenience as one continuum. Schroeder (2013) reports that PepsiCo plans to be prepared with both beverages and snacks that meet demand. Indra Nooyi, PepsiCo's Chairman and CEO, states that "many beverages, as they get more viscous, are eating into the snacks occasion, and many snacks that used to be consumed as a dry snack are now being eaten in different ways. So think about our business as being drinkable, spreadable and one-hand consumable" (in an interview by Schroeder, 2013). The future of spreadable snacks is perhaps something to look forward to, since the biggest food application of the tube package in Sweden is currently sandwich spreads that are often consumed in snack time.

Although this research was meant to be preliminary and exploratory in nature, it was also valuable to *look forward,* and to initiate a possible discussion of its implication on product innovation and marketing. After this preliminary study of getting to know tube food consumers and trying to understand their product knowledge on tube food, further research may be able to translate this study's findings into realizable, but innovative ideas. The author agrees with Moskowitz et al. (2012) who states, "rethinking and then renovating the role of the consumer in product development is what is required now … By changing product development strategies to match more closely the wants and needs of the marketplace, a company can transform product development into a powerful competitive weapon."

# 5. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The focus of this study is the tube food category in Sweden, which consists of manufactured food items filled in collapsible aluminum tubes and squeezable plastic or laminated tubes that are currently sold in the Swedish retail market. Since tube food consumption in Sweden is not a well-defined phenomenon, an exploratory research was done to address the concern that this knowledge gap exists. The historical background of tube food in Sweden was first investigated, and then the current situation was studied by identifying the different tube food types that are being consumed, and then by discovering the values and meanings that consumers associate with these products.

**What is the historical background of tube food in Sweden?** ***How and why did tube food emerge in Sweden?***

Although the use of the tube as a package has been observed years earlier, its application in food products only began to take off after the Second World War. This period was considered as the time when the modern food industry in Sweden began to rise. After the war, mass-produced food started to be developed in Sweden and sold at reasonable prices, following the US as a model. Modern food packaging evolved with the society and the food industry, as the need for more individually-packaged goods surfaced.

Tube food is one of these products that emerged in Sweden due to the introduction of the technology from the US. The timing was right, as this was also a period when the fishing industry in Sweden was booming. A "natural connection" seemed to have existed between the caviar producing companies in the harbors and the tube manufacturers in the same area. The range of food applications for the tube package eventually widened, in the way that a packaging system can often drive product development by being tested on a variety of products, and then later adapting the package or further developing it. Aside from technological advancements, consumer culture also developed significantly in Sweden after the Second World War and in particular during the 1950's. Branding became important, and Kalles Kaviar, which is one of the most important tube food brands until now, was established during this period.

**What are the tube food products that Swedish consumers buy?** ***When, where and how are these consumed?***

The present-day situation of tube food consumption in Sweden was investigated by interviewing twelve tube food consumers with varying consumption habits and with different demographic backgrounds. It was concluded that the tube food products being consumed by these respondents can be grouped into two categories: (a) spreads for sandwiches, and (b) condiments and sauces. Tubes were perceived to be a practical package for food items that are being spread, such as caviar and soft cheese on sandwiches, and consumers believe that tubes have many benefits when used for this purpose. It is a quick, simple, mess-free way of putting caviar and soft cheese on bread, without the need for a knife or spoon; moreover, it can be a fun way of creating nice-looking patterns on a sandwich. The second category of tube food consists of condiments and sauces, the most common of which are mustard, mayonnaise and concentrated tomato purée. These products have more variety in terms of consumption situations, but they can basically be consumed directly (e.g. mustard on sausages), mixed with other ingredients (e.g. mayonnaise-based sauces), or used in cooking (e.g. tomato purée as a flavor enhancer in tomato-based dishes).

