MASTER THESIS

CBS ⟋ COPENHAGEN BUSINESS SCHOOL
HANDELSHØJSKOLEN

Exploring the relationships between product attributes, food consumption goals and positive behavioral outcomes to inform product development and positioning of meat substitutes

Author: Raminta Voronaviciute

Supervisor: Florian Kock   **Co-supervisor**: Alexander Josiassen

Program: Management of Innovation and Business Development, Copenhagen Business School, 2018

Number of pages: 83   **STU**: 199, 753

Hand-in date: May 15, 2018

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Acknowledgment

List of Abbreviations

NPD	New product development
MEC	Means-end-chain
WTB	Willingness to buy
WOM	Word-of-mouth
WTP	Willingness to pay
CMS	The Consumer Motivation Scale
TEMS	The Eating Motivation Scale
FAO	Food and Agriculture Organization of the United Nations
DVF	Dansk Vegetarisk Forening (Danish Vegetarian Association)
DST	Danmarks Statistik
PLS-SEM	Partial least squares structural equation modelling
CB-SEM	Covariance-based structural equation modelling
PL	Pleasure
STIMUL	Stimulation
QUAL	Quality
VfM	Value for Money
SAF	Safety
ETH	Ethics
SoA	Social Acceptance
MTaste	Meaty taste
SoyF	Soy-free
EFPrep	Easy and fast to prepare
AminoA	Essential amino acids
CookedSW	Can be cooked in the same way as meat
FS	Fat source
AnF	Animal-friendly
SuF	Sugar-free
AnIngr	Contains no animal ingredients
MSmell	Meaty smell
Price	Not more expensive than a meat counterpart product
LSod	Low in sodium
MText	Meaty texture
AddPres	Contains no artificial additives and preservatives
Org	Organic
VitB	Vitamin B complex
Avail	Widely available (in the shops and supermarkets around me)
Iron	High in iron
VitMin	High in vitamins and minerals
EnvF	Environmentally-friendly
NGMO	Not genetically modified
GlutenF	Gluten-free
Protein	High in protein
NatIngr	Made from natural ingredients
MAppear	Meaty appearance
LFat	Low in fat
SubstMeat	Suitable to substitute meat dishes

Abstract

Purpose. During the last decade, harmful environmental, ethical and health effects underlying meat production and consumption have been attracting an increasing interest from society. One of the promising pathways that can address this problem lies in the provision of meat substitutes that would be appealing and accepted by consumers. This would require the development of meat substitutes that meet consumers' needs, and positioning them in a way that would attract consumers' attention. The purpose of the study is twofold: 1) to identify the most important relationships between product attributes of meat substitutes and consumers' food consumption goals to inform product development and positioning of meat substitutes and 2) to identify the product attributes and consumers' food consumption goals that best predict consumers' willingness to buy, willingness to pay and a positive word-of-mouth about meat substitutes.

Design/methodology/approach employed. The study's model was built by applying the means-end chains and goal-framing theories to combine product knowledge (product attributes), and consumer knowledge (food consumption goals), and was extended with positive behavioral intentions for additional insights. In total, 213 respondents adhering to different eating style (i.e. vegetarians, meat eaters, meat reducers, vegans) and residing in Denmark completed the online survey. Partial Least Squares Structural Equation Modelling was applied for data analysis, which allowed for the exploration of the relationships among the constructs in a complex model.

Findings. Quality and safety food consumption goals exhibited the highest number of significant relationships with product attributes. Nutritional, production-related, convenience and affordability-related attributes as well as one ethical attribute exhibited significant relationships with all eight food consumption goals. Health goal was the only goal predicting willingness to pay a price premium for meat substitutes. Availability and price were the only product attributes that predicted willingness to buy meat substitutes. Price and "no artificial additives" attributes were found to negatively affect consumers' willingness to pay a price premium for meat substitutes. Word-of-mouth was positively predicted by availability and "animal-friendly" attributes, and negatively predicted by "fat source" and "sugar-free" attributes. Generally, the findings reveal that despite the maintained importance of affordability and convenience product attributes, nutritional, production-related and ethical product attributes play an essential role in consumer behavior with regards to meat substitutes.

1. Introduction

Over the last decade the notion of reducing consumption of animal-derived products has attracted growing interest of society. The rationale behind this trend stems mainly from the awareness of deleterious effects of modern livestock production practices on human health, animal wellbeing and the environment. Higher health risks (e.g. cardiovascular diseases, diabetes, obesity, disrupted development and cancer) are caused not only by saturated fat in animal products but also by dangerous farming practices contaminating food and causing diseases, and the use of antibiotics and hormones in animal feeds (Westhoek, 2014; Walker et al, 2005). Industrial farming practices are also notorious for poor animal welfare practices, as animals are exposed to painful experiences such as dehorning, castration etc, very poor living conditions and non-humane slaughter practices (Grandin, 2014). Furthermore, animal production puts a huge burden on the environment by occupying more than 30 % landmass of the planet, consuming 70 % of all freshwater and being a major source of land pollution (Westhoek et al, 2014).

Meat production is the most problematic among all animal-derived products, and releases greenhouse gases accounting for 15% to 24% of total greenhouse gas production (Fiala, 2008). Ruminant meat has the largest environmental impact in terms of greenhouse gas and land use compared to pork, poultry and seafood, while meat substitutes and pulses demonstrate the lowest resource intensity per both kilogram of protein and kilogram of product (Nijdam et al, 2012; Gerber et al., 2013). Additionally, meat is characterized by extremely inefficient conversion of plant protein into animal protein. To yield 1 kg of meat protein on average requires 6 kg of plant protein and about 100 times more water than 1 kg of grain protein (de Boer & Aiking, 2011). Despite the aforementioned problems, meat consumption has been increasing rapidly and is likely to continue in the future with projected total meat consumed in 2030 to be higher by 72% compared to 2000 (Fiala, 2008). While the recommended level of meat consumed is in the range of 26-36 kg per capita per annum, many more affluent countries exceed it by more than twofold or even threefold with North America and Europe maintaining the leadings positions (Raphaely & Marinova, 2014). Meat has a very special place in people's food basket due to a mix of cultural, psychological and traditional aspects (de Boer & Aiking, 2011) with growing prevalence of industrially produced meat in modern Western cuisine (de Boer & Aiking, 2017).

Deepening environmental, ethical and health issues associated with meat production due to an expected rise in global population to more than 9 billion by 2050 (Röös et al, 2017), resulting in an increased demand for meat from 229 to 465 billion kg (de Boer & Aiking, 2011), have stimulated debate between various groups of stakeholders, such as NGOs, the UN, governments, environmentalists and academics with a purpose to find a solution. One way to address this problem is by affecting the demand-side. Dietary shift in consumers can be achieved through economic measures initiated by the government, such as taxes imposed on fats to reduce meat consumption or subsidies to increase consumption of non-meat products (Röös et al, 2017). Such practice was implemented in Denmark in 2011 by introducing a tax on fat in meat, dairy products and cooking oils, however, it was abolished after a year mainly due to negative effects on businesses (Jacobson, 2012). Fear of business opposition, unwillingness to be associated with vegetarianism and avoidance of intrusion into people's private lives are the typical barriers for NGOs and policy makers to inform consumers on meat reduction (de Boer & Aiking, 2017). Another approach to decreasing meat consumption is by nudging people to switch to a more plant-based diet by emphasizing aforementioned downsides of meat industry. However, such transition cannot be achieved by just blaming the meat sector (de Boer & Aiking, 2011).

Some consumers in more affluent regions choose to actively reduce their meat consumption or completely eliminate meat from their diets primarily for personal health, environmental or ethical reasons (Ruby, 2012). Europe and North America account for the smallest share of 5-6 % of vegetarians (those abstaining from meat, seafood and/or eggs) and 2 % of vegans (those abstaining from all animal products) (Hoek et al, 2004). Another group of people called part-time vegetarians, "flexitarians" or "meat reducers" purposefully cut back on meat (de Boer & Aiking, 2011; Raphaely & Marinova, 2014; Wallis & Orobetz, 2017; Wild et al, 2014). Based on rough estimates, share of "flexitarians" range between 20-40 % of the population in the developed world. In the U.S., the estimate is 38 % (Keating, 2017), in U.K. about 30 % with higher prevalence among women (34%) (Derbyshire, 2016). Those who continue eating fish or seafood but abandon eating meat are known as "pescatarians" (Dugan, 2007), however, the number of this diet adopters was not found.

Though there is an increasing trend of people moving towards meat-free diets, there are still people who resist the idea of reducing their meat consumption (Röös et al, 2017) pointing out to the

lack of desire to change their eating habits, lack of dietary information, health concerns, lack of available options and replacements (Graça et al, 2015) as well as enjoyment of eating meat and love for the taste of meat (Lea & Worsley, 2003) among others. Missing the taste of meat is found to be a common reason for those who became vegetarians to switch back to eating meat (Apostolidis & McLeay, 2016). One feasible solution aimed at persuading consumers to stop or reduce their meat consumption lies in provision of substitute products (Neo, 2016). Even though there is no clear-cut evidence whether consumption of meat substitutes will result in reduced meat consumption (Hartmann & Siegrist, 2017), research suggests that this could be a positive outcome (Apostolidis & McLeay, 2016), and that meat substitutes are already used as a replacement for meat (Hoek, Luning, et al., 2011). The potential of meat substitutes to replace meat makes them a compelling object of study and places them at the heart of this paper.

The first meat substitutes originated in Western markets about 50 years ago (Wild et al, 2014) and were initially based on a narrow range of ingredients and adopted by vegetarians (Sadler, 2004). During the last decade meat substitutes have gained higher popularity triggered by a growing number of consumers who are gravitating toward meat substitutes as they find these to be healthier, more ethical and sustainable, more convenient and offering higher variety in a diet (Wild et al, 2014; Sadler, 2004). According to "Innova Market Insights", meat substitute product launches in Western Europe experienced significant growth among all new meat launches with an increase from 6,3 % in 2011 to 14 % in 2015, which makes up 24 % average annual growth (Kenward, 2017). Additionally, the global meat substitute market is forecast to register a CAGR (compound annual growth rate) of 6,8 % during the period of 2018-2023 (Patwardhan, 2018), whereas global frozen and processed meat market is expected to grow at a CAGR of 4,36 % (Anand, 2018) and 6,8 % ("Global Processed Meat market", 2017) respectively. Thus, meat substitute market growth seems to be on the trajectory to overtake the growth of the meat market. Yet, despite their witnessed growth and ability to appeal to a wider audience beyond vegetarians and vegans, meat substitutes are considered to be in early stages of their development with a relatively small market accounting for only 2-3 % of the total meat market (Apostolidis & McLeay, 2016; Kumar et al, 2017).

Meat substitutes face a few obstacles that prevent them from occupying a larger share of the market. Many consumers are ignorant of the serious threats that meat industry poses to humans,

animals and the environment, and as a consequence they don't feel an urge to adopt meat substitutes in their diets. Besides this, "food neophobia" (Hartmann & Siegrist, 2017), and low familiarity and lack of experience with meat substitutes has also been found to be a barrier towards their acceptance (de Boer & Aiking, 2014; Hoek et al, 2013; Hoek et al., 2011; Elzerman et al, 2015). Inferior sensory properties of meat substitutes (e.g., taste and texture) have also been highlighted as one of the main barriers towards acceptance (Graça et al, 2015; de Boer & Aiking, 2011; Hartmann & Siegrist, 2017; Wild et al, 2014) alongside with high price (Elzerman et al, 2013; Kumar et al, 2007), and the highly processed nature and perceived unnaturalness of these substitutes (Hartmann & Siegrist, 2017).

Acceptance of various types of meat substitutes is proved to be influenced by specific product attributes (Hartmann & Siegrist, 2017). However, the existing literature in this area focuses on a very limited number of product characteristics influencing consumer's choice, and predominantly investigates one or more specific brand or a meat substitute product.

Consumer behavior towards food products is determined by a very large number of variables (MacFie, 2007) classified into three different groups, such as *food-specific variables* (properties, characteristics or attributes), *individual characteristics* (values, motivations, goals or habits that Cardello (1994) named as people's expectations), and *environmental factors*, including situation, information, marketing, economic and social aspects (Apostolidis & McLeay, 2016).

With regards to *food-specific variables*, vast array of product attributes have been examined in food consumption research with taste often found to be a key predictor of food and beverage consumption, followed by price and convenience (Glanz et al, 1998; Forbes et al, 2015; Ringquist et al, 2016). The necessity to improve sensory quality of meat substitutes and make them more attractive to meat consumers is emphasized as well (Graça et al, 2015). However, besides these product attributes called as "traditional drivers" of consumer behavior, new product attributes or "evolving drivers" (e.g. health, safety-related) are gaining importance in consumer food purchasing decisions (Ringquist et al, 2016; Röös et al, 2017).

One way to compete with a well-established and competitive meat market is through development and provision of meat substitutes with those product attributes that are the most important to consumers and can best predict their purchasing behavior. However, this question did not receive

considerable attention within the research on meat substitutes. Based on these arguments, the need arises to examine consumers' preferences for different types of product attributes with an attempt to provide meat substitute companies with guidelines on the areas to exert effort on.

Graça et al (2015) further argue that it is important to pay special attention not only to such product attributes but also on how meat substitutes are marketed and positioned. One way to achieve this goal is to link a product and a consumer, that is to say, *product attributes* and *individual characteristics* (MacFie, 2007). It is important to consider both factors in new product development (NPD). The food innovation process is very risky and costly, and a vast majority of new products are never launched on the market, while around 90 % of those entering the marketplace fail within the first year (MacFie, 2007). The only way to increase the odds for success is by developing products that appeal to a sufficient number of consumers. For this purpose, NPD should be market-oriented, referring to "development based on an understanding of the needs and wants of consumers as well as an integration of this understanding into products" (MacFie, 2007, p 526). Consumers' values, motives and goals represent those needs and wants. Values have been investigated quite broadly in the literature, while motives and goals believed to influence food choice (MacFie, 2007) have received lesser attention. Few studies examining food choice found that mainly ethical concern, natural content of foods, price, convenience, health and weight control motives underlie the consumption of meat substitutes (Hoek et al, 2011; Wild et al, 2014; Vainio et al, 2016). Yet, to my knowledge, no study investigated consumers' goals in an attempt to integrate this knowledge about a consumer in the product development and positioning of meat substitutes. Hence, consumers' food consumption goals will be a part of this study.

Detailed knowledge of both products and consumers is imperative in NPD for developing products with characteristics that deliver desired benefits for consumers (MacFie, 2007). Merging both a product and a consumer, a wider approach to product development is employed when product development embraces not solely performance attributes of a product but also the way these are presented to customers (Johne, 1994). Thus, this paper seeks to bridge the gaps identified in this chapter and calls for an examination of interaction between product attributes of meat substitutes and food consumption goals to gain insights for the product development team and translate this knowledge for marketing and positioning purposes of meat substitutes. As lack of the information on

the package was identified as an impeding aspect toward the purchasing behavior of meat substitutes, the aforementioned insights may inform producers what needs to be emphasized to appeal to consumers. For this purpose, a conceptual framework will be proposed, which integrates various categories of product attributes (product knowledge), food consumption goals (self-knowledge) and a few behavioral outcomes toward meat substitutes. To the best of my knowledge, no previous study examined the relationships between mentioned constructs by applying such a framework in consumer research.

This study serves several purposes. From an academic point of view, it expects to contribute to extremely scarce research on meat substitutes. Moreover, it hopes to shed light on the relationships between consumers' food consumption goals and the attributes they regard as important in meat substitutes by employing and extending the Means-end-chains framework. Besides, it addresses the research gap in goal-driven consumer behavior by incorporating food consumption goals and a newly developed and adapted consumer motivation scale.

From a practitioner's point of view, this paper expects to identify the most important product attributes and consumer goals that influence consumers' positive behavior toward meat substitutes, as well as the key linkages between the goals and product attributes with the purpose of informing the NPD process. This would help in the improvement of existing meat substitutes and in the development of new ones, as well as translating this knowledge into more effective product promotion strategies. From a macro perspective, the findings may assist policy makers and stakeholders operating in the ecosystem of meat substitutes with the development of main focus areas and communication strategies appealing to existing and potential consumers and thereby encouraging them to purchase meat substitutes, which could pave the way for further reduction of meat consumption.

Based on the arguments above, two research questions for this thesis have been delineated:

RQ1 "*What relationships between product attributes and consumers' food consumption goals are the most significant to inform product development and positioning of meat substitutes?*"

RQ2 "*What product attributes and food consumption goals are the strongest drivers of positive behavioral intentions toward meat substitutes?*"

Positive behavioral intentions are willingness to pay, willingness to buy and word-of-mouth.

The remainder of the thesis is organized as follows. First, the existing literature related to the study's concepts are reviewed in more detail, resulting in the development of the proposed conceptual framework to be investigated in this thesis. Then, the selected methodological approach is discussed. Next, results are reported, followed by the discussion of the main findings and the theoretical and practical implications deriving from them. Finally, limitations are highlighted and directions for future research are outlined.

2. Literature Review

In this chapter, extant literature relevant to this study's research questions will be analyzed seeking to provide with a better understanding of the study's topic by identifying and explaining key constructs, possible relationships between them and applying relevant theoretical frameworks.

2.1 Meat substitutes and product attributes

2.1.1 Definition of meat substitutes

There is some ambiguity about the term "meat substitutes" in the literature, thus it is important to define how meat substitutes will be understood throughout this study. The terms "meat substitutes", "meat alternatives", "meat analogs", and "meat-free products" are often used interchangeably in the literature. In this study the term "meat substitutes" was chosen in order to highlight the capacity of these products to substitute meat and avoid any confusion.

Meat substitutes are described as protein-containing foods or "novel protein foods" that are primarily vegetable- or plant-based with the aim to replace meat in the diet (Hoek et al, 2011; Elzerman et al, 2013), and aim at resembling certain types of meat in organoleptic properties (appearance, flavor, texture, taste and color) and/or chemical characteristics (Kumar et al, 2017; Asgar et al, 2010). They are often produced in the form of vegetarian schnitzels, sausages, burgers,

stir-fry pieces, and mince and can be consumed as a separate meal component or as an ingredient in a dish for hot meals (Hoek et al, 2011; Elzerman et al, 2013; Apostolidis & McLeay, 2016). It is important to note that although fish, cheese, dairy, nuts or legumes are often used in meals instead of meat, those products are not considered as meat substitutes on their own (Hoek et al, 2011; Elzerman et al, 2013). Eggs and dairy are found in the composition of some meat substitutes, such as those produced by *Quorn*, however, meat substitutes entirely made from plant-based sources are more resource-efficient and lower in carbon footprint compared to those incorporating cheese or eggs (Hartmann & Siegrist, 2017).