**How can we understand how consumers think and feel about tube food?** ***What approach to consumer behavior can be used for this study?***

Aside from determining *what* specific types of tube food the consumers are buying, the research also aimed to understand *why* tube food, in general, is being consumed. In an attempt to answer this broad question, the approach used was to study the links between high-level perceptions about tube food (such as values and benefits) and actual product elements or tangible attributes. This was done using the means-end chain model, which can visualize the results using a hierarchical value map, also called a value diagram.

**Why do Swedish consumers buy tube food?** ***What are the attributes, benefits, and values that they associate with tube food?***

After a contextual analysis of the interview transcripts, the responses about product attributes were grouped into several categories: brands, package type (tube), package size, and package material. Each attribute category leads to more specific attributes, which then leads to different responses about functional, behavioral, and emotional consequences or benefits. A more in-depth understanding of tube food consumption was achieved by ultimately determining the specific values that are associated with the tube food category. Values are important to study because they can influence a consumer's attitudes and behavior by serving as preferential standards in his or her mind. The following terminal values, or end-states of existence, were uncovered: *inner harmony, sense of accomplishment,* and *comfortable life*; in addition, the instrumental values, or preferable modes of behavior needed to achieve the consumers' desired end, were: *tradition, family, clean, fun and adventure, health,* and *social responsibility*. It should be noted, however, that these results are not meant to be representative of each respondent's personal values, but were meant to show the understanding of the aggregated responses of all the consumers.

Swedish consumers consume tube food because it is seen as a product that caters to particular needs and provides certain benefits, and the value diagram was able to show the links between the tangible product-package attributes (e.g. package type, package size) and intrinsic motivations, which are the perceived benefits and values (e.g. comfortable life, health).

**Further research**

The results of this exploratory study can be used as a springboard for further research. In accordance with the four-stage strategic approach to successful consumer understanding that was proposed by Moskowitz et al. (2012), a next logical step would be to quantify these small-scale results to a larger scale audience of tube food consumers in order to confirm the findings quantitatively. More rigorous studies may be done to translate this study's findings into realizable product or packaging innovations, with the ultimate aim of creating a strategic product platform that would prove to be relevant to today's tube food consumers.

# REFERENCES


1. Abba Seafood website. (n.d.). *Abba Seafood: Historia.* [online] Available at: <http://www.abbaseafood.se/Om-foeretaget/Historia> [Accessed 25 May 2013].
2. Akinmade-Åkerström, L. (2011). "Twenty things to know before moving to Sweden." [online] Available at: <http://www.sweden.se/eng/Home/Lifestyle/Reading/20-things-to-know-before-moving-to-Sweden/>
3. Alerstam, T., Bovin, J-O., Jönson, G. (1995). Lundaforskare föreläser. Lund: Lund University Press.
4. American Marketing Association. (1995). *Dictionary of Marketing Terms*. 2nd ed. McGraw-Hill.
5. Arwidsson, H. and Haglund, E. (2008) *Konsumentens roll I innovationsprocessen – En studie av Lantmännen Cerealia*, Master's thesis, School of Economics and Management, Företagsekonomiska institutionen, Lund University.
6. Ashman, H. (2003). Understanding the impact current events have on consumer behavior and how to use your knowledge of "today" to make better business decisions "tomorrow." Future Trends Conference (IIRUSA), November, Miami FL.
7. Beckeman, M. (2004). Development of successful food packaging and logistics in Sweden since 1945. *Logistics Research Network 2004 Conference Proceedings. 2004, pp. 58-66.*
8. Beckeman, M. (2006). *The rise of the Swedish food sector after WWII – what, why, how and who?* Lund : Department of Design Sciences, Division of Packaging Logistics, Lund University.
9. Beckeman, M. (2011). *The Potential for Innovation in the Swedish Food Sector.* Lund : Department of Design Sciences, Division of Packaging Logistics, Lund University.
10. Beckeman, M. and Olsson, A. (2005). Driving forces for food packaging development in Sweden – a historical perspective. *IUFoST 2005.*
11. Beckley, J., Paredes, D., and Lopetcharat, K. (2012). *Product Innovation Toolbox: A field guide to consumer understanding and research.* Oxford: Wiley-Blackwell.
12. Brody, A.L. (2000). Development of Packaging for Food Products. In "*Developing New Products for a Changing Marketplace.*" Edited by: A.L. Brody and J.B. Lord. CRC Press.
13. Brown, A. (2008). *Understanding Food: Principles and Preparation.* 3rd ed. Belmont, CA: Thomson Wadsworth.
14. Bryman, A. and Bell, E. (2007). *Business Research Methods.* 2nd ed. New York: Oxford University Press.
15. Bäckström, B., Flyckt, U., Lindqvist, G., Löndahl, G., Olson, H., Persson, P-O. and Engblom, C. (eds). *Jubileumsbok 1992.* Solna: Caslon Press.
16. Catarci, C. (2004). World Markets and Industry of Selected Commercially-Exploited Aquatic Species with an International Conservation Profile. In