Other products existing in the marketplace, such as dry chunks, "knitted steaks", mince or flakes made of soy, sometimes are regarded as meat substitutes, however, despite high nutritional value of those products, they are far behind in their sensory qualities compared to meat products. Due to their wide application in meat products, they received a name "meat extenders" (Asgar et al, 2010). These early meat substitutes appeared to be uniform in texture, high in dryness and springiness, and could only target at the vegetarian niche market as they did not meet sensory expectations of other consumer segments (Elzerman et al, 2013). Furthermore, other soy-based products like tofu and tempeh are still classified as meat substitutes in some sources and have been known by Westerners, especially vegetarians and health food consumers, since the 1960s (Elzerman et al, 2013). Yet, these products will not be a focus of this study as their primary purpose is not to imitate meat products.

2.1.2 Product attributes: definition and their role in purchasing decisions

The focus of the following sections will be placed on product attributes. Even though product attributes and characteristics can be regarded as synonyms, their essential difference lies in an object they are ascribed to. Product characteristics are described as physical properties of a product that are measurable, can be controlled and are of high relevance to technical product developers whereas product attributes are those technical characteristics that are perceived by the consumer and thus expressed in consumer terminology (MacFie, 2007). Goffin et al (2010) state that product attribute is a dimension of a product that customers base their purchasing decisions on. Valette-Florence & Rapachi (1991) add a psychological dimension to an attribute and further argue that product attributes serve as tools for consumers to describe and differentiate products (Alonso et al, 2008).

Extant literature on food proves that the "properties of food" are a major influence on food choice and manifest through product attributes. A product is purchased if the consumer evaluates the outcomes deriving from those attributes positively in a decision-making process (Memery et al, 2015). This is in line with the scholars who suggest that product attributes give a reference to the consumer about the benefits that can be derived from purchasing and consuming a given product, and thereby act as the main stimulus impacting consumers' decision in a purchasing situation (Gutman,1982). Thus, a consumer is more attracted to a product and is likely to purchase it if its inferred and interpreted attributes seem to deliver the biggest benefits or pleasant consequences to the consumer (MacFie, 2007). Those derived benefits can take the form of meeting consumers' values or satisfying their personal goals or motives, as established in the introduction.

Informational stimuli or so-called "cues" pointing to a particular product attribute or attributes is of significant importance in food choice (Hoppert et al, 2012) and is often underestimated in practice. These informational cues can manifest in the form of advertising, persuasive messages, claims or labels and thus attract consumers' attention. In a purchasing situation consumers are influenced by their internal influencers, such as motivational states that activate their preferences for intrinsic and extrinsic cues pointing to product attributes. Extrinsic cues are product-related attributes that are not part of the physical product, such as price, brand name, and can be applicable to a wider range of products, while intrinsic cues are product-related attributes, such as ingredients and materials that cannot be manipulated without altering the physical properties of the product, and thus are more specific to a particular product (Richardson et al., 1994, cited in Song & Morton, 2016). Consumers assess multiple cues concurrently whilst evaluating a product but the extent to which a cue is noticed and utilized in this process depends on various factors, such as low or high involvement with a product, previous experience, knowledge and familiarity with a product or product category (Auger et al, 2010; Hansen, 2005) as well as consumers' goals and motivations (Song & Morton, 2016). The latter is the focus of this study. It can be argued that in order to persuade consumers to purchase meat substitutes, it is vital to understand what goals consumers seek to achieve through food purchasing, how they are connected to product attributes, and then convert them into corresponding informational cues for effective promotion and positioning of these products. This is in line with Wood's (2007)

argument that customers' selection of products depends on how they value the attributes being positioned.

2.1.3   Different types of product attributes

Product attributes are regarded as one way to understand consumer behavior, and multiple studies have been conducted in this area to investigate consumers' preference for attributes of various products in industries such as fashion, food, tourism, automobiles among others. Different classifications of product attributes exist in literature depending on the specificity of a product researched and the purpose of a study.

The most prevalent classification of product attributes divides them into intrinsic and extrinsic, which finds the connection with previously discussed extrinsic and intrinsic cues (Auger et al, 2010). *Intrinsic attributes* involve chemical and physical properties of food, such as product composition (e.g. ingredients, nutritional value), sensory or organoleptic properties (e.g. taste, appearance, texture, aroma) (Asioli et al, 2017; Brečić et al, 2017; Olsen et al, 2017), with the latter being regarded as *experience* attributes because consumers have to try them directly to evaluate the quality of a product (Asioli et al, 2017). Intrinsic product attributes are specific to each product, disappear when it is consumed and form the basis of a product. Changing them implies changing the physical characteristics of the product.

Extrinsic attributes are not a part of a product but are strongly associated with it, such as price, brand name, country of origin, claims, package-layout (Asioli et al, 2017; Brečić et al, 2017). While some extrinsic attributes, such as price or brand, can be easily evaluated in a purchasing situation, others are unobservable and must be believed, such as sustainability or environmental friendliness. For this reason, they can be regarded as *credence attributes* (Asioli et al, 2017).

Despite proven positive influence of intrinsic attributes on buying intentions with a special role of sensory attributes in food purchasing decisions (Asioli et al, 2017; Brečić et al, 2017), focus on intrinsic attributes and traditional sensory analysis is not sufficient anymore as consumers are influenced by extrinsic attributes, such as price, brand, labelling, country of origin because consumers

utilize both intrinsic and extrinsic cues in assessing a product (Brečić et al, 2017; Enneking et al, 2007).

Many studies demonstrate the key role of the interplay between intrinsic and extrinsic product attributes on consumers' preferences. Maehle et al (2015) found that taste and price are ranked as the most important attributes for hedonic and utilitarian products, while brand and package information influenced consumers' liking of beverages (Asioli et al, 2017), which is in line with Liao et al (2015) findings of the decisive role of packaging in purchasing decisions, especially for food products characterized by low involvement and reliant on habits and unconscious processes (Olsen et al, 2017). Thus, researchers recommend combining both intrinsic and extrinsic attributes in studies for more complete and realistic insights into consumer behavior (Asioli et al, 2017).

Another stream of research divides product attributes into *functional* and *symbolic*. The former derives from functional needs referring to those "that motivate to search for products that solve externally generated consumption needs" (Lee & Nguyen, 2017, p 77), while the latter stems from symbolic needs that prompt the search for products fulfilling internally generated needs, such as self-enhancement, role position, group identification (Lee & Nguyen, 2017), or signaling self-identity and social status (Noppers et al, 2014).

Functional attributes involve such product features as scent, fabric, fit, comfort, performance qualities (moisturizing etc.), durability among others that satisfy basic needs of consumers, while symbolic attributes refer to country of origin, brand, trendiness, and may encompass ethical and sustainable aspects of a product (Lee & Nguyen, 2017; Wood 2007). *Functional attributes* are called *instrumental* in some studies (Noppers et al, 2014) and content-wise these terms are equivalent. Previous studies have found functional attributes to be more important in purchasing food and hygiene products (Wood, 2007) and enhancing future intention to re-purchase a product, whereas symbolic attributes have been found to influence consumer purchasing behavior of fashion goods (Lee & Nguyen, 2017) and adoption of sustainable innovations (Noppers et al, 2014).

Product attributes are also classified into *tangible* and *intangible*, with the former defined as concrete, physical, and objective and the latter as abstract and subjective (Auger et al, 2010). Hence, tangible attributes find resemblance to intrinsic attributes, while intangible attributes to extrinsic ones.

New intangible attributes falling under the umbrella term of *social attributes* are emanating from growing consumer awareness of environmental and social issues embedded in production and consumption. As a result, consumers place greater pressure on companies to improve their products and thus place importance on such attributes as the price paid for the farmers or child labor. Auger et al (2010) revealed that social attributes, such as labor conditions, predict purchase intentions of both high and low involvement products stronger than the other intangible attributes, and influence purchasing decisions in developed countries more than in emerging ones. Auger and colleagues (2003) confirm the significance of the information on ethical features of a product and further argue that some consumers could be convinced to alter their purchase patterns if relevant ethical information is presented in an effective way. Ethical attributes examined in the study were child labor, working and living conditions of workers as well as their wages, animal testing and one aspect of environmental friendliness (Auger et al, 2003), which implies that ethical attributes is a broader category than social attributes and encompasses attributes that are not only limited to humans but also animals and environment. This category of attributes is important for this study as ethical attributes are inherent in meat substitutes due to their environmental and animal friendliness.

A growing research stream on green consumerism examines trade-offs between *egoistic* and *green product attributes*. The former provide direct and visible positive effects for a consumer by serving self-interest motives and involve a wide range of attributes such as price, brand, taste, health, quality to mention a few, while the latter derive from altruistic consumers' motivation and focus on environmental protection and social responsibility, and refer to the attributes such as cruelty-free or environmental friendly among others (Schuitema & de Groot, 2015) and holds similarity with ethical attributes. "Green" movement might have been given support, on one hand, by the UN's Intergovernmental Panel on Climate Change and, on the other hand, by the emergence of groups of activists raising awareness of ethical and social issues (Auger et al, 2010). As a consequence, consumers' interest in products that cause less pollution and harm to the environment, use fewer resources, and are more ethical has increased (Gershoff & Frels, 2015), thereby making them opt for attributes that convey social and environmental responsibility (Gruber et al, 2014), referring to *green or ethical attributes*.

Despite the growing awareness of sustainability issues, a disproportionately lower number of consumers actually demonstrate their support through their purchasing decisions (Luchs & Kumar, 2017). Some studies provide an explanation of this by stating that consumers often have to make trade-offs between product attributes, and often they choose products with perceived superior *functional* or *egoistic* attributes, such as taste, price, quality, availability, brand, nutritional value to mention a few (Schuitema & de Groot, 2015; Luchs & Kumar, 2017; Auger et al, 2003; Genc, 2013; Maehle et al, 2015). Schuitema & de Groot (2015) argue that consumers do consider green product attributes but they are often pushed to the background as few consumers are willing to trade basic functional attributes for these green attributes (Maehle et al, 2015).

Some studies employ a more narrow classification of product attributes depending on the purpose of a study, and incorporate categories such as sensory or organoleptic attributes, nutritional attributes (Hoek et al, 2011; Forbes et al, 2015; Krystallis et al, 2008), performance attributes with moisturizing and hypoallergenic as examples (Wood, 2007), packaging, marketing or labelling attributes (Krystallis et al, 2008; Mai & Hoffmann, 2012), production-related attributes, such as organic, GMO-free (Hempel & Hamm, 2016; Mai & Hoffmann, 2012) and price, convenience and availability attributes (Brečić et al, 2017). Knowledge of what categories of product attributes are predominantly important for consumers may help producers understand what areas to focus on in their NPD.

2.1.4 Product attributes in research on food and meat substitutes

Extensive literature review on consumer food choice identified a wide array of product attributes that are relevant in food purchasing.

Forbes et al (2015) found that both extrinsic product attributes, such as price and product claims, and intrinsic product attributes, referring to sugar and total fat content are the most important factors influencing consumers' snack purchases in New Zealand. Wood (2007) revealed that flavor and aroma were the most important attributes for coffee selection, and flavor, texture and nutritional value attributes for breakfast cereal choice, while production method, environmental and ethical attributes were considered unimportant by the majority. A study by Maehle et al (2015) conducted in the UK show that price and taste attributes are ranked as the most important for both hedonic and utilitarian food products leaving health-related and environmental attributes behind. This is in line with general

findings in the literature examining food choice where sensory characteristics and price have often been found to be key product attributes predicting food and beverage consumption (Forbes et al, 2015; Mai & Hoffmann, 2012).

Olsen et al (2017) further stressed the importance of intrinsic product attributes, such as taste, freshness, nutritional value and naturalness on seafood consumption, ascribing those attributes to perceived quality, which was ranked higher than price. Michel et al (2011) found that Canadian consumers' preferences for meat products are driven by attributes related to composition, nutrition and processing of products, which reflects a growing consumers' interest in their health and well-being in their food choices, which is further corroborated by the importance of production attributes like GMO-free for UK customers. Taste and quality were dominant attributes among German consumers for organic products (Baker et al, 2004). A study conducted in India showed that consumers clearly indicate their priority for freshness and cleanliness, followed by price, quality, variety and convenience (Ali et al, 2010), which could be explained by the peculiarities of emerging markets where hygiene issues are prevalent. Research on functional foods further stressed the importance of previously mentioned intrinsic attributes, such as freshness, naturalness, taste as well as nutrition-related attributes, such as vitamins, minerals, Omega-3 fatty acids and fibre (Kraus, 2015). Li et al (2015) corroborate that intrinsic attributes drive product success but warn that ignoring extrinsic attributes that are vital in the initial purchase may affect repeat purchases, and emphasize the role of price, brand and labeling in purchase decision making, as well as convenience and perceived quality (Krystallis et al, 2008).

Aforementioned findings reveal that traditional product attributes, such as sensory ones and price still play an important role in food purchasing behavior, however, there is a clear pattern of emerging new attributes, which is in line with Deloitte (2015) study that emphasizes the relevance of "evolving drivers" in consumers' purchase decisions, referring to product attributes related to health and wellness, safety, social impact, experience and transparency. This seems to indicate that taste, price, and convenience are no longer the sole drivers of consumers' food and beverage purchases (Ringquist et al, 2015). It is worth noting though that the significance placed on attributes varies depending on a product type, specificity of a market and other attributes examined in a study.

Some researchers have studied consumers' preferences for product attributes based on other factors such as personality profiles and food-related lifestyle (Maehle et al, 2015), value orientations (Genc, 2013; Schuitema & de Groot, 2015; Maehle et al, 2015), and food choice motives (Brečić et al, 2017). The findings are not unexpected and reveal that health- and environmentally-conscious consumers place significance on health-related and environmental attributes (Maehle et al, 2015; Mai & Hoffmann, 2012). Green product attributes are more influential in purchasing situations for people with strong biospheric values, implying individual's concern with nature and environment (Schuitema & de Groot, 2015), whereas those valuing convenience or taste are sensitive to price and availability or sensory product attributes respectively in their food purchasing (Brečić et al, 2017). However, connecting product knowledge (i.e., product attributes), with consumer knowledge (i.e., personal characteristics, values, motives or goals), in research is essential for more effective targeting and increase in purchasing behavior of those products.

Research on product attributes of meat substitutes is extremely scarce, however, a handful of studies have been found. Hoek and colleagues (2011) findings indicate that sensory, nutritional attributes, such as higher content of protein, vitamins and minerals, less calories compared to a meat counterpart product, and extrinsic attributes, such as lower price were the most important for choosing meat substitutes. In addition, light users of meat substitutes stated preference for meat-like sensory attributes, while heavy users demonstrated the opposite pattern (Hoek et al, 2011). Apostolidis & McLeay (2016) discovered that besides price, low fat content, low carbon footprint and country of origin were found as major attributes affecting choice of meat substitutes, whereas production method (organic vs conventional) and brand played a secondary role. Another study revealed that besides nutritional attributes (high protein-content and no animal fat), easy preparation acts as a facilitating factor for the purchase of meat substitutes, while high price and lack of informative labelling impedes their purchase (Elzerman et al, 2013).

A few studies focused on either a specific type of meat substitute, or a particular brand. Rimal et al (2008) analyzed perceived attributes of several soy-based products and showed that consumers purchasing soy substitutes prioritize their convenience and taste. Apostolidis & McLeay (2016a) investigated attributes of *Quorn* brand products and found that pleasant taste and texture, price, low fat, wide availability and versatility were found to be important attributes for vegetarians, meat

reducers and meat eaters. The main differences between those groups lie in that vegetarians and meat reducers put importance on meaty taste and texture, while meat eaters emphasize pleasant taste. Additionally, meat eaters and meat reducers prefer lower prices for meat substitutes compared to vegetarians who also care about low carbon footprint of meat substitutes.

There is an evident paucity of studies on meat substitutes without a reference to a particular brand or type of meat substitutes. Most existing studies employ a qualitative approach, which is valuable for the initial exploration stages, or experimental design to examine trade-offs between the attributes, meaning that a limited number of attributes are considered. Yet, researchers recommend to give enough consideration to quantitative research on meat substitutes (Elzerman, 2013). Also, studies merging consumer and product knowledge are scarce, which implies the need for involvement of other variables. Furthermore, aforementioned studies were conducted in a limited number of countries, such as the UK, Netherlands, and the U.S. Based on these arguments, there is a call for studies incorporating an exhaustive set of product attributes with a focus on a wider range of intrinsic or functional attributes as they form the basis of any food products, as well as include green or ethical attributes as they are inherent in the nature of meat substitutes but did not receive enough attention in research. Extant literature mainly targets consumers who already have experience with meat substitutes and thus investigates their perceived attributes rather than identifying the list of desirable and important attributes that may currently not be a part of the composition of meat substitutes but could be explored and exploited by the producers.

"Man is a goal seeking animal. His life only has meaning if he is reaching out and striving for his goals."
Aristotle

2.2 Connecting a product with a person: product attributes and consumption goals

2.2.1 Goals in consumption

Like most of human behavior, consumer behavior is consciously or unconsciously goal-directed meaning that it is focused on desired outcomes or some ends that consumption can produce (Bagozzi & Dholakia, 1999; Moskowitz & Grant, 2009) and consumers' purchasing decisions are

manifestations of efforts to attain their personal goals (Ramirez et al, 2015). Carver & Scheier (1981) explain that when a goal is activated, tension occurs due to the discrepancy between the current and the desired state, and in order to reduce this discrepancy, cognitive resources, such as attention, information processing, motivation, knowledge are mobilized to help people identify feasible means for achieving that goal (cited in Barbopoulos & Johansson, 2017). Usually people search for means that could satisfy their multiple goals at the same time to maximize goal fulfillment (Barbopoulos & Johansson, 2016). Moskowitz & Grant (2009) further argue that goals connect the person to the situation and are susceptible to environmental cues. In this process, people evaluate alternatives based on potential to achieve desired goals (Barbopoulos & Johansson, 2017).

According to the above-mentioned research, consumers are likely to prefer products that help them attain their goals. (Ramirez et al, 2015). It can be argued that in a food purchasing situation consumers will look for the cues or stimuli that inform about the potential to satisfy consumers' goals. As it was mentioned in the previous sections, those cues can be intrinsic or extrinsic, pointing to the corresponding product attributes. On the other hand, those stimuli or cues can serve as a means for activating the corresponding goal (Moskowitz & Grant, 2009). Sihvonen & Luomala (2017) postulate that exposure to a well-designed visual cue will unconsciously prime consumers' goals. It can be argued that in a food purchasing situation those visual cues could be intrinsic or extrinsic attributes in a form of claims or labeling and be salient. Ramirez et al (2015) corroborate that product attributes should be presented in a manner that is consistent with consumers' goals to increase chances for purchasing.

Despite the relevance of goals in consumption, understanding goal-driven consumer behavior in general has been neglected in scholarly research (Haugtvedt et al, 2008; Bagozzi & Dholakia, 1999), so this is an important void to fill.

2.2.1.1 Definition of goals: differentiation from other similar constructs

Goals are defined as internal representations of desired end states that individuals seek. They provide meaning and a sense of having control over the environment, connect the person to the situation and person's desires to instrumental activity, thereby directing the person's exchange with

the world (Haugtvedt et al, 2008; Moskowitz & Grant, 2009). Many psychological constructs have been exercised to explain and predict human behavior, however, Moskowitz & Grant (2009) argue that the goal serves the best role to capture the essence of human behavior as this construct merges both cognitive and motivational aspects. The former refers to knowledge structures, accessibility and use, while the latter translates people's desires into strivings and builds foundation for self-regulation (Moskowitz & Grant, 2009). It has been observed though that some confusion in the usage of terms such as values, goals, motives, needs and drives exist in the literature, and sometimes some of these terms are used interchangeably. Thus, it is worth delineating these constructs here to avoid confusion.

Goals differ from needs and drives by their concreteness and domain-specificity, thus making a stronger impact on particular consumer behaviors. Goals differ from values in that goals are concerned entirely with specific objectives or aspirations and direct behavior actively rather than only providing abstract evaluative criteria for assessing objects. Values give expression to human needs (Haugtvedt et al, 2008) and seem to be closer linked to human needs than goals are. Schwartz and Bilsky (1987) defined values as guides of human behavior, Grunert and Juhl (1995) added that values are cognitive patterns for people to orient themselves in their environment, while Rokeach (1973) suggested that values are lasting beliefs emerging in the interplay between culture, society and personality (as cited in Baker et al, 2004), which implies that values are learned adaptations (Haugtvedt et al, 2008). Based on this rationale, goals can be interpreted as situation-dependent and less stable, while values are deemed to be the same across many situations and could be perceived as bearing a resemblance to traits. Gutman (1997) differentiates goals from values by stating that goals represent what people want, while values explain why people are eager to attain those goals.

According to Moskowitz & Grant (2009), the differences between goals and motives lie in that motives are more stable over time, across situations and domains, and are difficult to change. Moreover, motives are rooted in biological processes and operate automatically, while goals are mainly cognitive in nature and can operate both consciously and unconsciously. While motives serve an energizing function in the motivational process, goals serve a directional function (Moskowitz & Grant, 2009). Though researchers have tried to conceptually differentiate goals and motives, it can be argued that when it comes to behavior, it is difficult to separate the two as they are closely intertwined.

2.2.1.2 Goal setting and goal striving

Goal pursuit can take three forms. The first one is attributed to habitual goal-directed consumer behavior, when goal is activated and performed more or less automatically by responding to learnt cues and requires little conscious processing. Bargh's (1990) suggests that some routinized purchase situations are characterized by such process (as cited in Bagozzi & Dholakia, 1999). The second form refers to impulsive acts, when an awakened need quickly becomes a goal and is achieved with minimal efforts. The third form refers to intentional acts and is volitional in nature (Bagozzi & Dholakia, 1999).

The authors primarily focus on conscious aspects of goal setting and goal striving without denying that goal-directed behaviors can occur unconsciously as well. According to the same authors, conscious goals can: 1) manifest in people's minds automatically due to biological, ethical or other forces, and even though they are activated unconsciously by internal criteria, they are pursued consciously; 2) arise from reasoned actions to external or internal stimuli, where encounter to a new product, persuasive message or alluring package can serve as examples of external stimuli, and cognitive processes and thoughts refer to internal stimuli. In this sense, goals are objects to acquire or target actions directed at objects (Bagozzi & Dholakia, 1999), referring to products and product choice or purchasing behavior accordingly.

The goal striving process requires evaluation of means. For goals frequently pursued in the past, people may activate a rule or a script and use the easiest available means. For new or difficult to achieve goals people engage in cognitive processes where they evaluate alternative means (Bagozzi & Dholakia, 1999). Since many food products are often ascribed to low-involvement products that do not require extensive decision-making in their purchasing, it can be argued that food consumption goal setting and goal striving is exercised with little conscious processing with consumers retrieving knowledge already existing in their memory by responding to learnt cues as mentioned above. This enables consumers to make fast purchase decisions, which is in line with Thøgersen et al. (2012) claims that consumers prefer their shopping for conventional food products to be effortless and time-efficient (Maehle et al, 2015). However, purchasing of new products may require higher cognitive processing as consumers may find it difficult to relate the information about those products to their personal goals due to no prior experience with the product, and thus goal-directed decision making

can be inhibited. This is an important nuance for this paper because meat substitutes may be new products for many potential consumers who are unfamiliar with these products. Thus, it is imperative for meat substitute producers to be aware of what goals consumers seek to attain through their food purchasing and connect those goals with relevant product attributes by designing attractive visual cues that would serve as means to prime consumers' goals and lead to purchase decisions. On the opposite, the absence of a salient visual cue may result in consumers being lured away from meat substitutes and thus purchasing another product that would also satisfy their goals.

2.2.1.3 Goal framing theory: Normative, Gain, Hedonic goals and their sub-goals

Goals are thought to be mentally organized into hierarchical networks or goal systems, in which abstract higher-order or superordinate goals are linked to sub-goals, which in turn are associated with lower order means and behaviors (Barbopoulos & Johansson, 2016; Barbopoulos & Johansson, 2017). In the recent decades, scholars observed that people not only seek to maximize their gains but also to achieve normative and hedonic goals, which have been integrated into the goal-framing theory developed by Lindenberg & Steg (Barbopoulos & Johansson, 2016). Goal-framing theory was mostly influenced by cognitive social psychology and predicates that goals govern or "frame" people's cognitive processes and behavior, referring to what knowledge is accumulated and accessible, how people perceive the situation and what alternatives they consider (Lindenberg & Steg, 2007).

Lindenberg and Steg (2007) identified three overarching "master" goals in their theory. The gain goal aims at guarding and improving one's resources, the hedonic goal is responsible for feeling better now, and the normative goal implies acting appropriately. Thus, the gain goal entails a strengthened sensitivity to changes in personal resources, the hedonic goal prompts consumers to improve their mood, energy levels and pleasure, while the normative goal motivates to act according to personal and societal norms (Barbopoulos & Johansson, 2016; 2017). Lindenberg & Steg (2007) suggest that the hedonic goal frame is the most basic and very likely to be the strongest implying that the least support from the surroundings is needed to activate it, while the gain goal frame needs institutions to support it and the normative goal frame, being the most dependent on external support, becomes active through institutions, moralization and social sanctions. All three goals have been studied in

separate contexts: gain in rational choice and expectancy-value theories, hedonic in theories on affect and emotions, whereas the normative in social and environmental psychology but has often been ignored in research (Barbopoulos & Johansson, 2016; 2017). The value of the goal-framing theory lies in that it incorporates all three goals into a single framework and renders possible to develop integrative measurement tools to be applied in a variety of consumption contexts and situations.

According to goal-framing theory, usually multiple goals are active at the same time, and those goals may be compatible or competing. However, only the activated or focal goal is likely to dominate the framing process (Schuitema & de Groot, 2015; Lindenberg & Steg, 2007). As motivations are usually heterogeneous, one dominant goal does not imply that considerations about other goals are forgotten but the focal goal influences the cognitive process the most, whereas other goals are pushed to the background. When background goals are compatible with the focal goal, they strengthen it, and vice versa (Lindenberg & Steg, 2007). In a context of purchasing meat substitutes, as an example, consumers with strong ethical goals may find these products appealing but at the same time more expensive compared to meat counterpart products. If this normative goal is the focal but gain goal (e.g. value for money) is in the background, the person is likely to choose another ethical but cheaper product.

Barbopoulos & Johansson (2016) discovered that aforementioned master goals are multi-dimensional and are explained by their distinct sub-goals that link the master goals to means and behaviors. After an immense work, the authors proposed that the Gain goal is represented by sub-goals such as Value for Money, Quality, Function and Safety, the Hedonic goal is associated with Pleasure, Stimulation and Comfort sub-goals, where Pleasure represents valence, while Stimulation and Comfort refer to high and low arousal respectively; and the Normative goal is composed of Ethics and Social Acceptance, referring to internal and external norms respectively (for more detailed explanation of sub-goals see Appendix B).

The goal-framing theory and distinct sub-goals will form the basis for studying consumers' food consumption goals in this research as these sub-goals are deemed to cover the most important goals people may seek to attain through their purchasing behavior. Inclusion of normative dimension is of high importance as it is linked to environmental behavior and ethical consumption (Barbopoulos & Johansson, 2017) and could be argued to be inherent in consumption of meat substitutes.

2.2.2 Means-end chains framework

2.2.2.1 Traditional model of means-end chains

As outlined in the introduction, product attributes may influence food choice because they deliver desirable benefits to the consumers or satisfy their personal motives. This notion requires a deeper understanding of consumers' needs pointing to the inclusion of "a voice of a consumer" as one of the pillars of the successful product development, which encompasses not only producing the products with the desirable attributes but also positioning those products according to the needs of consumers (Grunert & Valli, 2001). The means-end chain (MEC) model is a useful tool widely applied in consumer research for the development of new products, successful advertising and marketing strategies (Søndergaard, 2005). The central idea of MEC theory is that consumers buy products not for the sake of products but because of the expected positive consequences those products can deliver, implying that products are seen as means for consumers to obtain their valued ends, and many means can lead to the same end (Søndergaard, 2005; Hofstede et al, 1998). MEC theory represents a cognitive approach to consumer behavior which combines consumer knowledge about a product and about the self in a form of meanings, connections and beliefs stored in consumers' memories and obtained through consumers' experiences, and encompasses processes involved in thinking, and interpreting stimuli in the environment (Zanoli & Naspetti, 2002). MEC theory helps to understand what makes products personally relevant to consumers by identifying perceived relationships between a product and a consumer (Pieters et al, 1995).

MEC is a hierarchical cognitive structure where product attributes, consequences they deliver and values that are fulfilled are linked in hierarchical sequences called means-end chains with an increasing level of abstractness, forming an MEC model that attempts to explain how product selection with particular attributes facilitates the achievement of desired end states (Gutman, 1982; Gutman, 1997). Desirable consequences delivered by a specific attribute are called benefits and *"they differ from attributes in that people receive benefits whereas products have attributes"* (Gutman, 1982, p 61). The lowest levels of MEC hierarchy contain the knowledge about concrete (e.g. protein content) and more abstract (e.g. nutritional) product attributes and functional consequences they deliver (e.g. reducing hunger), while the remaining levels contain the knowledge about a consumer,

such as psychosocial consequences (e.g. improved satisfaction), and instrumental and terminal values (Gutman, 1997). Instrumental values are related to modes of behavior and facilitate the achievement of terminal values that represent preferred end-state of existence, such as happiness, security, enjoyment. Various MEC versions appear in the literature depending on their authors' perspectives (Gutman, 1982) but often a simplified structure of the MEC model is applied with consequences directly related to terminal values. For example, a consumer chooses a product with a low fat attribute because s/he associates this attribute with benefits for health which in turn fulfils the security value.

Product knowledge			Consumer self-knowledge		
Concrete attributes	Abstract attributes	Functional consequences	Psychosocial consequences	Instrumental values	Terminal values
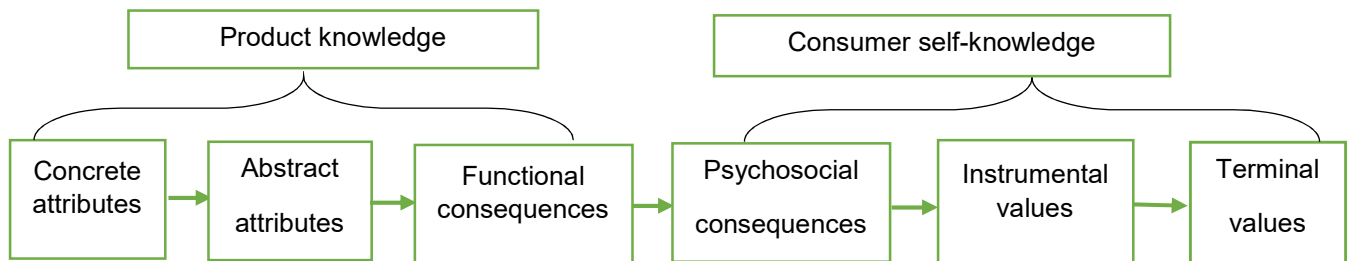
Figure 1. Levels of means-end chains. Source: Author's own work, inspired by Gutman (1997)

Hierarchical ordering in the MEC model implies that consumer outcomes, such as benefits, cannot affect product attributes but purchasing products with particular attributes can influence consumer outcomes, thus, the knowledge flows in the chain across increasing levels of abstraction extending from the product to consumers' self-concepts (Gutman, 1997). The relations among elements in the MEC model are developed as consumers learn about products from packaging information, advertising, consumption experience and discussions with others (Gutman, 1982). Those experiences and information in human memory are organized into cognitive structures consisting of the linkages between the elements that are modified by cognitive processes being activated when new information from the environment should be incorporated or the existing information should be retrieved to guide consumer behavior. Cognitive processes can be automatic (unconscious) and conscious. The former requires learning and becomes active when encountering familiar stimuli in the environment, while the latter refer to intentional mental activities and operate when finding a meaning in unfamiliar stimuli (Grunert & Grunert, 1995). Graeff (1997) claims that consumers with higher knowledge about a product are more likely to evaluate product attributes because they can infer the relevant benefits those attributes bring, whereas lower-knowledge consumers are less likely to evaluate product attributes due to their limited means-end knowledge.

The aforementioned arguments are important in the context of meat substitutes because only the current consumers of meat substitutes have knowledge and thus strong connections in their cognitive structures between product attributes and benefits they provide, which is likely to be retrieved automatically and lead to faster purchasing. However, many consumers do not have prior experience with meat substitutes and ready to be activated knowledge structures, hence, encountering unfamiliar stimuli requires more effort and time to process. If consumers are reluctant to devote their energy and time as is often the case with low involvement products such as food, they are likely to choose other more familiar products instead that provide with the same desirable benefits, as different means can provide with the same ends. Therefore, if producers of meat substitutes aim to appeal to new consumers or to existing ones by launching new substitutes with new attributes, they must identify what positive outcomes that consumers seek are derived from each product attribute, and thereby translate this knowledge into salient stimuli in the form of packaging and communication strategies to facilitate purchasing behavior.

Laddering is the most commonly used qualitative interviewing technique to elicit linkages between product attributes and outcomes, where a consumer is asked a series of "why?" (e.g. "why is this attribute important for you?") until the highest level of abstraction is reached. However, laddering is criticized for its limitations. First, laddering is time consuming and requires high expertise (Hofstede et al, 1998). Second, the validity of measures in means-end chains produced by laddering can be challenged from a cognitive psychology perspective if it is accepted that mental processes are not open to self-explication and self-knowledge is incomplete. True cognitive structures are not fully accessible for full awareness, and the linkages between the elements of MEC are the result of subjective interpretations of generated responses (Grunert & Grunert, 1995; Bagozzi & Dholakia, 1999). Moreover, laddering is deemed to impose a specific structure and the sequence of responses, however, it may not reflect how consumers organize it in their memory. Besides, a final stop of the laddering procedure is a description of values without relating these with choices (Bagozzi & Dholakia, 1999). Furthermore, laddering technique is applicable for consumers having experience with a product of interest, thus it hinders from understanding potential customers of meat substitutes. MEC is still a valuable framework for this study but it calls for a different technique to identify aforementioned linkages.

2.2.2.2 Means-end chains as goal hierarchies

The studies that tried to relate values to actual behavior showed a very modest success, thus some researchers suggest that values can be viewed as goals at a very high level of abstraction (Haugtvedt et al, 2008). The need to understand goal-driven consumer behavior resulted in modifications to the traditional MEC model leading to an understanding of goals as elements in a hierarchy. This is an attractive alternative because consumers' thoughts and actions are influenced by goals, goals motivate behavior and it is more straightforward to think of goals being achieved rather than values being fulfilled (Gutman, 1997). Park & Smith (1989) claimed that "goals influence actions because they represent the benefits for which consumers search" (as cited in Gutman, 1997).

Three fundamental levels of goals are distinguished in MEC as a goal-hierarchy: 1) the "what" or identification or so called basic level goals at which a *focal* goal is set or goal intention is formed; 2) the "why" or motivation level goals that are above the identification level and provide motivation for pursuing the focal goal; 3) the "how" or operation level goals that are below the identification level and deal mostly with the operational aspects of attaining the focal goal (Haugtvedt et al, 2008; Pieters et al, 1995). The focal goal is at the center of the goal hierarchy which regulates the execution of subordinate goals or sub-goals that are instrumental for achieving the focal goal, and it is itself motivated by more abstract superordinate goals that provide meaning for the focal goal (Haugtvedt et al, 2008; Pieters et al, 1995) (see Appendix B for an example of a goal structure).

The conceptualization of consumer goal hierarchies carries close resemblance to MEC structures of consumer product knowledge in a way that the elements of both structures are hierarchically organized with lower-level elements serving as means to achieve higher-level elements and the elements at more abstract levels are considered to be equivalent because goals at abstract levels perform a function similar to values. In fact, some authors, such as Schwartz, view values as abstract goals. However, important differences emerge at lower levels in the hierarchy. In goal structures, behavior is assumed to be controlled by goals at identification level when goals at higher and lower levels support the focal goal's attainment with motivational and operational aspects respectively. In consumer value maps, the aim is to understand how products acquire personal relevance and to relate product knowledge (product attributes) to the self-knowledge, while values provide motivation for selecting products with particular attributes (Pieters et al, 1995).

As very few of scientific papers reviewed examined product attributes of meat substitutes and neither of them investigated consumption goals in association with product attributes, exploring what product attributes of meat substitutes are linked to consumers' food consumption goals to inform NPD and product positioning seems to be a worthy pursuit. Yet, for this purpose the MEC framework demands modification to incorporate goals and attributes.

2.2.3 Means-end chains in the context of this study: development of the conceptual framework

For the purpose of this study, the MEC approach to goal-directed consumer behavior has been adapted to study consumers' preferences for specific attributes of meat substitutes in association with consumers' food consumption goals. Figure 2 portrays the conceptual model for this study.

Consumers' focal goals that they are seeking to attain through food purchasing are depicted on the right of the model representing the identification level in MEC goal hierarchy, whereas product attributes on the left represent the operational level. Although the model portrays three master goals, they do not form a separate superordinate level in the hierarchy and are not tested in this study but rather presented as a guideline to inform a reader about the domain being represented by the sub-goals. With regards to attributes, concrete product attributes are at the center of this study, however, they are suggested to belong to a corresponding category of abstract attributes that may help in identifying focus areas for producers of meat substitutes but these corresponding categories will not be measured in this study.

The proposed conceptual framework connects both product knowledge with consumer self-knowledge and thus lays the foundation for exploring the relationships between the variables. A consumer has certain goals in food purchasing, and to achieve them s/he should purchase products with attributes that are regarded to facilitate the attainment of relevant goals. Hence, those attributes in the form of stimuli or cues serve as means for priming those corresponding goals. Building on this rationale, consumers are likely to purchase meat substitutes if they possess attributes that inform of the attainment of consumers' focal goals. According to MacFie (2007), different products can satisfy the same goal, which implies that if the linkages between attributes of meat substitutes and focal goals are not strong enough, or if they are not translated into product positioning, consumers may choose

other products instead that are perceived as better means towards goal attainment. It is therefore important to ascertain the relationships between the portrayed product attributes of meat substitutes and food consumption goals.