*FAO Fisheries Circular.* No. 990. Rome: Food and Agriculture Organization of the United Nations.
17. Carson, D., Gilmore, A., Perry, C., and Gronhaug, K. (2001). *Qualitative Marketing Research.* London: Sage.
18. Clawson, D.J. and Vinson, D.E. (1978). Human Values: A Historical and Interdisciplinary Analysis. In "Advances in Consumer Resesarch." Vol. 5. Edited by H.K. Hunt. Ann Arbor, MI: Association for Consumer Research.
19. Coles, R. (2003). Introduction. In "*Food Packaging Technology*." Edited by R. Coles and D. McDowell. Boco Raton, FL: CRC Press.
20. Denzin, N.K. and Lincoln, Y.S. (1998). *Strategies of Qualitative Inquiry*. London: Sage Publications.
21. Earle, M.D. (1997). Innovations in the food industry. *Trends in Food Science and Technology,* May (8), pp. 166-175.
22. The Economist Intelligence Unit. (2011). Consumer Goods and Retail Report. In "*Consumer Goods Industry Report: Sweden."* 1 (2011): 3-14. Business Source Complete. [online] [Accessed on: 10 May 2013]
23. Ekström, K.M. (2010). Design and Consumption. In "*Consumer Behavior: A Nordic Perspective*." Edited by K.M. Ekström. Lund: Studentlitteratur AB.
24. Euromonitor International. (2013a). Consumer Lifestyles in Sweden. *Passport Report, January 2013.* [pdf].
25. Euromonitor International. (2013b). Packaged Food In Sweden. *Passport Report, January 2013.* [pdf].
26. Euromonitor International. (2013c). Sauces, Dressings and Condiments in Sweden. *Passport Report, January 2013.* [pdf].
27. Fisher, R. (2013). "Swedish tube food." *Saveur Magazine,* January 2013.
28. Goldblith, S.A. (1989). 50 Years of Progress in Food Science and Technology: From Art Based on Experience to Technology Based on Science. *Food Technology.* September, 88-286.
29. Gutman, J. (1982). A Means-End Chain Model Based on Consumer Categorization Processes. *Journal of Marketing* Vol. 46 (1982), pp. 60-72.
30. Gutman, J. (1991). Exploring the nature of linkages between consequences and values. *Journal of Business Research.* 22: 143-148.
31. Hansen, T. (2010). Values and lifestlyes. In "*Consumer Behavior: A Nordic Perspective*." Edited by K.M. Ekström. Lund: Studentlitteratur AB.
32. Holmberg, G. (2008). Swedish Food Technology in the 1940s and 1950s. Lund: Research Policy Institute, Lund University.
33. Hoyer, W.D. and MacInnis, D.J. (2001). *Consumer Behavior.* 2nd ed. Boston: Houghton Mifflin.
34. Joppe, M. (2000). *The Research Process.* [online] Available at: <http://www.ryerson.ca/~mjoppe/rp.htm> [Accessed on 30 May 2013].
35. John, L. (2009). Redefining Qualitative Methods: Believability in the Fifth Movement. *International Journal of Qualitative Methods.*
36. Jönson, G. and M. Johnsson (2006). Packaging Technology for the Logistician. 3rd ed. Lund: Department of Design Sciences, Lund University.
37. Kahle, L.R. (1983). Dialectical tensions in the theory of social values. In *"Social Values and Social Change: Adaptation to Life in America."* Edited by L.R. Kahle. New York: Praeger.
38. Kalles Kaviar website. (n.d.). "Kalles Historia." [online] Available at: <http://www.kalles.se> [Accessed on 23 May 2013].