The main differences between traditional MEC approach and the proposed conceptual framework lie in that the latter does not necessitate previous experience with meat substitutes, thus enabling the conduct of research on both existing and prospective customers. Also, desirable or important attributes are elicited instead of investigating perceived attributes, which may pave a way to the development of new meat substitutes. Moreover, instead of asking consumers directly about the positive outcomes they gain from each attribute, attributes and general food consumption goals are elicited separately, and then the connections between them are investigated. In this way, shortcomings related to the laddering technique outlined in previous sections are eluded. Finally, it renders possible the incorporation of behavioral outcomes that have not hitherto been included explicitly in studies employing the MEC approach and meat substitutes.

The model is extended with a selection of outcome variables, such as willingness to buy (WTB), willingness to pay (WTP) and word-of-mouth (WOM) to answer the second research question of the study. The inclusion of these constructs extends previous research and allows for the examination of the relative importance of each attribute as well as the relative importance of each food consumption goal in predicting these positive behaviors toward meat substitutes. To the best of my knowledge, no study investigated the predictive power of goals or product attributes in the context of meat substitutes, even though these have been investigated in other domains. For example, Noppers et al (2014) studied to what extent instrumental, symbolic and environmental attributes uniquely predicted adoption of electric cars, whereas Assaf & Josiassen (2012) intended to identify key drivers that can be regarded as having an analogy to attributes contributing to tourism industry performance.

This study responds to the call from Apostolidis & McLeay (2016a) to identify the attributes with the most important effect on consumption, but instead of actual consumption, behavioral intentions are investigated. In addition, goals can be viewed as motivational constructs being closest to an individual's actions, and can have both direct and indirect influence on behavior, such as product use (Garbarino & Johnson, 2001). Dowd & Burke (2013) found that food choice motives that could be regarded as having an analogy with food consumption goals, were weak but significant predictors of

intention to purchase sustainably sourced foods. Based on this rationale and taking into consideration the critique of MEC for eliciting the benefits without relating these to consumer choices (Bagozzi & Dholakia, 1999), it is assumed that some food consumption goals may have an impact on positive behavioral intentions toward meat substitutes, and thus will be explored in this study. Incorporation of goals as antecedents of behavior also addresses the critique stated by Fine (1980) that "not to recognize goals as antecedents to behavior overlooks rationality in the choice process – a process that begins with an objective" (as cited in Garbarino & Johnson, 2001, p 944). This knowledge is expected to give insights to meat substitute producers on what aspects should be emphasized in the marketing of these products.

Product attributes. A comprehensive set of concrete product attributes was developed based on an extensive literature review and consumer insights from the market, which will be discussed further in the methodology part. As concrete attributes are presupposed to be linked to abstract attributes in the MEC model, this analogy was applied in this study except for that relationshipsbetween these two are not explored, as evident from the model. Instead, abstract attributes are presented in a form of broader categories or classifications, which is the outcome of my work with inspiration gained from the existing literature, and is deemed to encompass the most important categories of attributes for meat substitutes, and serve as guidelines for meat substitute producers in determining which areas to focus on in their production and positioning. The proposed classification is as follows: 1) Sensory attributes involve meaty taste, texture, appearance and smell; 2) Nutritional attributes are comprised of attributes, such as "high in protein", "essential amino acids", "high in iron", "vitamin B complex", "vitamins and minerals", "low in sodium", "low in fat" and "sugar-free"; 3) Convenience- and affordability-related attributes refer to "fast and easy preparation", "wide availability" and "cost of meat substitutes". It is in line with the literature where convenience attributes refer to fast, easy preparation and in-store availability (Olsen et al, 2017) or ease with which a product is cooked or consumed (Lusk & Briggeman, 2009); 4) Production-related attributes' category consists of attributes, such as "contains no artificial additives and preservatives", "made from natural ingredients", "not genetically modified", gluten-free, soy-free, "contains no animal ingredients", "fat source" and organic, as all these attributes provide information about the components used in the production process or the way products were produced; 5) Performance attributes' category reflects
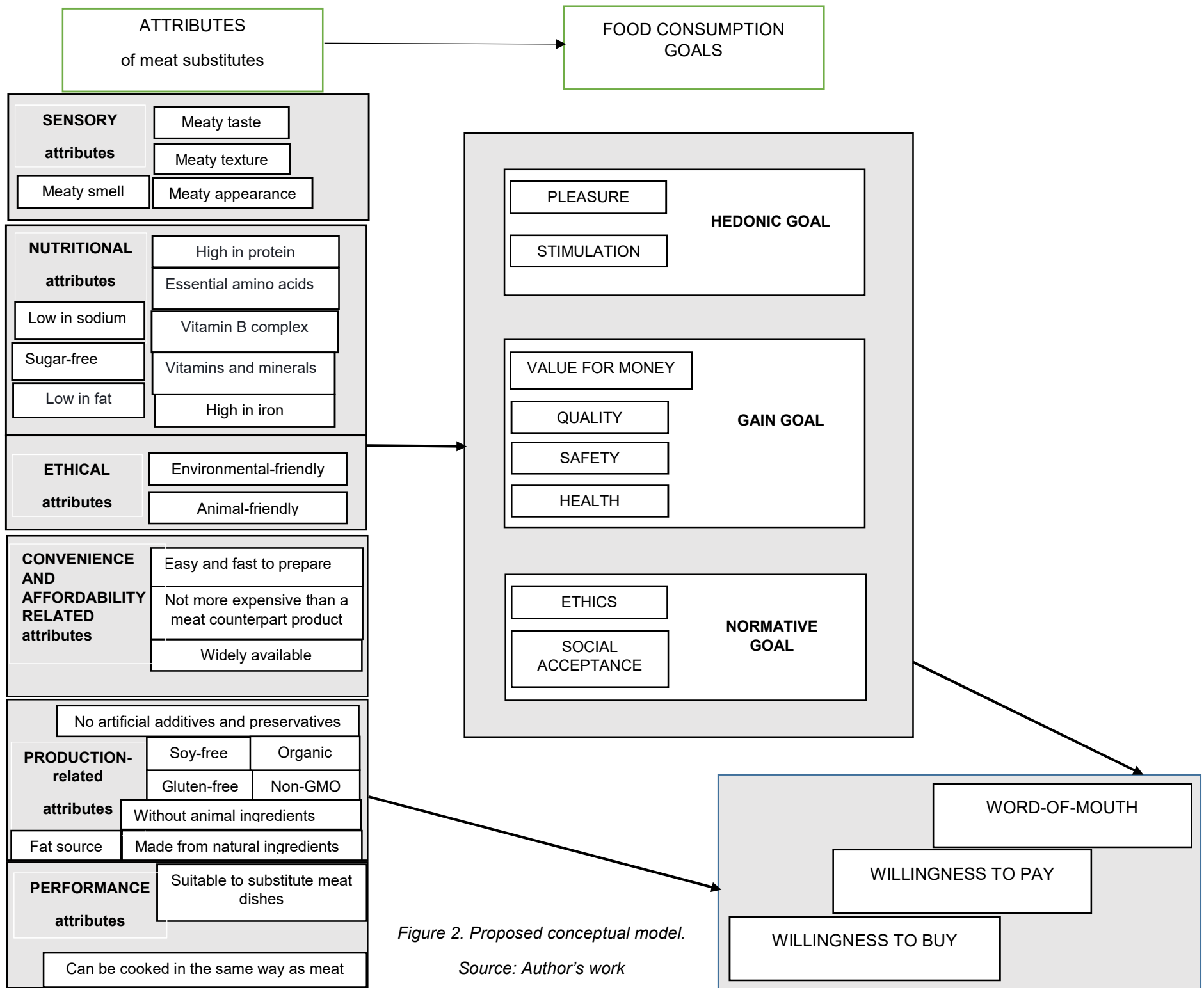
Figure 2. Proposed conceptual model.

Source: Author's work

what functions meat substitutes provide, and consists of attributes, such as "can be cooked in the same way as meat" and "suitable to substitute meat dishes"; 6) Ethical attributes reflect the focus on environment and animal welfare, are inherent in meat substitutes and refer to "animal-friendly" and "environmentally-friendly" attributes.

Food consumption goals. Goals have been selected based on a previously introduced goal-framing theory and a goal structure suggested and developed by Barbopoulos and Johansson (2017). Some sub-goals have been dropped and Health sub-goal was added due to the shifting priorities in consumers' food choice and taking into consideration the findings mentioned earlier that health and wellness are new drivers influencing consumers' food purchasing decisions. As focal goals are linked to superordinate goals in the MEC model, sub-goals are assumed to be related to their corresponding master goals in this framework. However, as three master goals are not measured in this study, they will not be employed in the analysis with other study constructs, and thus the higher-order goal structure will not be tested as it does not serve the purpose of this study. Nevertheless, the new incorporated Health sub-goal is presumed to ascribe to the Gain master goal as health could be regarded as a personal resource.

Positive behavioral intentions: WTB and WTP are rather explicit constructs, while WOM needs to be defined. WOM is defined as "*informal communications between private parties concerning evaluations of goods and services*" (as cited in Anderson, 1998). Anderson (1998) distinguishes between several types of WOM: positive WOM encompasses sharing pleasant or novel experiences to others and giving recommendations, negative WOM involves rumors, complaints and denigration of products, whereas neutral WOM refers to neither positive, nor negative behavior toward a product. WOM is a powerful tool in a dynamic and complex contemporary marketplace environment and it is proved that recommendations from friends, family and acquaintances exert great influence in making purchase decisions (Allsop et al, 2007). WOM has been gaining greater power over the past decades due to technological penetration resulting in the growth of informal communication channels, which made information sharing much easier than before in social media realms even among strangers globally. Research reveals that WOM also affects consumers' food purchases (Chen, 2017; Allsop et al, 2007). Moreover, it has been widely acknowledged that satisfied customers engage in positive WOM (Anderson, 1998).

This study will not rely on hypotheses due to the scarcity of research in the area and thus lack of a robust theoretical foundation for hypotheses development. It was chosen to explore all possible relationships between the variables in the process instead of focusing on solely a few clear-cut hypotheses and numerous personal assumptions.

3. Methodology

This chapter is devoted to outlining the research approach that underpins this study, including the research philosophy, research strategy and methods employed for data collection and sampling.

3.1 Philosophy of science

The research philosophy or so called philosophy of science underlies any form of research and contains important assumptions on how a researcher views the world and understands the nature of truth and knowledge, or in other words, it is associated with the development of knowledge and the nature of that knowledge (Saunders et al, 2009). Van (2007) argues that "*it is better to choose a philosophy of science than to inherit one by default*" (p 36) as it will underpin a study's research strategy and the methods chosen in the study (Saunders et al, 2009). Based on this rationale, it is important to define the research philosophy for this study as well.

Two major ways of thinking about research philosophy are distinguished in the literature. Ontology is concerned with the nature of reality and has to do with the question of whether the social world is regarded as external to social actors (objectivism view) or is created from the perceptions and actions of social actors (subjectivism view). Epistemology is concerned with the question of what composes acceptable knowledge in the area of study and whether the social world can and should be investigated using the same principles and procedures as applied in the natural science (Saunders et al, 2009; Bryman & Bell, 2011). To further explore research philosophy and connections to epistemology and ontology, it is crucial to introduce the concept of a research paradigm, which is defined as "*a way of examining social phenomena from which particular understandings of these phenomena can be gained and explanations attempted*" (Saunders et al, 2009, p 118). Four main

paradigms within science research are distinguished: *positivism*, *relativism* also known as interpretivism or social constructivism, *realism* and *pragmatism* (Saunders et al, 2009; Bryman & Bell, 2011; Van 2007) that differ in terms of their ontological and epistemological perspectives. Some authors claim that a selection of paradigm is of higher importance compared to questions of research methods (Saunders et al, 2009), hence, this is a call to choose the paradigm for this study.

This study is focused on consumer behavior in the area of meat substitutes and therefore belongs to the broad discipline of social science. It is argued that this study embraces **positivism** as the research philosophy, which is an epistemological position advocating the application of the methods from natural sciences to study social reality (Bryman & Bell, 2011). A researcher adopts a position of a natural scientist who is independent of an observable social reality and is able to study the objects in the world without influencing or being influenced by them, which refers to a value-free way in which the research is undertaken (Van 2007). A researcher embracing positivism is concerned with facts rather than feelings or impressions (Saunders et al, 2009). Thus, positivism is both ontologically and epistemologically objective (Van 2007), implying that the truth is out there and possible to find. This is the opposite to social constructivism, which is ontologically and epistemologically subjective, meaning that a researcher is a part of the reality that is socially constructed and that no one truth exists as the knowledge is a bundle of subjective meanings and interpretations of the reality by social actors (Van 2007; Saunders et al, 2009).

Positivism is further characterized by the following principles: 1) the basis for research is an observable social reality devoid of metaphysical, emotional and other components (Van 2007); 2) theory is necessary to generate hypotheses that can be tested and thus explain laws, and knowledge can be achieved through gathering facts that build the foundation for laws. Thus, positivism entails elements of both deductivism and inductivism; 3) science must be conducted in a value-free way (Bryman & Bell, 2011); 4) a researcher is likely to use a highly structured methodology to promote replication and 5) researchers aim at end products of their research in a form of law-like generalizations (Saunders et al, 2009). In order to generalize findings, positivist researchers tend to use rigorous experimental procedures or quantitative methods subjected to empirical testing and statistical analysis, and also put efforts into reducing or eliminating threats to validity (Van 2007; Saunders et al, 2009).

This study aims at gaining objective knowledge about consumers in the area of meat substitutes. For this purpose, existing theories were examined and the model with suggested relationships among the constructs was developed, which will be subjected to statistical testing. Even though positivism calls for a value-free approach in research, it is hardly possible to entirely avoid the influence of personal values as a researcher makes numerous choices in the process, such as choosing the topic, constructs, data collection methods to name a few (Saunders et al, 2009; Bryman & Bell, 2011). The following sections will cover those choices and the reasoning behind them.

3.2   Research Design

The term research design constitutes the blueprint for the collection, measurement and analysis of data, and it reflects decisions about the components chosen to integrate in the study with the aim to answer research questions (Bryman & Bell, 2011). The choice of the research philosophy is usually followed by the selection of **research approach**, **strategy** and **data collection methods and techniques** that compose a research design, and will be covered in this section.

With regard to the research approach, deduction is regarded as more akin to positivism. However, as previously mentioned, positivism can entail elements of inductivism as well. It will be argued that even though the dominant approach this study adopts is **deduction**, **induction** was advantageous at one stage of the research. Saunders et al (2009) encourage the combination of both approaches if the research topic demands it. Despite the fact that there is a sufficient amount of research on product attributes in food and other sectors, there is a paucity of research on meat substitutes and the specific attributes important for consumers. To fill this void and incorporate relevant attributes in the conceptual framework, inductive approach was employed and necessary data was generated from the market by posing a question on a few selected websites and thus gathering qualitative data through unstructured answers, which will be discussed in later sections. Deductive approach manifests through the development of a structured model that is subjected to statistical testing. For this purpose, the constructs in the model should be operationalized in order to be measured quantitatively, and the sample should be representative for data to be generalizable, which is the characteristic of deduction (Saunders et al, 2009).

The answers emanating from the study's research questions can take descriptive, explanatory or exploratory form, which may not be mutually exclusive. As a research project may have more than one purpose, it may incorporate elements of more than one classification (Saunders et al, 2009). This study could be classified as being both explanatory and exploratory. The former is supported by the fact that research questions call for the explanation of the relationships between variables, such as product attributes, food consumption goals and behavioral intentions (WTB, WTP and WOM), and there is an interest in causality. To achieve this, the data must be subjected to statistical tests. The exploratory aspect (Saunders et al, 2009) of the study is manifested through the search of the literature with the aim to define and classify key variables, through gaining insights from the market about the attributes in the initial stage of the study and by not incorporating hypotheses in this study in order to explore what significant relationships will emerge.

Survey strategy was chosen to achieve the study's purpose and is "most frequently used to answer who, what, where, how much and how many questions" (Saunders et al, 2009, p 144). This study belongs to cross-sectional studies as it explores phenomena at one particular time. Surveys can be used for exploratory, descriptive and explanatory research depending on how they are designed. The survey strategy encompasses questionnaires, structured observations and structured interviews (Saunders et al, 2009), however, a self-administered online questionnaire was adopted as data collection technique for this study. The decision was influenced by the advantages of this technique. It is appropriate particularly for explanatory research to examine relationships between variables and identify cause-and-effect relationships. It also allows the collection of a large amount of data in a relatively short time as well as makes the generalizability of the results feasible given the sample is representative (Saunders et al, 2009).

Moreover, self-administered online questionnaires are regarded as more advantageous in the context of this study compared to interviewer-administered or postal questionnaires because they are cheaper and faster to administer, allow attractive formats, filter questions to route different groups, enable automatic data capture and retrieval, thus increasing data accuracy, as well as ensure confidentiality and anonymity (Bryman & Bell, 2011; Saunders et al, 2009). It is argued that self-administered questionnaires are likely to be less susceptible to socially desirable answers (Saunders et al, 2009; MacKenzie & Podsakoff, 2012). Social desirability bias is more observed in studies on

ethical behavior and other sensitive topics (Bryman & Bell, 2011). Even though this study does not directly bring to surface sensitive issues, the reference to meat substitutes may serve as a hint by itself that something may be wrong with meat consumption. Moreover, a few questions on ethical attributes and food consumption goals may increase willingness to answer in a more acceptable way.

This study uses a mixed-method approach. Mixed-method research uses both quantitative and qualitative data collection techniques either in parallel or sequentially and usually one of them is prevalent (Saunders et al, 2009). Qualitative technique was employed by posting one question to facilitate discussions and receive insights from the market on the product features that would be important to purchase meat substitutes. This approach was beneficial for the initial stage of the study and facilitated the development of the model and the questionnaire by ensuring that all important attributes were included in the survey, which represents the quantitative technique, as it allows to collect explanatory data. One could argue though that in-depth interviews could have deepened the knowledge of the topic and enriched the understanding of the concepts used in the study. However, due to recommendations in the extant literature to focus more on the quantitative part in terms of what product attributes are the most preferred by consumers, and in order to answer the study's research questions and draw statistically meaningful conclusions, the described approach was chosen as the most appropriate.

Finally, in consideration of recommendations from practitioners, questionnaires should be pilot tested prior to administering them to a study's sample, especially self-completion questionnaires. This preliminary analysis may prevent from problems related to the questions' validity and reliability and enable the assessment of the questions' suitability (Saunders et al, 2009; Bryman & Bell, 2011). Hague et al (2016) recommend to test a questionnaire on 6 to 12 individuals, while Saunders et al (2009) suggest minimum 10 individuals for most student questionnaires. In this study, 10 individuals completed the pilot questionnaire and provided feedback through a supporting mini questionnaire as suggested by Bell (as cited in Saunders et al, 2009, p 394). They were asked to answer the following questions whilst completing the pilot survey or right after that: 1) how long it took to complete the survey; 2) if instructions were clear; 3) if some questions were unclear or ambiguous; 4) whether some questions were difficult to answer; 5) if the layout was clear and attractive; 6) additional

comments they had. Subsequently, necessary amendments were made by incorporating the feedback from the respondents.