39. Karlsson, C. and Ahlstrom, P. (1997). Perspective: Changing product development strategy – a managerial challenge. *Journal of Product Innovation Management.* 14:473-484.
40. Kavli website. (n.d.). *About Kavli Group: The Timeline.* [online] Available at: <http://www.kavli.com/en/about-kavli-group/Pages/ThetimelineofkKavli.aspx> [Accessed on 25 May 2013].
41. Krochta, J.M. (2006). Food Packaging. In "*Handbook of Food Engineering*. 2nd ed." Edited by D.R. Heldman and D.B. CRC Press.
42. Lareke, A. (2007). *Tyrannical consumers initiate value creation in the food value chain.* Licentiate dissertation, Lund University, Media-Tryck, Lund.
43. Lopetcharat, K. (2012). Understanding Consumer Languages. In "*Product Innovation Toolbox: A Field Guide to Consumer Understanding and Research.*" Edited by J. Beckley, D. Paredes, and K. Lopetcharat. Danvers, MA: Wiley-Blackwell.
44. Lopetcharat, K. and Beckley, J. (2012). Qualitative Multivariate Analysis. In "*Product Innovation Toolbox: A Field Guide to Consumer Understanding and Research.*" Edited by J. Beckley, D. Paredes, and K. Lopetcharat. Danvers, MA: Wiley-Blackwell.
45. Lincoln, Y.S. and Guba, E.G. (1985). *Naturalistic Inquiry.* Newbury Park, CA: Sage.
46. Magnusson, L. (1997). *Sveriges Ekonomiska historia.* Stockholm: Tiden Athena.
47. Maxwell, J.A. (1996). *Qualitative Research Design: An interactive approach.* Thousand Oaks, CA: Sage.
48. McGee, H. (2004). *On Food and Cooking.* 2nd ed. New York: Scribner.
49. Monfitello Inc. (n.d.). *Features and benefits of laminate and aluminum tube packaging.* [online] Available at: <http://www.monfitello.com/featbenef.html> [Accessed on 29 April 2013].
50. Moskowitz, H.R., Beckley, J.H., and Resurreccion, A.V.A. (2012). *Sensory and Consumer Research in Food Product Design and Development*. 2nd ed. Oxford: Wiley-Blackwell and IFT Press.
51. Munson, J.M. and McQuarrie, E.F. (1988). Shortening the Rokeach Value Survey for Use in Consumer Research. In "Advances in Consumer Research." Vol. 15.
52. Olsson, U. (1993). Industrilandet. In B. Furuhagen (ed.), *Äventyret Sverige* (pp. 49-109). Utbildningsförlaget & Bra böcker.
53. Olson, J.C. and Reynolds, T.J. (1983). Understanding Consumers' Cognitive Structures: Implications for Marketing Strategy. In "*Advertising and Consumer Psychology.* Vol. 1." Edited by L. Percy and A. Woodside. Lexington, MA: Lexington Books.
54. Ottoson, M. (2003). Livsmedelsexport får fart på Sverige. *Dagens Industri.* 1112:6.
55. Packforsk (2001). "Packaging and the Environment." Kista: Packforsk. [pdf]
56. Paine, F. (1981). *Fundamentals of Packaging.* Leicester, UK: Brookside Press Ltd.
57. Peter, J.P. and Olson, J.C. (2005). *Consumer Behavior and Marketing Strategy.* 7th ed. New York: McGraw-Hill/Irwin.
58. Procordia Food website (n.d.). *Kalles genom historien*. [online] Available at: <http://www.procordia.se/Vaara-varumaerken/Kalles> [Accessed 25 May 2013].