3.3 Measurements of variables

The variables that constitute the study's conceptual model are predominantly latent. Therefore, in order to be measured and subjected to data collection those latent constructs had to be operationalized by means of manifest or so called indicator variables, referring to the items in the questionnaire that were adopted or adapted from the studies published in top tier journals. The aim was to ensure that the scales selected have high validity and internal reliability, meaning that they measure what they purport to be measuring and the indicators constituting those scales are consistent. The most common test of internal reliability is known as Cronbach's alpha (α) coefficient with values ranging from 0 to 1 denoting no internal reliability and perfect internal reliability accordingly, where α of 0.70 and above is considered to be acceptable (Bryman & Bell, 2011). Further, measurements and scales used in this study will be discussed (see Appendix C for a complete list of the questionnaire items).

3.3.1 Measurement of product attributes

Product attributes for this study were selected by means of literature search and by gaining consumer insights from the market. An extensive list of attributes was prepared from the studies in the food area published in highly ranked journals. Simultaneously, a similar procedure to the one carried out by Noppers et al (2014) in their study on sustainable innovations was followed for developing an exhaustive list of product attributes to be included in the questionnaire. For this purpose, one question was formulated and tested with a few people to ensure clarity, and it is as follows: "What product attributes meat-alternative products should have so that you would purchase them as a part of your diet or as a replacement for meat?". A brief definition of meat alternatives was provided given some people are not familiar with them. The question was posted on a few *Facebook* groups related to food technology, veganism and vegetarianism, as well as on *Quora* and a few forums related to nutrition, meat and healthy food on *Reddit*, which is one of the biggest internet discussion websites in the world. After about 50 responses saturation was reached and no new attributes were

mentioned. The text answers were analyzed, attributes selected and compared with the ones in the literature. Additional attributes, such as "contains no animal ingredients", "soy-free", gluten-free", "fat source", "essential amino acids", "high in iron", "vitamin B complex", "can be cooked in the same way as meat" and "suitable to substitute meat dishes" were included in the final list that involved 27 product attributes to be regarded as important or desirable by existing or potential consumers of meat substitutes.

To measure the importance of each product attribute, a 7-point Likert scale was used with 1=extremely unimportant and 7=extremely important.

3.3.2 Measurement of food consumption goals

To measure food consumption goals, the Consumer Motivation Scale (CMS) developed by Barbopoulos and Johansson (2017) was adapted to the study's purpose. The scale has been validated across a few studies in food, clothes, entertainment, travel, and accommodations contexts, and deserves attention due to its capacity to take into consideration situational variability of goals, which is usually overlooked in other scales measuring situation-invariant constructs, such as consumer values or personality traits. As it has been discussed, consumption behavior is driven by variety of goals and goal activation may vary across situations. CMS is a measure that is integrative and multi-dimensional, encompassing distinct sub-goals, as well as context-sensitive and applicable to a variety of consumption settings and products (Barbopoulos & Johansson, 2017). To my knowledge, this scale has not been adopted or adapted in other studies yet as it is relatively new, except for validation and scale modification purposes. Thus, adapting and validating this scale in the study was regarded as a significant contribution to both science and practice.

The initial scale structure consisted of 9 emergent factors, that is 9 sub-goals representing Gain, Hedonic and Normative master goals but after the scale purification procedure, 7 distinct and reliable dimensions of the scale emerged with Cronbach's alpha ranging between 0.81 and 0.92 (Barbopoulos & Johansson, 2017a). For further model fit and parsimony the number of items per dimension was reduced to five as maximum resulting in a 34-item model with Value for Money, Quality and Safety sub-goals representing the Gain goal, Stimulation and Comfort sub-goals representing the Hedonic

goal, and Ethics and Social Acceptance representing the Normative goal. Pleasure and Function sub-goals were removed as they did not emerge. For this study's purpose, all items corresponding to the dimensions of the initial and the final CMS were carefully analyzed, adopted and adapted to be applied to the food shopping context. Function and Comfort were excluded as it was deemed not to fit the food purchasing context, whereas the Health dimension was added and Pleasure was kept in the scale. Every dimension or sub-goal of the CMS was modified to be measured with 4 items for optimizing the length of the scale. The CMS was presented to respondents with the statement "When I shop for food, it is important that what I choose…" followed by the list of items corresponding to the dimensions that required answers on a 7-point Likert scale with 1=strongly disagree and 7=strongly agree.

Value for Money was measured with the items adapted from the CMS and included: "is reasonably priced", "is not too expensive", "offers value for the money", "is not a waste of money". The item "is economical" was excluded as this aspect was deemed to be covered by the other items.

The items measuring **Quality** dimension were adapted as follows: the initial item "is of consistent and high quality" was divided into two items, such as "is of high quality" and "is consistent in quality", and the item "meets even the highest requirements and expectations" was modified to "meets my highest expectations" to avoid double-barreled questions. The item "is well made" was adopted.

Safety dimension required more modifications as this sub-goal is related to the financial aspect of the gain goal (Barbopoulos & Johansson, 2016) in the CMS, which was deemed to have low relevance for food context and Value for Money goal was already representing financial aspect. Thus, Safety definition was borrowed from Lusk and Briggeman (2009), referring to the extent to which food consumption will not cause illness, and thus would not pose a threat to safety in terms of health and well-being. For this purpose, the initial items "makes me feel safe for the future" and "makes me feel calm and safe" were merged into one item "makes me feel safe", the item "improves my safety or security" was changed to "does not put my safety or security at risk", while the other two items were added, such as "is free from harmful substances" and "is produced in a safe way" with the former adapted from the Eating Motivation Scale (TEMS) (Renner et al, 2012) and the latter developed by me.

Health was proposed as an additional dimension based on the previously discussed rationale that health is becoming a very important driver in food choice. As health is in itself a multi-dimensional construct involving many underlying motives (Sihvonen & Luomala, 2017), it was decided to focus more on the physical aspect of health in this study, and thus the following items were developed: "is nutritious", "is good for my body", "keeps me healthy" and "helps to maintain a balanced diet", with the first two adapted from the Food Choice Questionnaire (Fotopoulos et al, 2009), and the latter two adapted from TEMS (Renner et al, 2012).

Even though **Pleasure** did not emerge as a separate factor in the CMS development, it was decided to include this dimension into the scale in this study as it implies satisfaction of immediate needs and feeling of happiness, which is regarded to be an important driver in food choice. Moreover, it differs conceptually from the other sub-goals suggested to represent the Hedonic goal. Thus, the following items were included: the initial item "is pleasant or enjoyable" was divided into two items, such as "is pleasant" and "is enjoyable", and two additional items were developed, such as "is gratifying" and "is delicious".

Two items, corresponding to **Stimulation** that represents high arousal and is defined as seeking for something exciting or unique, were adopted, such as "is interesting" and "gives a unique experience", whereas the item "is not too dull or routine" was modified to "is not boring" and the item "offers novelty" was developed out of two items ("offers diversity" and "is new or exotic") in the longer version of CMS (see Barbopoulos & Johansson, 2017a).

Ethics dimension is concerned with internal norms of behavior related to one's moral standards (Barbopoulos & Johansson, 2017). The items "is not morally wrong" and "is consistent with my personal and moral obligations" were adopted, while the item "does not violate my principles" was elaborated by adding "principles of ethics", and the item "is consistent with my ideals and opinions" was changed to "is consistent with my personal values", as the latter encompass ideals, and opinions are not necessarily related to ethics. The remaining items were dropped.

Social Acceptance dimension is concerned with external source of norms and relates to identification with others (Barbopoulos & Johansson, 2017). The item "makes a good impression on people who are important to me" was adopted, while other items were modified as follows: "is liked

by people who are important to me" was changed to "is chosen by people who are important to me", the items "is approved by my friends" and "is popular among my friends" were changed to "is accepted among my friends and people close to me", and the item "is what my friends would expect me to choose" was extended by adding "friends and people close to me".

3.3.3 Measurement of dependent variables: willingness-to-buy, willingness-to-pay and word-of-mouth

Willingness to buy. To measure respondents' WTB meat substitutes, the scale modified from Klein et al (1998) was adopted. 3 items were excluded because they were employed to compare products produced in two countries, which was not the purpose of this study, such as, for example, "I would feel guilty if I bought a Japanese product". One could argue that guilt is not inherent in consumption of meat substitutes, which may be the case with meat products that are not a focus of this paper, thus, such items were deemed to be irrelevant. The three modified items for this study include: "I would never buy a meat substitute", "Whenever available, I would prefer to buy meat substitutes" and "I do not like the idea of consuming meat substitutes". Josiassen et al (2011) claimed that the scale displayed a high level of reliability (α= .949). An additional item was adapted from Noppers et al (2014) for the purpose of having two reverse and two positive items in the measurement of WTB. Thus, the modified item is as follows: "I am considering buying a meat substitute in my upcoming grocery shopping". The items were measured on a 7-point Likert scale with 1="strongly disagree" and 7="strongly agree".

Willingness to pay. WTP has been examined in a form of a price attribute in choice experiments to elicit consumer preferences for the existing attributes of meat substitutes by making trade-offs (Apostolidis & McLeay, 2016). However, to my knowledge, it has not been investigated if consumers are willing to pay a price premium for meat substitutes compared to meat counterpart products. Moreover, the present study is concerned with how the importance placed on different product attributes as well as consumers' food consumption goals, predict the price premium consumers are willing to pay for meat substitutes. For this purpose, one item was adopted from Steenkamp et al (2010) that was reworded to "How much more would you be willing to pay for a meat substitute product compared to a meat counterpart product?" and required one answer from a multiple-choice

list of responses: "0% (nothing)", "10% more", "20% more", "30% more", "40% more", "50% more", "75% more", "100% more (twice as much)", "more than 100% (more than twice as much)". The authors suggest that this measure is comparable across consumers, categories, and countries and is easily interpretable for the respondents (Steenkamp et al, 2010).

Word of mouth. The measure of WOM has been adapted from Kock et al (2016) and Arnett et al (2003) who focused on a positive WOM in their studies. The scale has reported a high internal reliability ($\alpha = .90$) based on Arnett et al (2003). The WOM scale adapted for this study measures the degree to which respondents agree with three statements: "I bring up meat alternatives in a positive way in conversations with my friends and acquaintances"; "In social situations, I often speak favorably about meat substitutes as a food product or as a replacement for meat"; "I am willing to recommend meat substitutes for other people to buy". The items were measured on a 7-point Likert scale with 1="strongly disagree" and 7="strongly agree".

3.4   Designing the questionnaire

Foremost, it was essential to design the online self-administered survey in a way that would boost response rates. Hague et al (2016) argue that respondents' interest in the subject is one of the most important drivers of a high response rate in surveys. Dillman (2007) further argues that an introductory message in a self-administered questionnaire plays a significant role in convincing respondents to participate in a survey (Saunders et al, 2009). Thus, an effort was made to evoke people's interest and capture their attention by choosing a few eye-catching pictures related to the topic and emphasizing that their participation is vital for a meaningful input into the development of new meat substitutes that could satisfy the needs of current and potential consumers. Anonymity was assured in the introduction as well, as this is another factor influencing response rates (Hague et al, 2016). Strictest confidence was added to the anonymity for such cases when the respondents provided their email address at the end of the survey. The length of the questionnaire has been proven to affect response rates although the findings are contradictory, since many other factors are involved. However, too long surveys are too strenuous and often lead to lower response rates (Hague et al, 2016; Saunders et al, 2009). As this study's survey was relatively long (indicated filling time by the test respondents was approximately 20 minutes), an effort was made to keep the respondents attention

by making the questions as short and precise as possible, by making the layout attractive to divert attention from the length, and by using matrix questions where possible for reducing apparent length without reducing legibility (Saunders et al, 2009).

Moreover, incentives are found to improve response rates. Financial incentives have been declared to be effective for boosting the response rate in both offline and online surveys (Deustskens et al, 2004), and even though prepaid personal incentives are discovered to yield the highest response rates by some researchers (Cobanoglu & Cobanoglu, 2003), others argue that the difference between using lotteries and individual rewards is minimal but the former is more cost-effective for researchers (Hague et al, 2016). The findings of Deustskens et al (2004) proved the importance of incentives in long surveys to reimburse respondents for their time and effort devoted to the task, which can be explained by the social exchange theory (Cobanoglu & Cobanoglu, 2003), and demonstrated similar overall response rate using vouchers and lotteries with no discrepancy in the response quality (Deustskens et al, 2004). Hence, this study's respondents were given an opportunity to win one of 3 vouchers for the value of 250 DKK each from gavekortet.dk to increase the response rate. Based on suggestions from Cobanoglu & Cobanoglu (2003), the price of vouchers was set at a level to be sufficient and thus motivating enough but not too valuable so that respondents merely seeking to win a prize by answering the survey were deterred from participating.

Another important aspect that had to be addressed whilst designing the questionnaire was an issue of common method bias prevalent in social science research. This problem is likely to arise in research when different constructs are measured with the same method, and thus is a concern in this study as the self-report questionnaire is applied as the sole measurement method (Podsakoff et al, 2012). Common method bias may produce two detrimental effects: first, it can bias estimates of construct reliability and validity, thereby leading to incorrect conclusions about the adequacy of a scale's reliability and convergent validity and also resulting in biased estimates of the effects of independent variables on the dependent variable; second, it can inflate or deflate the estimates of the relationship between two constructs. Common method bias is likely to be a problem when the difficulty of the task to answer the questions is high, whereas respondents' ability and motivation to expend the required effort is low. One way to minimize the effects of common method bias is by applying procedural remedies in designing the study (Podsakoff et al, 2012; Mackenzie & Podsakoff, 2012).

An effort was made to decrease the risk of common method biases in this study by the following steps. First, the introduction highlighted the importance of the topic, the accuracy of respondents' answers and the benefits for them referring to the lottery. Motivation was further enhanced by emphasizing that their true opinions matter and there were no wrong answers. A few motivational pictures were added notifying about the finish line ahead. Besides, more general questions were placed at the beginning with more complex and longer questions on the attributes, behavioral outcomes and food consumption goals in the middle, while easy questions on socio-demographic characteristics, such as gender, age, geographical location among others were posed at the end. Second, respondents' ability to respond accurately was increased by avoiding double-barreled questions, defining potentially unfamiliar or unclear terms, such as meat substitutes with examples in the pictures, and focusing mainly on current states and opinions, thereby reducing the effort required for retrieval. In addition, the respondents were asked to ignore the survey if they regarded their proficiency in English as limited. Third, the difficulty for respondents to satisfice was increased by explaining that although some questions may seem similar, each is unique in important ways, thereby encouraging to read each item carefully. In addition, some reverse items were used to measure behavioral outcomes, and quite long lists of items in questions created with matrix scales (measuring attributes and food consumption goals) were divided into few pages and randomized for each respondent in order to disrupt undesirable response patterns. Finally, proximal and psychological separation was introduced between the measures of independent and dependent variables (Podsakoff et al, 2012; Mackenzie & Podsakoff, 2012), encompassing unrelated buffer items and transitional pages with pictures and short introductions to new sections.

Another recognized way to minimize the effects of common method bias is by statistical remedies. In this study two "marker variables" were added that were expected to be completely unrelated to the variables of the study (Podsakoff et al, 2012). Based on the study by Sproesser et al (2017), these marker items included "I often eat stones" and "I love eating rocks", however, the latter was replaced with "I love eating metal" after receiving the feedback from several test respondents who perceived this item as confusing as they regarded this as some expression in English that they were not familiar with. These two items served a role of attention checks as well, which is an accepted way to exclude inadequate answers.

3.5   Sampling and data collection

Denmark was chosen as the target market for the study due to the following reasons. First, Denmark is known for a deeply rooted meat eating culture having one of the highest meat intake in the world, constituting about 95 kg/capita per annum based on FAO calculations (FAO, 2009), where meat was consumed for dinner by 75 % of population in 2016 (Statista, 2017), and canteens are predominantly abundant in meat and fish dishes for lunches. Second, to the best of my knowledge, no study investigated consumer behavior in the context of meat substitutes in Denmark. Third, the data was easier accessible as the author resides here and a larger majority of Danes have good proficiency in English. Moreover, despite the fact that just 1,8 % of the Danish population of 15-74 years old adopted a fully vegetarian diet, there is an increasing number of people eschewing meat by having one or a few meatless days a week. The share of the population having a meat-free day rose from 17 % in 2010 to 28 % in 2017 (Dansk Vegetarisk Forening, 2018), whereas the percentage of those abstaining from meat for at least half a week doubled from 4 % in 2010 to 8 % in 2017 (Passport, 2018). This boosts the demand for meat substitutes. *Coop* and *Dansk Supermarked* chains recorded a significant increase of 25-30 % in sales of meat replacement products in 2014-2015 (Rychla, 2016). Based on this rationale, Denmark is deemed to offer favorable prospects for meat substitutes and further meat reduction, and therefore is an interesting market to explore in the realm of this study.

Probability or representative sampling was impossible to secure due to resources constraints and stringent requirements (Saunders et al, 2009), therefore, the data was collected using non-probability sampling, which is a very common approach to data collection within business research, such as market surveys (Saunders et al, 2009). A mix of convenience, snowball and self-selection sampling techniques was used to gather data. A survey was shared on the author's Facebook page and Linkedin profile, and distributed to my network in Denmark, referring to convenience sampling. Additionally, few people within the network were contacted who were relevant to the study due to their eating style (identified as pescatarians or vegans, which comprises a smaller share of the population), age group or geographical location (residing not in the Capital region), and asked to identify further cases and share the survey with their network, which refers to snowball sampling technique (Saunders et al, 2009; Bryman & Bell, 2011). Furthermore, the survey was posted to numerous Facebook groups

related and unrelated to the topic (i.e., Foodtech, cooking, vegetarian and vegan groups) to secure a more heterogeneous sample as well as Facebook pages of Kødfri Mandag and Dansk Vegetarisk Forening (DVF). This approach to sampling by publicizing the survey on internet groups and websites that are likely to be seen by the population who can choose to participate in the study voluntarily is known as self-selection (Saunders et al, 2009).

The questionnaire was coded on SurveyXact tool and resulted in a **response rate of 23 %**, while non-response rate comprised 67 % and partially completed surveys accounted for just 10 %. Those who identified as not living in Denmark in Q1 and who agreed with the statement that they often eat stones in Q13 were filtered out, which resulted in a sample size of n=213. It was decided not to pay respect to the results of the second marker question "I love eating metal" due to the fact that a few respondents tried to contact me regarding this question considering it as a typo in a statement "I love eating meat", which resulted in 15 % respondent agreeing with the statement. As there were no other defects detected in their answers, those respondents were retained. Based on the data, 48 % of the respondents identified themselves as vegetarians, vegans and pescatarians in Q2, while just 23 % of meat eaters participated in the survey (Figure 1 in Appendix D). This ratio is out of the previously mentioned proportion for Danish population and this is most likely caused by non-response (Bryman & Bell, 2011) from meat eaters, which is also reflected in 70 % of all incomplete surveys coming from meat eaters. However, the share of almost 29 % flexitarians in the survey was representative to the population. This tendency could be explained by the deeper interest in the topic by those who completely or partially abstain from eating meat.

The data distribution is strongly skewed towards female respondents accounting for 77 % compared to 23 % of men, whereas in the Danish population the number of men and women is equal (Figure 2 in Appendix D). Thus, the sample *is not gender representative*. The sample *is not age representative* as well (Figure 3 in Appendix D) as there is a preponderance of 21-30 year olds (~55% vs 13,40 %) and 31-40 year olds (~25% vs 11,70%), while the percentage of 51-60 year olds is more than by twofold smaller (~5% vs 13,5%). In terms of the respondents' geographical location, a *significant preponderance of the respondents from the Capital region* is observed and just the region Zealand is close to being geographically representative (Figure 4 in Appendix D). In addition, there is a slight overweight of respondents living in urban areas, accounting for 96 %, compared to 88 %

in the population (Figure 5 in Appendix D), thus indicating that *it is not entirely representative*. Moreover, there is an overweight of the respondents with foreign citizenship, accounting for 57 %, which is considerably higher compared to just 9 % of foreign citizenship holders in Denmark's population (Figure 6 in Appendix D).

To conclude, the sample is not representative, which is often the case when non-probability sampling techniques are adopted, therefore, results obtained from this data cannot be generalized to the entire Denmark's population (Saunders et al, 2009; Bryman & Bell, 2011). Despite that, the data is suitable for statistical analysis, which is the focus of the following chapter.

4. Statistical analysis of the Results

4.1 Partial Least Squares Structural Equation Modelling

Structural Equation Modelling (SEM) approach was chosen for this thesis data analysis due to the following reasons. First, SEM is a new generation multivariate technique that enables simultaneous examination of the relationships between measured variables and latent variables as well as between latent variables, instead of immersion in separate analyses (Hair et al, 2014). Due to this study model's complexity manifested by 38 distinct latent constructs that are measured by 67 indicators or so called manifest variables, with numerous relationships among them, SEM was deemed to be the most suitable statistical method. Second, SEM combines aspects of factor analysis and regression, thereby allowing for testing the quality of the measurement scales of the latent constructs and examining multiple causal relationships between independent (exogenous) and dependent (endogenous) variables (Hair et al, 2014). As the newly developed Consumer Motivation Scale was employed in this study for the measurement of food consumption goals, SEM's potential to test this scale's characteristics was taken into account. Moreover, "*SEM provides a means of incorporating the multi-item scales in the analysis to account for measurement error associated with each of the* scales" (Hair et al, 2014a, p 20). In this study, consumption goals, WTB and WOM constructs are measured by multi-item scales. Finally, SEM enables to assess models in which "*a dependent variable becomes an independent variable in a subsequent dependence relationship*",

which is a rare property among statistical techniques (Hair et al, 2014a, p 542) and is essential in this study with food consumption goals playing a role of both dependent and independent constructs.

The decision to employ PLS-SEM over CB-SEM was grounded on the peculiarities of this study. First, this research is exploratory with the purpose of identifying key "driver" constructs, such as product attributes and consumption goals, to predict consumer behavior in the area of meat substitutes, and PLS-SEM is recommended to achieve such research goals (Hair et al, 2011). Second, PLS-SEM is capable of estimating very complex models and is without competition for the assessment of models with numerous path relationships between a large number of constructs measured by a vast array of indicator variables, which is the case of this study, given that minimum sample size requirements are met (Hair et al, 2014). Moreover, PLS-SEM is lesser strict toward a sample size. Even though there is no one strict rule for a sample size requirements for SEM application in research and this question is still debatable, sample sizes in the range of 100 to 400 are regarded to be sufficient for stable model estimations. Some studies suggest to aim at a sample size of 200 for a sound basis for estimation (Hair et al, 2014a), while Hair et al (2011) provide a rough guideline that a minimum sample size should be "*10 times bigger than the largest number of paths directed at a particular latent construct in the structural model*" (p 144). Based on the latter, this study should have 270 observations (27 antecedent variables pointing to any dependent variable), however, the sample size of 213 is regarded to be sufficient for the model assessment referring to the aforementioned recommendation of 200 observations. In addition, PLS-SEM can handle both reflective and formative measurement models and single-item constructs that are prevalent in this study, as well as produce high efficiency in parameter estimation due to greater statistical power compared to CB-SEM (Hair et al, 2014). Finally, PLS-SEM does not require data normality assumption to be met (Hair et al, 2011), which is an advantage in this study conducted by applying non-probability sampling.

SmartPLS 3 software was utilized for the model analysis. Before importing into the software, the data was examined in Excel for outliers, missing data, suspicious response patterns and straight lining (Hair et al, 2014), reversed scored items were recoded and the dataset was imported into SmartPLS program. Although PLS-SEM does not require the data to be normally distributed, it was important to verify whether the data is not extremely non-normal as it impedes the assessment of indicators'

significance (Hair et al, 2014). A general guideline is that an estimate should fall in the range from -1 to +1 to be considered normally distributed, whereas values below -1 or above +1 indicate non-normal data (Hair et al, 2014). Thus, the estimates of skewness and kurtosis were derived for 80 indicators revealing that responses for 41 indicators were normally distributed in terms of both skewness and kurtosis, while no indicator exhibited an extreme non-normality, except for the marker question, for which non-normal distribution was desirable (see Appendix E for a complete report).

A research model's evaluation applying PLS-SEM approach consists of a separate two-step process: assessment of the measurement (outer) models representing the relationships between constructs and their corresponding indicator variables, and evaluation of the structural (inner) model representing causal relationships between the constructs and allowing to portray them in a path diagram (Hair et al, 2014). Initially, the evaluation process focuses on assessing the quality of the measurement models in order to verify that the measures representing the constructs are both valid and reliable. Only if the measurement characteristics of constructs exhibit acceptable reliability and validity, structural model assessment follows, which allows for the evaluation of significance and size of causal relationships between the constructs (Hair et al, 2011).

4.2 Measurement Model assessment

Two types of measurement models are distinguished in SmartPLS, that is formative and reflective. While the former is comprised of indicators with each capturing a specific aspect of the corresponding construct's domain and thus jointly determining the meaning of the construct, the latter is comprised of indicators that altogether capture the conceptual domain of the construct and thus are similar to each other, highly correlated, interchangeable and form a scale (Hair et al, 2014). It is important to understand the type of indicators underlying each construct as evaluation criteria applicable to each type slightly differ. This study's model is solely composed of reflectively measured constructs, thus the same criteria presented in Table 1 below will be applied for the assessment of the measurement model.

A few types of reliability and validity are examined. Reliability denotes the degree to which the observed variable measures the "true" value and is reflected in the consistency of a measure across time periods and conditions, whereas validity indicates the extent to which a measure accurately represents what it is meant to represent. In this study, both validity and reliability are easily subjected to a measurement error that can be caused by, e.g., poorly formulated questions or misunderstanding of the scaling approach by respondents in a survey. Reliability is a necessary but not sufficient condition for validity (Hair et al, 2014; Hair et al, 2014a). Internal consistency reliability reveals whether several items claiming to measure the same construct are highly interrelated. The most commonly used measure for evaluation of internal consistency reliability is Cronbach's α that assumes that all indicators are equally reliable and thus generally tends to underestimate internal consistency reliability. However, as PLS-SEM takes into account indicators' individual reliability and thus differing outer loadings on the construct, composite reliability is considered to be a more appropriate measure. Indicator reliability shows that the indicators corresponding to the construct have much in common, which is manifested by high outer loadings on the construct. It is suggested to remove indicators with outer loadings between 0.4 and 0.7 from the scale if this removal leads to an increase in the composite reliability or average variance extracted (AVE) above the threshold. However, caution should be exercised not to affect content validity (Hair et al, 2014).

Further, convergent validity, which reflects how much a measure correlates positively with alternative measures of the same construct, should be assessed using AVE measure. Discriminant validity reveals whether a construct is unique compared to other constructs in the model (Hair et al, 2014). Traditional criteria for discriminant validity assessment, such as the Fornell-Larcker criterion and the examination of cross-loadings, have been criticized for not reliably detecting the lack of discriminant validity. Thus, Henseler and the authors (2015) recommend using the heterotrait-monotrait ratio of correlations (HTMT) measure, which is based on a comparison of the heterotrait-heteromethod correlations and the monotrait-heteromethod correlations.

Table 1. Evaluation criteria for the measurement model assessment

Criterion	Measure	Rule of thumb
Internal consistency reliability	Cronbach's α and composite reliability	α/composite reliability values ≥ 0.6 → acceptable in exploratory research 0.7 ≤α/composite reliability≤ 0.90 → good composite reliability > .90 not desirable
Indicator reliability	Standardized outer loadings	outer loadings ≥0.708
Convergent validity on the construct level	Average variance extracted (AVE)	AVE ≥0.50 (on average, the construct explains more than half of the variance of its indicators)
Discriminant validity 1	Cross-loadings of the indicators	Each indicator's outer loading on its associated construct > than its loadings on other constructs
Discriminant validity 2	Fornell-Larcker criterion	The square root of each construct's AVE > than its highest correlation with any other construct
Discriminant validity 3	Heterotrait-monotrait ratio (HTMT) HTMT confidence interval	HTMT ratio < 0.85 → for conservative threshold HTMT ratio < 0.90 → liberal threshold A confidence interval for HTMT should not contain value 1

Source: Author's own work based on criteria derived from Hair et al. (2014), Henseler et al. (2015)

In order to simplify the measurement model assessment, the process was divided into two stages: 1) assessment of the measurement model with goals and outcome variables included; 2) assessment of the measurement model with antecedent variables included.

4.2.1 Evaluation of the measurement model encompassing goal constructs and outcomes

The measurement model was created in SmartPLS, in which all food consumption goals as independent variables were linked to all dependent (outcome) variables, such as WTB, WOM and WTP. PLS-SEM algorithm was run using default settings (the path weighting scheme, 300 iterations, stop criterion (10^-X): 7) in SmartPLS that were used throughout the entire assessment process recommended by Hair et al. (2014). Default settings (500 subsamples, bias corrected and accelerated bootstrap, two-tailed test at 0.05 significance level) were also used for the bootstrapping procedure with the need to derive values for HTMT confidence intervals.

Results of the **first run of PLS algorithm** and bootstrapping revealed that most goal constructs, such as Ethic (ETH), Health, Safety (SAF), Stimulation (STIMUL), Social Acceptance (SoA) and Value for Money (VfM), as well as outcome constructs WTB and WOM exhibited internal consistency reliability, convergent validity and discriminant validity values above the desirable threshold (see Appendix F for the results of this step).

Table 2. Outer loadings below the threshold

	PL	QUAL	SAF	STIMUL	VfM
Pl_1	0.802				
Pl_2	**0.611**				
Pl_3	0.855				
Pl_4	**0.196**				
Qual_1		0.851			
Qual_2		0.921			
Qual_3		0.796			
Qual_4		**0.410**			
Saf_1			**0.534**		
Saf_2			0.803		
Saf_3			0.710		
Saf_4			0.955		
Stimul_1				0.805	
Stimul_2				0.730	
Stimul_3				**0.509**	
Stimul_4				0.780	
VfM_1					0.889
VfM_2					0.881
VfM_3					**0.626**
VfM_4					**0.700**

As WTP is a single-item construct, there is no meaning to examine its internal consistency reliability, indicator reliability and convergent validity. Although the indicators' Saf_1, Stimul_3, VfM_3 and VfM_4 loadings appeared below 0.708 threshold (Table 2), they were still retained in the model because it was necessary to address issues with the constructs Pleasure (PL) and Quality (QUAL). Pl_4 indicator exhibited extremely low loading of 0.196, while Qual_4 indicator's loading was 0.410. In addition, an AVE estimate for Pleasure construct did not meet the requirement (Table 3).

Table 3. Values of reliability and convergent validity measures before and after the removal

	Cronbach's α	Composite Reliability	AVE		Cronbach's α	Composite Reliability	AVE
ETH	0.937	0.955	0.841	ETH	0.937	0.955	0.841
HEALTH	0.838	0.888	0.666	HEALTH	0.838	0.888	0.666
PL	0.753	0.733	**0.447**	PL	0.727	0.843	**0.642**
QUAL	0.815	0.845	**0.593**	QUAL	0.831	0.896	**0.742**

Furthermore, the two aforementioned indicators exhibited cross-loadings with the Safety construct (Table 4), thus indicating potential issues with discriminant validity. Based on these results, it was decided to remove *Pl_4* ("*is delicious*") and *Qual_4* ("*meets my highest expectations*") from the model. It can be assumed that those two items were interpreted by respondents as too distant in terms of the meaning from the remaining items corresponding to those constructs. Moreover, qual_4 item could have been perceived as too vague and possible to interpret in many ways.

Table 4.Problematic cross-loadings

	PL	QUAL	SAF
Pl_1	0,802	0,507	0,281
Pl_2	0,611	0,356	0,29
Pl_3	0,855	0,325	0,167
Pl_4	**0,196**	0,335	**0,238**
Qual_1	0,36	0,851	0,556
Qual_2	0,435	0,921	0,51
Qual_3	0,332	0,796	0,464
Qual_4	0,292	**0,41**	**0,422**

Results from **the second PLS algorithm** and bootstrapping showed that removal of two indicators led to an increase in AVE scores for PL and QUAL constructs (Table 3). Even though most of the constructs demonstrated satisfactory reliability and validity (see Appendix G), two outer loadings for SAF and STIMUL constructs were still lower than suggested and even slightly decreased further (Table 5).

Table 5. Outer loadings below the threshold

	SAF	STIMUL	VfM
Saf_1	**0.532**		
Saf_2	0.804		
Saf_3	0.709		
Saf_4	0.956		
Stimul_1		0.806	
Stimul_2		0.729	
Stimul_3		**0.504**	
Stimul_4		0.781	
VfM_1			0.889
VfM_2			0.881
VfM_3			**0.626**
VfM_4			**0.7**

Moreover, stimul_3 indicator demonstrated a cross-loading with PL construct (Table 6) as its loading on STIMUL construct was less than 0.2 higher compared to its loading on PL construct (Hair et al, 2014). Thus, it was decided to remove two indicators *saf_1* ("*makes me feel safe*") and *stimul_3* ("*is not boring*") in an attempt to obtain higher estimates of composite reliability or AVE for both constructs. It was deemed that this removal should not affect content validity of both constructs as the remaining indicators capture the constructs.

Table 6. Cross-loadings

	PL	STIMUL
Stimul_1		0.806
Stimul_2		0.729
Stimul_3	0.335	0.504
Stimul_4		0.781

Two outer loadings for Value for Money construct still exhibited lower estimates but it was chosen to retain them not to impose threat on the content validity and also because all other estimates performed above desirable thresholds with AVE > 0.6.

Data from the **third PLS algorithm** and bootstrapping reported a significant increase in AVE estimates and slight increase in the composite reliability score for SAF and STIMUL constructs (Table 7), which proves that removal was beneficial. One could argue that the decreased value of Cronbach's α below 0.7 may signal internal consistency issues. However, as emphasized previously, Cronbach's α tends to underestimate the internal consistency reliability, thus, composite reliability is regarded to be a more accurate measure. Moreover, Cronbach's α values of ≥ 0.6 are acceptable in exploratory research. In terms of the remaining constructs, they all satisfied the requirements for internal consistency reliability, convergent and discriminant validity (see Appendix H). Also, no major cross-loadings were found between the indicators.

Table 7. Values of reliability and convergent validity measures before and after removal

	Cronbach's α	Composite Reliability	AVE	Cronbach's α new	Composite Reliability new	AVE new
SAF	0.790	0.845	**0.586**	0.794	**0.867**	**0.689**
STIMUL	0.721	0.803	**0.511**	0.670	**0.816**	**0.597**

Throughout the analysis it was observed that composite reliability score for the ETH construct is above 0.95 (Table 8), which is not desirable as it may indicate redundancy between indicator variables corresponding to that construct. Hair et al. (2014) recommend to delete some items or use a single-item construct instead. As the latter is not possible in this study because the Consumer Motivation

Table 8. Internal consistency reliability of Ethics construct

	Cronbach's α	Composite Reliability	AVE
ETH	0.937	**0.955**	0.841

Scale is being tested, the former approach was undertaken. One manifest variable was removed at a time to detect how it changed the composite reliability score for ETH construct and if it affected all the estimates for reliability and validity of other constructs. Removal of two indicators reduced outer loadings of SAF variable below the desirable threshold. The best solution was reached by removing ethics_3 indicator ("is consistent with my personal and moral obligations"), however, this action made just a very minor difference in a composite reliability value (0.941), so it was decided to leave the item in order to uphold the content validity of the construct.

4.2.2 Adding antecedent variables to the measurement model

In the next stage of the measurement model assessment, 27 product attributes as exogenous or independent variables were incorporated. Since all product attributes are single-item constructs, there was no meaning in examining their internal consistency reliability, indicator reliability and convergent validity, as the correlation between a single indicator and a single-item construct is always 1 (Hair et al, 2014). All antecedent variables met requirements for HTMT ratios with no values exceeding the conservative 0.85 threshold, as well as for HTMT confidence intervals, thus exhibiting discriminant validity. It was important to check though if estimates for other constructs have not been affected by the addition of antecedent variables to the measurement model. Almost all variables demonstrated satisfactory internal consistency reliability and convergent and discriminant validity,

except for the outer loadings for stimul_4 and VfM_4 indicators that were still slightly lower (Table 9).

Table 9. Outer loadings

	STIMUL	VfM
Stimul_1	0,821	
Stimul_2	0,838	
Stimul_4	0,655	
VfM_1		0,874
VfM_2		0,874
VfM_3		0,709
VfM_4		0,679

While stimul_4 *("offers novelty")* was retained in the model in order to have 3 items for the factor and because this item adds to the content validity of the STIMUL construct, *VfM_4 ("is not a waste of money")* was chosen to be removed in an attempt to purify the scale for this goal construct and potentially increase its reliability or AVE values. Moreover, the removal of the item was deemed to be not a big loss for the content validity of the measure.

A new PLS algorithm and bootstrapping procedure confirmed that the removal of VfM_4 led to an increase in both AVE and the composite reliability values (Table 10) as expected.

Table 10. Values of reliability and convergent validity measures before and after the removal of VfM_4

	Cronbach's α	Composite Reliability	AVE	Cronbach's α	Composite Reliability new	AVE new
VfM	0.796	0.867	0.623	0.802	0.882	0.715

Even though stimul_4 still maintained lower than the ideal value of 0.708, it was decided to retain it in the final model due to aforementioned reasons. The results confirmed reliability and validity of all the constructs in the measurement model (see Appendix I), which allowed to proceed with an assessment of the structural model. Due to a vast amount of data, tables with discriminant validity estimates were not added to this paper but I can assure that there were no cross-loadings between constructs, and all constructs met requirements for Fornell-Larcker, HTMT ratio and confidence interval measures. For a better reader's understanding, the final measurement model is depicted in Appendix J.