59. Reynolds, T.J, and Gutman, J. (1988). Laddering Theory, Method, Analysis, and Interpretation. *Journal of Advertising Research.* Feb/March 1988, pp. 11-31.
60. Robertson, G.L. (2006). *Food Packaging: Principles and Practice*. Boca Raton: CRC Taylor & Francis Group.
61. Robertson, G.L. (2012). *Food Packaging: Principles and Practice.* 3rd ed. Boca Raton: CRC Press.
62. Rokeach, M. (1973). *The Nature of Human Values.* New York: Free Press.
63. Rokeach, M. (1979). *Understanding Human Values: Individual and Societal.* New York: Free Press.
64. Saaka, A., Sidon, C. and Blake, B.F. (2004). *Laddering: A "How to do it" Manual – with a note of caution*. Research Reports in Consumer Behavior. Cleveland: Consumer-Industrial Research Program, Cleveland State University.
65. Sathish, S.H. (n.d.) Plastics based package forms and specialty packaging for food products. In "*Plastics in food packaging*." Edited by G.C.P. Rangarao. [monograph] Mysore, India: Central Food Technological Research Institute.
66. Schroeder, E. (2013). Nooyi: PepsiCo in business of 'rip, twist, flip or tear' products. In *Food Business News.* May 30, 2013. [online] Available at: <http://www.foodbusinessnews.net/articles/news_home/Business_News/2013/05/Nooyi_PepsiCo_in_business_of_r.aspx?ID={3804A5A7-1B49-40D4-8B49-BC6AE6E656F5}&cck=1> [Accessed 2 June 2013].
67. Solomon, M.R. (1994). *Consumer Behavior*. 2nd ed. Massachusetts: Allyn and Bacon.
68. Solomon, M.R., Bamossy, G., Askegaard, S., Hogg, M.K. (2006). *Consumer Behavior: A European Perspective.* 3rd ed. Essex: Pearson Education Ltd.
69. SOU (Statens Offentliga Utredningar). (1997). *En livsmedelsstrategi för Sverige* – utredning om livsmedelssektorns omställning och expansion. Stockholm: Nordsted.
70. Tectubes website. (n.d.). *Tectubes: History.* [online] Available at: <http://tectubes.com/en/about-us/historyfacts-och-figures> [Accessed on 25 May 2013].
71. Throne-Holst, H. (1973). *Mitt Livs Företag.* Stockholm: Bonniers.
72. Torell, U., Qvarsell, R. and Lee, J. (eds) (2010). *Burkar, Påsar och Paket.* Stockholm: Nordiska Museets Förlag.
73. The Tube Council (n.d.). *How tubes are made*. [online] Available at: <http://www.tube.org/i4a/pages/index.cfm?pageid=3282> [Accessed on 19 April 2013].
74. The Understanding and Insight Group (2011). *Behavior Mapping: Idiographic Analysis.* Presented in the Dairy Innovation Summit. November 30, 2011. Auckland, New Zealand.
75. Vinson, D.E., Scott, J.E., and Lamont, L.M. (1977). The Role of Personal Values in Marketing and Consumer Behavior. *Journal of Marketing.* April 1977, pp.44-50.
76. Wikström, S., Hedborm, M. and Thuresson, L. (2010). *Jakten på den'värdefulla' måltiden*, Handelns Utvecklingsråd, Research Report 2010:3. www.hur.nu
77. Willis, K. (2010). *Canning, Pickling & Preserving: Tools, Techniques & Recipes to Enjoy Fresh Food All Year-Round.* Gullford, CT: Morris Book Publishing.