4.3 Structural Model assessment

This stage involves examining the model's predictive capabilities alongside the significance and the strength of the relationships between the constructs. Evaluation of the structural model consists of a few steps: 1) assessing the level of the determination coefficient R^2 adjusted; 2) assessing the

significance and relevance of path coefficients; 3) assessing the effect sizes f². All these steps are discussed in the following.

Initially, the model was tested for collinearity, which refers to a situation when two or more constructs are highly correlated. Significant levels of collinearity among the predictor (independent) constructs might threaten the estimation of path coefficients, as in a regular multiple regression (Hair et al, 2014). Inner VIF (variance inflation factor between the variables) values > 5 in SmartPLS are indicative of collinearity (Hair et al, 2011). The results show that all VIF values are considerably below 5 (see Appendix K), thus indicating no strong multicollinearity.

4.3.1 Assessment of R² adjusted

Coefficient of determination **R²** is the most commonly used measure revealing the model's predictive accuracy and representing the exogenous latent variables' combined effects on the endogenous latent variable. Its values range from 0 to 1 with higher values indicating higher levels of predictive accuracy (Hair et al, 2014). There is no exact rule of thumb for the estimates of R² as it depends on the model complexity and the research discipline. R² values of 0.20 are considered high in disciplines such as consumer behavior, whereas Hair et al. (2014) suggest that R² values of 0.75, 0.50 and 0.25 for endogenous latent variables are considered substantial, moderate or weak respectively in marketing research studies. Chin (1998) describes R² values of 0.67, 0.33, and 0.19 in PLS path models as substantial, moderate, and weak, respectively (as cited in Henseler et al, 2009). However, R² value is not always a good indicator of predictive accuracy due to its nature to increase in value when additional, even nonsignificant constructs are added to the model. Thus, as this study's model involves numerous predictor variables and thus multiple regressions, R² adjusted estimate is recommended instead as it is less biased toward complex models (Hair et al, 2014), and thus was chosen to be used in this study (see Appendix K for comparison of R² and R² adjusted).

Table 11. R ² adjusted values

	R ² Adjusted
ETH	0.512
SAF	0.394
VfM	0.381
HEALTH	0.357
WTP	0.304
WOM	0.281
QUAL	0.303
WTB	0.246
STIMUL	0.117
PL	0.095
SoA	0.023

The results show that the model moderately explains ethics, safety, value for money and health goals, and almost moderately explains quality goal as well as willingness to pay. The model's predictive power for word of mouth and willingness to buy is weak to moderate, whereas for stimulation, pleasure and social acceptance goals, it is weak. Thus, R² adjusted indicates rather moderate support of the model.

4.3.2 Assessment of the significance of path coefficients

Path coefficients represent the relationships among the constructs in the model and acquire values between -1 and +1 with those close to +1 representing strong positive relationships and strong negative for those close to -1, while path coefficients close to 0 imply weak relationships (Hair et al, 2014). The path coefficient represents the estimated change in the endogenous construct for a unit change in the exogenous construct. A standard error of each path coefficient determines its significance, which is obtained through bootstrapping routine providing with empirical t values, p values and bootstrapping confidence intervals. As these estimates lead to the same conclusion, p values will be reported here (Hair et al, 2014).

Results for the assessment of path coefficients were obtained by running a bootstrapping procedure with 500 samples and 5 % significance level for a two-tailed test. After the procedure was repeated with 5000 samples as recommended for confirmatory purposes (Hair et al, 2011; Hair et al, 2012), there were some changes in significant relationships found: "AnF -> SAF" and "GlutenF -> ETH" became nonsignificant, whereas "HEALTH -> WTP" and "LSod -> WOM" became significant. The results revealed that out of 320 path relationships just 28 were proved to be significant, which is reported in Table 12 below. Nonsignificant relationships are reported in Appendix K. It is important to note that path coefficients have an analogy with the standardized beta coefficients in an OLS regression (Hair et al, 2014).

Table 12. Significant path coefficients and f² effect size

Relationship between the variables	Path Coefficient	p value	f²	Effect size
AddPres -> STIMUL	-0.288	**0.014**	0.034	small effect
AddPres -> VfM	0.199	**0.043**	0.023	small effect
AminoA -> SAF	0.171	**0.037**	0.025	small effect
AnIngrd -> ETH	0.273	**0.001**	0.078	small effect
Avail -> SoA	-0.197	**0.039**	0.032	small effect
EFPrep -> PL	0.181	**0.026**	0.031	small effect
EnvF -> ETH	0.299	**0.001**	0.103	small effect
GlutenF -> STIMUL	0.171	**0.036**	0.023	small effect
GlutenF -> SoA	0.209	**0.009**	0.030	small effect
LSod -> SAF	0.165	**0.029**	0.024	small effect
NatIngr -> QUAL	0.257	**0.031**	0.037	small effect
Price -> QUAL	-0.244	**0.002**	0.059	small effect
Price -> SAF	-0.143	**0.041**	0.024	small effect
Price -> VfM	0.541	**0.000**	0.329	large effect
SuF -> HEALTH	0.197	**0.022**	0.035	small effect
SuF -> PL	0.218	**0.018**	0.030	small effect
SuF -> QUAL	0.277	**0.001**	0.063	small effect
VitMin -> HEALTH	0.220	**0.024**	0.032	small effect
AddPres -> WTP	-0.218	**0.036**	0.024	small effect
AnF -> WOM	0.215	**0.033**	0.031	small effect
Avail -> WOM	0.237	**0.007**	0.060	small effect
Avail -> WTB	0.340	**0.000**	0.118	medium effect
FS -> WOM	-0.153	**0.049**	0.028	small effect
LSod -> WOM	0.186	**0.050**	0.026	small effect
Price -> WTB	-0.224	**0.022**	0.033	small effect
Price -> WTP	-0.352	**0.001**	0.087	small effect
SuF -> WOM	-0.189	**0.043**	0.027	small effect
HEALTH -> WTP	0.174	**0.050**	0.023	small effect

*Note: p values in **green** = statistically significant at 0.05, in **red** = statistically significant at 0.01*

4.3.3 Assessment of the effect sizes f²

Significance of path coefficients does not denote their relevance, as the size may be so small that they do not justify managerial attention (Hair et al, 2014). F² effect size allows to assess whether a particular exogenous variable has a substantial relative impact on a respective endogenous variable, thereby enabling to see whether significant effects are also meaningful effects (Hair et al, 2012).

Cohen (1988) suggests that f² values of 0.02, 0.15 and 0.35 indicate small, medium and large effects respectively (as cited in Hair et al, 2014). F² effect sizes for significant path relationships are presented in Table 12 above.

Figure 3. Final structural model incorporating just significant paths

*Source: Author's work constructed in SmartPLS and Powerpoint (for a bigger picture see **Appendix L**)*

5. Discussion

This chapter aims at discussing the key findings derived from the statistical analysis of the results with the purpose of answering the study's research questions. The discussion is divided into two subsections based on the research questions with the first subsection devoted to the first research question and the second subsection allotted to the second research question. This is followed by the section devoted to the discussion of implications of the study's findings for 1) practitioners and 2) researchers. Finally, the chapter concludes with the sections on the limitations of this paper and suggested directions for future research, as well as concluding remarks.

5.1 Discussion of the research questions

Before engaging in a discussion on the research questions, it is important to note that the results from the structural model analysis indicate that 14 out of the 27 product attributes exhibited significant influence on the study's food consumption goals. The biggest unexpected tendency observed is that none of the sensory attributes, such as meaty taste, texture, appearance and smell, as well as some nutritional attributes, such as "high protein content", "high in iron" and "vitamin B complex" did not exhibit significant relationships with any of the food consumption goals and behavioral outcomes, even though they were expected to be important. With regards to sensory attributes, even though some studies have proven the significance of meat-like sensory characteristics for the acceptance of meat substitutes (Elzerman et al, 2013; Hoek et al, 2011) and even found that consumers link meaty taste and texture with pleasant experience benefit deriving from the consumption of meat substitutes (Apostolidis & McLeya, 2016a), such findings were not replicated in this study. One of the possible explanations of this phenomena could be that the respondents of this study who place importance on meaty sensory attributes of meat substitutes, are driven by another goal in food purchasing that was not incorporated in this study. On the other hand, some people may prefer not meaty properties of meat substitutes due to developed aversion towards meat, which is common to vegetarians and in line with Rothgerber, 2015 (as cited in Apostolidis & McLeya, 2016a). As vegetarians, vegans, pescatarians and meat reducers comprised the largest proportion of the respondents in this study, it is possible that some of them prefer neutral sensory attributes, corroborating Elzerman et al (2013), which is linked to some other goal.

With regards to nutritional attributes, "vitamin B complex" and "high in iron" could have been perceived as a part of "high in vitamins and minerals" attribute, which exhibited a relevant connection. Even though protein is one of the most valuable characteristic in meat due to its high biological value (Pereira & Vicente, 2013), it is possible that this attribute might predict another food consumption goal, such as weight control or body image, as an example, that were not a part of this study.

5.1.1 Relationships between product attributes and food consumption goals

The first research question aims at identifying the most essential relationships between product attributes considered to be important for meat substitutes by existing or potential consumers, and consumers' food consumption goals. These results are ought to shed light on which product attributes should be inherent in meat substitutes due to their capacity to affect food consumption goals and thereby holding potential to satisfy those goals consumers seek through food purchasing, given that those attributes are salient and noticed by consumers. As established in the previous chapters, attributes in the form of visual cues are more appealing to consumers if they signal the attainment of consumers' goals, which increases purchasing chances of that product. Hence, one of the objectives of this paper was to explore which product attributes have the biggest influence on consumers' food consumption goals not only to determine the most relevant attributes but also connect those attributes with corresponding goals for effective positioning of meat substitutes.

As most of the significant relationships have displayed small size effect on dependent variables, that is food consumption goals (except for one relationship which will be mentioned later), thereby indicating similar relative impact of product attributes on the respective goals, the discussion will start with those product attributes that exhibited the biggest number of significant connections with food consumption goals and thereby indicating a special role that those attributes play. The practical application of those relationships will be highlighted in the implications section.

To begin with, the importance of price as a product attribute proved to have a significant effect on quality, safety and "value for money" goals. Thus, the greater extent to which consumers prefer meat substitutes that are not more expensive than a meat counterpart product, the greater importance they place on "value for money" (.541), and the lesser they are driven by quality (-.244) and safety (-.143) goals in their food purchasing situations. It is worth mentioning that the effect of price attribute on "value for money" goal is profound as it is the only one relationship in this study exhibiting a large effect of the independent variable on the dependent variable, pointing to a special role of the price attribute. Consumers who place importance on the same or lower meat substitutes' price compared to similar meat products are likely to be cautious of their budget and thereby choose products that they perceive as "reasonably priced", "not too expensive" and "offering value for money". This is corroborated by Apostolidis & McLeay (2016a) who revealed that meat eaters and meat reducers

(who comprise over 50 % of the respondents in this study) consider the price of meat substitutes higher, and thus putting strain on their food budget and financial security. The price and quality relationship has been further explored in research. Many experimental studies proved price to be one of several useful extrinsic indicators of quality (Zeithaml, 1988) and that price has a significant effect on perceived quality of a product (Iop et al, 2006) and higher prices should positively affect product evaluations and purchase probabilities (Mitra, A., 1995). However, Barbopoulos & Johansson (2017a) argue that for price conscious consumers the increased cost may lower the perceived net value of a product as they might value functional value of a product more. MacFie (2007) adds that such consumers could be considered "uninvolved" as they perceive fewer differences between products and are more sensitive to price differences. Hence, consumers who place importance on lower prices of meat substitutes are more price sensitive, referring to "value for money" goal and do not look for high quality in food products. Similar analogy could be applied to price and safety relationship. Safety could be reflected through numerous product attributes in consumers' minds, such as fewer or natural ingredients, absence of allergens, additives and preservatives, and could even extend to nutritional content of the product, which draws similarity between safety, health and wellness (Ringquist et al, 2015). It can be argued that people who really value safety are concerned with how food is produced and handled (MacFie, 2007), referring to the aforementioned product attributes, and should be more willing to pay a higher price for such products. Based on this rationale, it can also be assumed that people who value a lower price of meat substitutes, are not driven by safety goal in their food purchasing, and most likely they do not expect any advanced product attributes such as e.g., those reflecting safety.

"Sugar-free" is another product attribute which exhibited three significant connections with food consumption goals. The results indicate that the more consumers prefer meat-substitutes without sugar, the higher importance they place on quality (.277), pleasure (.218) and health (.197) in their food purchasing. A possible explanation of the relationship between sugar-free attribute and quality goal may stem from the fact that simple sugars still play an important role in the production of meat substitutes in order to emulate flavor similar to meat (Kumar et al, 2017), and based on my knowledge, many meat substitutes in the market contain sugar. As people may associate meat substitutes with meat category foods, it is possible they expect such products to be free from sugar.

In addition, as some brands manage to produce meat substitutes without sugar, such products could be perceived as of higher quality by those who base their food shopping decisions on quality. Furthermore, the importance of sugar coincides with the increased spotlight it has been receiving due to associated health risks (Forbes et al, 2015), which is translated to consumers' preferences for "low sugar" or "sugar-free" claims on products' packages (Ringquist et al, 2015) and pushes manufacturers to reduce or eliminate sugar from products (Nielsen, 2015). Hence, it seems rational that people placing importance on sugar-free meat attributes, are also driven by health goal whilst purchasing their food. The "sugar-free" and pleasure relationship is not so clear-cut but one potential explanation could be related to consumers associating sugar-free products with diet or losing weight. Such consumers may derive pleasure from consuming sugar-free products in their own way as those products may help them achieve other goals such as for example losing weight and these may be associated with pleasure in their minds.

Product attribute "no artificial additives and preservatives" was found to significantly affect stimulation and "value for money" consumption goals. The more consumers prefer meat substitutes without artificial additives and preservatives, the lesser importance they place on a stimulation goal (-.288) and the more importance on "value for money" goal (.199) in their food purchasing. One conceivable explanation of the former relationship may lie in the role additives and preservatives play in meat substitute production. Starches, maltodextrins, carbohydrate gums and other ingredients are still widely used as texture modifying agents in low fat products, and meat substitutes are not an exception (Kumar et al, 2017). Incorporation of such ingredients facilitate the development of meat-like or other appealing sensory properties in meat substitutes, thereby creating unique and new experiences, a sense of novelty and interest for some consumers, which was also corroborated by Apostolidis & McLeya (2016a) findings reporting that meat eaters appreciated unconventional but nice taste of Quorn meat substitutes. These experiences could be sought and such products could be bought by those who are driven by the stimulation goal. Based on this rationale, consumers placing value on meat substitutes without additives, are not guided by interest, novelty and unique experiences in food. Instead, such consumers seek for reasonably priced and not too expensive foods offering them in return value for money they spend. One possible explanation could be that such consumers perceive foods with additives and preservatives as more expensive to make due to many

additional components and processing required. Also, they might compare meat substitutes with meat which they perceive as a natural product without any preservatives given that they are ignorant of potential presence of hormones and antibiotics, and knowing that such natural meat can be bought at a reasonable price, they might associate additives as inflating the price of substitutes unnecessarily.

"Gluten-free" product attribute was also found to significantly influence two consumption goals – stimulation and social acceptance. The greater extent to which consumers desire meat substitutes without gluten, the greater importance they place on social acceptance (.209), and the more they seek stimulation (.171). There is no straightforward explanation of such results. It is known that wheat gluten is used in meat substitutes for binding, improvement of sensory qualities and for its many functional properties (Kumar et a, 2017). Over the last decades, food intolerance and allergy issues have attracted more attention with wheat gluten appearing among the most common foods associated with food allergies and sensitivities (Sadler, 2004). There are a growing number of people in the world (including Danes) diagnosed with gluten intolerance (Passport, 2018), which has generated a gluten-free movement, led mainly by Generation Z and Millennials resulting in a growing demand for gluten-free products and claims (Nielsen, 2015). Anecdotal evidence shows that some eschew gluten products due to beliefs that it will benefit their health, or because someone in the household is gluten-sensitive, or simply due to this new fashionable trend in healthy eating. This is supported by Ruby and Heine (2012) who claim that sometimes food choices of family and friends may drown personal preferences due to people's willingness to fit in with those close to them (Apostolidis & McLeay, 2016a). As more than 75 % of this study's respondents are representatives of the aforementioned generations, and as people like to adopt novel popular trends in eating, it can be argued that based on this rationale people in the sample who prefer meat substitutes without gluten are also motivated by social acceptance in their food choice, as well as stimulation, as gluten-free products are usually interesting, novel and offering unconventional taste. However, these assumptions need to be tested and these relationships need to be further explored.

It is not unexpected that some product attributes were found to significantly influence ethics goal in the context of this study. The results indicate that the greater extent to which consumers prefer meat substitutes without animal ingredients and friendly to the environment, the higher importance they place on selecting food products that are in alignment with their moral obligations, values and

ethical principles (.273 and 0.299 respectively). People may have different understanding and interpretations of what is "ethical" and "moral", which affects their consumption choices. In this study, ethics goal did not have any reference to a specific type of ethics, such as animal, human or environmental, so, it can be assumed that the respondents attached their own meaning to it. Nevertheless, as about 70 % of the respondents in this study ascribe themselves to be vegetarians, vegans or flexitarians, and their main motivations to adopt such diets are likely to be related to animal or environmental ethics and personal health or a mix of these (Janssen et al, 2016; Ruby, 2012; Apostolidis & McLeay, 2016a), it seems rational to believe they would look for food products consistent with their motives. Some meat substitutes add dairy for improved taste, or egg albumen, which advances binding, sensory experience and enhances protein content (Kumar et al, 2017) implying that animal ingredients are being used. Such meat substitutes would not appeal to vegans, who are primarily driven by animal welfare motives (Janssen et al, 2016). Hence, it can be argued that consumers who prioritize meat substitutes without animal ingredients, are also driven by ethics related to animal welfare. On the other hand, environmental friendliness is important for environmentally conscious consumers (Maehle et al, 2015). Environmental friendliness can be interpreted in many ways by consumers, reminding of credence attributes previously described in this paper, especially in the absence of clear labelling. However, research shows that the most environmentally friendly meat substitutes are fully plant-based, demonstrating the lowest carbon footprint and land used per kilogram of protein and per kilogram of product (Nijdam et al, 2012). Peattie (1995) argued that consumers' expressed preference for environmentally improved products is a sign of their moral views influencing their buying decisions (as cited in MacFie, 2007). Following this rationale, the finding that consumers preferring environmentally friendly meat substitutes are also driven by ethics goal with the reference to the environment in their food purchasing is logical.