78. Wrede, G. (2003). Matexporten växer om lastbilar och papper. *Dagens Industri.* 0428:7.
79. Yam, K.L., Paik, J.S., and Lai, C.C. (1992). Packaging, Part I: General considerations. In *Encyclopedia of Food Science and Technology*. Edited by: Y.H. Hui. New York: John Wiley & Sons, Inc.

# APPENDICES

## Appendix A: Interview Guide for tube packaging company

- What is your background (education, work experiences, etc)? Tell me about your company, a brief history, where it is based, where the main clients are.
    - What is special/what is the company particularly good at?
    - What are the core products?
    - What is your job/responsibility in the company? What is your history in the company?
- When did your company start producing tube packaging?
    - Why did your company decide to manufacture tubes as packaging material for retail goods?
    - How did you develop tube packaging? Where did the technology come from?
    - What were the earliest clients for tube packaging? (Food and non-food)
    - Who were your competitors, if any?
- What are the different kinds of packaging for tube food? How broad or limited are the packaging choices for tube food?
    - What are your current varieties of tubes (i.e., product portfolio)? What are the differences between the different kinds of tubes?
    - How limiting is the packaging technology for the type of product to be packaged? What are the requirements (Composition? Texture? Additives? etc.) for a food product to be packed in tubes?
    - Where do you source the raw materials for this packaging?
    - How is your export business?
- Why do you think consumers buy tube food?
    - Why do you think has the tube food category remained in the local market during the past 5 decades? What are the factors that contributed to its continuing place in the market?
    - Why do you think Swedes continue to consume these food products in tubes?
- How have you been doing innovations in tube food in the company's recent history?
    - What have been the developments in the last 10 years? What about unsuccessful innovations or product launches? How far has your product portfolio developed (increased, declined etc.) in the past 10 years?
    - How has your business with food industry clients been doing?
    - How do you do packaging development? Do you have fixed processes, decision points, etc? Who takes part (multifunctional, open innovation, with customers, consumers, suppliers, etc.)?
- How do you see the future of tube food in Sweden?
    - What are the trends you foresee? Do you think tube food consumption will increase, decrease, or remain constant?
    - What are the problems you see in the future? Is it a product problem or a

packaging problem?

- Do you see potential applicability in other markets?
    - What can you say about tube foods that are being manufactured in other countries?
    - Do you think tube food would be attractive in other markets abroad? Why or why not?
    - What are the challenges you face when looking for (food industry) clients abroad?
    - How can you tube packaging suppliers like you contribute to making the concept of tube food interesting to other markets? Specifically, the US market?

# Appendix B: Interview Guide for tube food companies

- What is your background (education, work experiences, etc)? Tell me about your company, a brief history, where it is based, where the main clients are.
    - What is special/what is the company particularly good at?
    - What are the core products?
    - What is your job/responsibility in the company? What is your history in the company?
- How did the idea for tube food arise? Why did your company start manufacturing tube food?
    - What kind of food was packed in tubes, and why were these food chosen?
    - Who was the target market for this new line of products?
    - Who were your competitors, if any? What was your unique selling point?
- How would you describe tube packaging as compared to other food packaging in the market?
    - What are the added values that it has?
    - Which customer demand is this package supposed to meet?
- How does your company work with product development of tube food?
    - Who came up with new ideas? Who was driving the innovations? Was there a fixed innovation process?
    - Who were involved? (multi-functional, open innovation, with customers, suppliers, etc.)
- What are your current tube food products?
    - What are the bestsellers?
    - Who is the current target market for tube food?
    - Do you export and where?
- Why do you think consumers buy tube food? What consumer demands do your tube food products meet?
    - Why do you think has tube food remained in the local market during the past 5 (or more) decades? What are the factors that contributed to its continuing place in the market?
    - What is particular about Sweden when it comes to these products?
    - If I were to ask a random consumer why he/she buys tube food, what would the top answers be?
- What have been the developments in the last 10 years?
    - How far has the product portfolio developed (increased, decreased, diversified, etc.) in the past 10 years?
    - What are the difficulties or limitations in tube food manufacture?
    - How limiting is the packaging technology for the type of food product you choose? What kinds of products are actually possible to be placed inside tubes?
    - What is the shelf life of your tube food products? Is there a large variety, or is the shelf life generally the same for all kinds of tube food?
- How do you see the future of tube food in Sweden?
    - What are the trends that you foresee? Do you think tube food consumption will increase, decrease, or remain constant?
    - What are the problems you see in the future? Is it a product problem or a packaging problem?

- What is the difference between Swedish tube food and other Scandinavian tube food?
    - Do you think tube food would be attractive in other markets abroad? Why or why not?
    - How can you  (or the local food manufacturers) make tube food interesting to other markets? E.g. the US market?

# Appendix C: Interview Guide for Consumers

Introduction script

- Discuss what the study is about: Tube food consumption in Sweden; consumer behavior.
- There are no right or wrong answers. Interview is strictly confidential. Ask for permission to record the interview.

Getting to know them

- How often do you cook in a week? How often do you eat out?
- How often do you go food shopping? For whom/how many? Where?
- Who do you normally cook for? (Pay attention to portion size. Do they cook and store later?)
- Can you describe your cooking technique? Favorite cuisine or type of cooking? What do you usually have for breakfast, lunch, and dinner?

Tube food

- What are the tube food products that you buy? Where, when and how do you use it?
- How often do you buy (and consume) tube food? (Listen for cues: are they staple food or just for special occasions?) In a week, how many times do you use tube food?
- What are your favorite brands and kinds?
- When did you start using it? What is your earliest memory of tube food?
- Share a recipe / Show me how you use it.

Dig deeper into tube food: emotions, word associations, etc.

- What do you like about tube food? What are its advantages for you?
- On each advantage/benefit, ask: "Why is that important to you?"
    - You say you like tube food because _____. What's so good about a package being _____.
    - What would you buy if a tube food product with this advantage of being _____ is not available?
    - What's better about a tube as opposed to another kind of packaging (glass jar, plastic bottle, etc.)? Why is it important?
- In what cases would you not buy food in tubes?
- What do you dislike about tube food?
    - On each disadvantage, ask: "Why is that important to you?" and "What is the consequence of this disadvantage?"
- Do you have a favorite brand? How do you feel when you think about your favorite brand? What are the thoughts that you associate with it?

Talk about the tube packaging

- For a particular food item, if you have a choice between a tube and another package (such as glass jar, plastic bottle, etc.), what would you choose and why? Why is that important to you?
- Is tube food cheaper or more expensive than the alternative?

Final question:

- What are 3 words that best describe your overall experience with using tube food?

# Appendix D: Respondent Profiles

Consumers:

| Respondent | Sex | Age |
|---|---|---|
| Lennart | M | 35 |
| Martin | M | 35 |
| Åsa | F | 40 |
| Erik | M | 42 |
| Örjan | M | 43 |
| Mats | M | 53 |
| Eva | F | 55 |
| Anders | M | 55 |
| Christina | F | 63 |
| Ingrid | F | 68 |
| Ija | F | 70 |
| Maggi | F | 72 |

Industry professionals:

| Name | Company | Position/Department |
|---|---|---|
| Claes Hult | Tectubes | Sales Manager |
| Johanna Karldén | Abba/Procordia | Product Development |
| Jenny Smith | Abba/Procordia | Marketing Manager of tubes |
| Nils-Olof Nilsson | Kavli | Product Development, Quality, IT |
| Sofie Lindå | Kavli | Brand Manager |
| Kent Haglund | Maxi ICA Stormarknad | ICA-*handlare* |
| Gunnar Söderling | Nestle/Findus | Marketing director (retired) |
| Märit Beckeman | Nestle/Findus, Tetra Pak | Product Development (retired) |

# Appendix E: Preliminary Knowledge Map