Two product attributes - "low in sodium" and "essential amino acids", were found to affect safety goal. The stronger importance consumers place on meat substitutes containing all essential amino acids (.171) and having low salt content (.165), the more they are driven by safety goal whilst purchasing their food. One potential explanation of the former relationship may lie in those consumers' understanding of amino acids and what benefits they associate it with. It is known that meat proteins are rich in all essential amino acids that cannot be produced by human bodies, and

deficiency of these can lead to malnutrition (Pereira & Vicente, 2013). Only a few vegetarian foods offer complete protein (all essential amino acids), so people abstaining from meat should combine various foods to receive these nutrients, or demand products containing the essential amino acids. It is likely that consumers associate amino acids with their safety in a way that the shortage of amino acids might cause risk to their physical safety and security. Hence, it seems to be rational that consumers preferring all essential amino acids to be present in meat substitutes, are also concerned about their safety in food purchasing. Yet, this connection needs further research to be better explained. A possible explanation for the second relationship may lie in the fact that consumers worldwide are seeking "low or reduced sodium" claims on product packages and relate this information to health and wellness, which may be also associated with safety in consumers' minds (Ringquist et al, 2015; Nielsen, 2015). Consumers' demand for low salt products reveal that salt is not perceived as a harmless and safe component. Thus, it is realistic to argue that consumers choosing "low in sodium" attribute in meat substitutes also try to avoid risk to their physical wellbeing through harmful ingredients in their food.

One more nutritional product attribute "high in vitamins and minerals" exhibited an effect on the health goal, implying that the greater extent to which consumers prefer meat substitutes with many vitamins and minerals, the greater importance they place on health goal (.220) in their food choice decisions. Maehle et al (2015) proved that health-related attributes are much more important for health-conscious consumers compared to others in food purchasing situations, and vitamins and minerals is a nutritional attribute having health benefits. As it was previously established, one of the motives to eschew or reduce meat consumption is personal health. Meat is known for its richness in vitamins and minerals, such as B complex, vitamin A, folic acid, zinc, selenium, phosphorus, iron to name a few that are vital for human health (Pereira & Vicente, 2013), thus it would make sense for consumers to expect a wide variety of these nutrients in products that are to substitute meat, especially if they perceive meat and meat substitute product categories as similar.

Findings reveal that product attribute "made from natural ingredients" has a significant effect on the quality goal. Therefore, the higher importance consumers place on natural ingredients in meat substitutes, the more they are concerned with quality (.257) of the food they purchase. Research reveals that consumers' acceptance of food products depends on perceived naturalness (Hartmann &

Siegrist, 2017), which is manifested by consumers' demand for minimally processed, organic products free from preservatives and toxins and made from natural ingredients (Kraus, 2015; Dowd & Burke, 2013; Ringquist et al, 2015). This trend denotes an increasing importance that consumers attach to food production process, which is argued to have become a dimension of quality (MacFie, 2007) alongside price. Kumar et al (2017) claim that the demand of minimally processed meat substitutes is higher than for processed one, and it is possible that processed substitutes have an association in consumers' minds with unnatural ingredients and unnaturalness of such products. As meat substitutes are to replace meat, which may be perceived as a natural product, it is likely that consumers require similar qualities. Perceived unnaturalness of meat substitutes is one of the barriers towards their acceptance (Hartmann & Siegrist, 2017). Based on these arguments, it is possible that consumers who value meat substitutes made from natural ingredients, are also looking for well-made products of high quality. However, as there were more production-related attributes included in this study (i.e. organic) that could be potentially linked to the quality goal, but just "natural ingredients" exhibited a significant affect, further research is needed to understand this relationship.

The results revealed that consumers who prefer meat substitutes that are "easy and fast to prepare", are searching for pleasant, enjoyable and gratifying experiences with food (.181). "Easy and fast to prepare" refers to convenience which is increasing in importance to consumers because they want to save time and energy in all stages of food preparation process (MacFie, 2007). It can be argued though that consumers who avoid spending much time and exerting effort in food preparation derive pleasure from having fast and easy preparation of a meal, which can be the case with some types of meat, such as mince, chicken fillet among others. Thus, it makes sense that consumers valuing fast and easy to prepare meat substitutes are also driven by pleasure in their food choices.

The last significant relationship was found between availability and social acceptance. That is, the more consumers value wide availability of meat substitutes in the shops and supermarkets, the lesser importance they place on social acceptance whilst purchasing their food (-.197). The explanation is not clear-cut. It has been shown that "convenience lovers" value availability as a product attribute (Brečić et al, 2017), so, one explanation could be that those consumers who expect meat substitutes to be widely available, are convenience or comfort driven in their food choices, which was not incorporated among other goals in this study. Another possible explanation may lie in

the fact that the vast majority of the respondents comprised of vegetarians, vegans, pescatarians and flexitarians, i.e., those who choose to abstain or reduce meat eating due to their strong beliefs. Often such people have friends and family members who are meat eaters. Thus, the acceptance of their meat-related behavior by their friends or close people is usually not necessary, and their chosen eating style may even help them to build or express their self-identity as distinct from others. Even though wide availability of meat substitutes may be preferred by them, social acceptance in a way it is measured in this study may be not even desirable. Nevertheless, this finding too requires further investigation.

5.1.2 Predictors of positive behavioral intentions toward meat substitutes

The second research question attempts to find out what product attributes and food consumption goals are relatively more important to predict consumers' willingness to buy, willingness to pay and positive word-of-mouth intentions toward meat substitutes.

A few interesting insights can be drawn from the findings. First and foremost, health goal is the only goal that predicts consumers' willingness to pay a price premium for meat substitutes. That is, the greater extent to which consumers are guided by the health goal in their food shopping activities, the more willing they are to pay a higher price premium for a meat substitute product (.174). It is an interesting finding given that other goals, such as pleasure, stimulation or ethics were not found as predictors of any behavioral intentions. A handful of studies report that personal health motive is the main or one of the main reasons for adopting a vegetarian (Mullee et al, 2017; Ruby, 2012), or vegan diet (Janssen et al, 2016) or for reducing meat consumption (Apostolidis & McLeay, 2016a). A study carried out by Apostolidis & McLeay (2016a) corroborates the findings of previous studies by proving the importance of health motivation for the majority of respondents irrespective of their eating style.

Health-consciousness seems to be becoming a key determinant of food purchase behavior (Memery et al, 2015) and it seems to apply to meat substitutes as well. Market research shows that meat eaters are becoming interested in incorporating meat substitutes in their diets due to health-related benefits those products provide (Apostolidis & McLeay, 2016a). Similarly, one of the reasons of interest in meat substitutes in the U.S. is health and nutritional benefits, whereas soya-based food products in the UK have experienced recent growth among health-conscious consumers (Kumar et

al, 2017). Research shows that plant proteins are capable of reducing the intake of saturated fat and cholesterol, providing numerous nutrients desirable in the diet. They are also rich in active components (i.e. phytosterols, isoflavones) that have been reported to increase LDL-cholesterol oxidation and have beneficial effects on lowering blood pressure. Besides, vegetarian food is digested easier compared to a non-vegetarian food (Kumar et al, 2017). It is possible that consumers, especially health-conscious or health-driven, are becoming aware of these benefits of plant-based proteins and perceive meat substitutes as a healthy choice for which they are ready to pay more. It is not always the case that consumers are willing to pay more for healthier products or health claims but as the report prepared by Nielsen (2015) shows, younger consumers express higher willingness to pay for healthier products. As the sample of this study consists of more than 70 % of consumers under the age of 35, it is also possible that this finding was influenced by the specificity of the sample.

The fact that the health goal has been found to be the only food consumption goal predicting the behavioral intention of willingness to pay a price premium for meat substitutes in this study, indicates that these consumers are guided more by individual self-interest to gain something for themselves than by altruistic interests.

Shifting attention to product attributes, results demonstrate that the more consumers prefer meat substitutes that are not more expensive than meat counterpart products, the lesser they are willing to pay a price premium for those substitutes (-.352) and the lesser they are willing to buy (-.224). The first relationship is self-explanatory because consumers who prefer meat substitutes of the same or lower price compared to meat products are not willing to pay anything more for a meat substitute compared to a meat counterpart product. The explanation for the second price relationship is less clear. Researchers suggest that perceived higher cost of meat substitutes compared to meat is an impediment to consumption of meat substitutes, as meat is generally less expensive than meat substitutes (Apostolidis & McLeay, 2016a; Elzerman et al, 2013; Hoek et al, 2011). Hence, consumers who are not willing to pay for meat substitutes more than for meat products, are not willing to buy meat substitutes because of their rooted perception that meat substitutes cost more. Even though vegans or vegetarians in the sample are less likely to compare the price with meat products, it is reasonable that they compare meat substitutes with other foods they can get the necessary nutrition from.

Moreover, it was also found that the greater extent to which consumers prefer meat substitutes that are widely available, the more they are willing to buy such meat substitutes (.340) and the more they are willing to spread a positive message and recommend meat substitutes (.237). Restricted availability of meat substitutes is mentioned as another barrier to their acceptance in some studies (Elzerman et al, 2013; Hoek et al, 2011). Wide availability implies saving time and energy for consumers in planning and shopping for food (MacFie, 2007). This is supported by a study by Apostolidis & McLeay (2016a) where wide availability of Quorn meat substitutes in the UK was benefiting consumers by fitting with their lifestyles. It makes sense that consumers chose availability as an essential attribute that meat substitutes should provide in order to be bought, hence, such consumers will be more willing to buy more accessible meat substitutes. Since availability has a medium effect on WTB compared to other attributes, it deserves more attention from practitioners. Furthermore, if consumers value availability of meat substitutes, it is possible that they will feel satisfied with meat substitutes that give them an effortless shopping experience. As satisfied customers engage in positive WOM (Anderson, 1998), it is rational that such consumers will be willing to speak favorably and recommend meat substitutes to other people. Besides, availability could also be a sign of a product being accepted, safe or likeable by others, which could make it easier to recommend such a product to others. However, this explanation requires further research to be supported.

Further, the results demonstrate that the more consumers prefer meat substitutes without artificial additives and preservatives, the less willing they are to pay a higher price premium for meat substitutes (-.218). This result may hold similarity to this attribute's connection with the "value for money" goal discussed in the previous subsection. First, consumers who value absence of additives in meat substitutes, may perceive existing meat substitutes as an artificial product with unnecessary add-ons, which reduces their willingness to pay any additional money for such products. Secondly, they may compare meat substitutes with meat category products or other vegetarian products, and if these are perceived as natural, consumers are likely to not find any meaning in paying a price premium for meat substitutes with additives that are undesirable to consumers. Yet, additional research is needed to support the above explanations better.

The findings also suggest that the greater extent to which consumers prefer animal-friendly meat substitutes, the more they are willing to generate positive word-of-mouth about meat substitutes (.215). This result could be explained taking into account people's motivations to adopt vegetarian, vegan or flexitarian diets, as emphasized previously. Animal welfare has been found to be one of the main motives behind a meat-free or meat-reduced diet. Research also shows that people driven by altruistic motives (Janssen et al, 2016) to support animal welfare are loud and passionate in advocating for the cause they believe in (Neo, 2016). Thus, there is a high likelihood that they will be more willing to "advertise" meat substitutes by spreading positive message about such products and trying to inform or convince others about the benefits of meat substitutes.

The results also show that the greater extent to which consumers prefer low in sodium meat substitutes, the more they are willing to generate positive word-of-mouth about meat substitutes (.186). A potential explanation for this result may derive from the previously discussed finding that preference for low-sodium meat substitutes affects the safety goal. If salt is perceived as harmful and unsafe, low-sodium meat substitutes are likely to make consumers more satisfied and thus motivate them to speak favorably and recommend such products to others as safe.

Finally, the findings indicate that the more consumers care about the fat source used in meat substitutes and sugar-free nature of these products, the less willing they are to generate positive word-of-mouth about meat substitutes (-.153 and -.189 respectively). As these findings are difficult to explain, they will be left for future research together with the unclear discovery about why some attributes affect just WTB, WTP or WOM in particular but not all of these positive behavioral intentions together.

It is worth emphasizing that the attributes that exhibited significant relationships with food consumption goals or outcomes are either nutritional (4), or production-related (5), or convenience- and affordability-related (3), or ethical (2). Also, only the health goal was found as a predictor of a positive behavioral intention. Neither performance, nor sensory attributes were found to be important in this study, which warrants attention from businesses operating in the meat substitutes industry.

Price, convenience-related and sensory attributes have been considered as traditional drivers across studies on food choice (Forbes et al, 2015; Mai & Hoffmann, 2012) and have also been

emphasized as sufficient to convince consumers to abandon meat (Neo, 2016). However, this study informs that even though price and availability remain among the most essential attributes to predict WTP, WTB and WOM, these attributes are not the sole influencers of consumer behavior (Iop et al, 2006). The study reveals that production-related and nutritional product attributes also play a significant role in consumer behavior towards meat substitutes, which is in line with other studies emphasizing the importance production-related, safety, convenience and nutritional aspects of food products in food purchase decisions (Martínez-Ruiz & Gómez-Cantó, 2016; Iop et al, 2006) and studies confirming the growing relevance of new "evolving drivers" related to health, wellness and safety in food choice (Ringquist et al, 2015). Moreover, this study confirms the growing importance of ethical product attributes in consumer behavior as emphasized throughout this study.

5.2 Implications

5.2.1 Implications for companies operating in meat substitute industry

The findings of this study have a number of important implications for organizations and businesses functioning in the industry of meat substitutes. Before outlining the implications, it is relevant to remind the reader of the connection between product attributes and consumer goals in a food choice situation as it is directly related to implications for marketing or positioning meat substitutes. As established in this study, consumers buy products in order to satisfy their goals, and product attributes serve as a means for consumers to attain their goals. Food shopping is usually a low-involvement activity as consumers are not willing to spend a lot of their time, energy and effort on it. Thus, producers should ensure that their products effectively inform consumers about their ability to satisfy consumers goals. This could be achieved by designing a salient visual cue on a product's package to attract consumers' attention and inform about the benefits derived from those products. As such a cue primes or activates consumers' goals, the tension forces consumer to find feasible means to satisfy those goals. Hence, for meat substitutes to be appealing and noticed by consumers, it is crucial, first of all, to incorporate relevant attributes into the products, and, secondly, to present those attributes in a way that connects them with consumers' goals. This would facilitate

the consumer-decision making process and increase chances of a purchase. Thus, it is important to pay attention not only to the attributes but also to how meat substitutes are marketed and positioned.

The most frequently encountered claims on meat substitute packages include "low fat", "high in protein", "low calories", "high in fibre", "vegetarian", "vegan", "meatless", "plant-based", "organic", "lactose-free" or "gluten-free". Such claims may not be sufficient to inform consumers about the benefits that they seek in their food purchase. As such, consumers may still experience a lack of information on the packages and this is a barrier towards the purchase of meat substitute as emphasized by Elzerman et al (2013). Based on the above and the findings of this study, the implications for the companies producing meat substitutes are the following.

First, producers of meat substitutes should incorporate product attributes that have been found to be linked with food consumption goals and could be of special interest to consumers driven by those goals in food purchasing. For this purpose, the needs of consumers should be communicated and specified to product development teams and translated into technical properties to R&D people for assessing if such product concepts are realistic to be produced. The incorporation of attributes that are missing in meat substitutes currently existing in the market may result in new products and open avenues for such producers to differentiate themselves from the competitors as well as more successfully compete for market share of the meat industry. For example, if meat substitute producers find resources to manufacture meat substitutes without any artificial additives or preservatives, low in sodium and containing all essential amino acids and many vitamins and minerals, it may enable them to compete with processed meat foods that are known to have rather high sodium content as well as many additives. It may also enable them to compete with 'natural' meat products as they could then be perceived as more safe and in addition they are more environment and animal friendly. This path may require meat substitute producers to strengthen their R&D capacities by spanning across firms' boundaries, engaging in strategic partnerships with research institutions or getting new experts of food technology and scientists onboard.

The findings also provide with the guidelines for the positioning of meat substitutes. Marketing or brand managers could consider positioning their products based on the attributes inherent in their products, and linkages between those product attributes and the consumer goals in food purchasing situations. Meat substitute producers should carefully evaluate what characteristics are inherent in

their products and what other characteristics important to consumers could be obtained, as well as decide what consumers they would like to appeal to and how they would like to be perceived. Answers to the questions similar to "how competing brands are positioned?", "how meat products are positioned?", "do our products have characteristics that differentiate us from other producers?", "do we want to go mainstream or serve a niche market?", "do we want to attract quality-driven, ethics-driven, pleasure or stimulation seeking consumers or a mix of those?" may help in choosing a direction.

Based on the results of this study, two approaches could be employed for product positioning: 1) emphasize one or a few product attributes that can prime a few food consumption goals simultaneously; 2) emphasize one or a few product attributes that prime just one goal. The first approach is beneficial for companies that produce meat substitutes with those special product attributes affecting a few goals, thereby enabling such companies to target consumers having different goals with one product. It can be argued that such attributes could be of a golden value for the producers because, as discussed in this paper, people are interested in means that could satisfy a few goals at the same time thereby maximizing their goal attainment. According to the results, producers with sugar-free or gluten-free meat substitutes should exploit this advantage and connect these attributes with cues inferring health, quality and pleasure goals for sugar-free products and with cues priming social acceptance and stimulation goals for gluten-free products. The second approach is valuable for companies targeting consumers driven by a specific goal, i.e., health, ethics, quality. For instance, producers could prime safety goal in safety-driven consumers by emphasizing essential amino acids (complete protein) as well as low-sodium attributes with a reference to safety. In this case, price for such substitutes could be a little higher than for meat counterpart products because such consumers are not price-sensitive. Similarly, brands producing meat substitutes that are sugar-free and high in vitamins and minerals should exploit these attributes to prime the health goal in consumers searching for health in their food choice. Correspondingly, sugar-free meat substitutes made from natural ingredients should be positioned for consumers who place importance on quality in shopping for food. As lower price for meat substitutes is negatively linked to higher importance set for quality, higher price is likely to attract attention from consumers who are quality conscious, therefore, producers could set higher prices for these types of meat substitutes.

Furthermore, the results aid in generating effective labels and claims aligned with the corresponding goals, which assists positioning, tackles the previously emphasized issue of the lack of information on meat substitutes' packages and is likely to facilitate consumers' decision-making process by activating attribute-goal linkages in consumers' minds. Nielsen report (2015) confirms the value of claims added to food products provided that the benefits products yield resonate with consumers. Considering the results, producers who are ready to appeal to health and safety-driven consumers, are recommended to add on a respective product's package "low-in sodium", "all essential amino acids", "sugar-free", "high in vitamins and minerals" with a short visible claim, similar to "*safe and good for your body*". Similarly, if a product contains additives and preservatives but is gluten-free, these attributes should be highlighted on the package with a statement referring to the stimulation goal, such as "*indulge in a unique and new experience*", and so forth. Even though claims such as "vegetarian" or "vegan" were not investigated in this study, it is deemed that highly vegetarian or vegan-focused advertising strategies could be repulsive to some consumers and may deter meat eaters or meat reducers who may not be willing to be associated with vegetarianism. Thus, finding the right balance between the claims selected could expand such companies' customer base.

The fact that attributes such as environmental and animal friendliness of meat substitutes were found to be important in this study indicate another possibility for producers. One of the barriers to better exploitation of ethical aspects of products lies in consumers' inability to identify those ethical attributes, which leads to non-optimal purchase decisions (MacFie, 2007), as consumers do not have full information and thus cannot distinguish between conventional and ethical products. As established in the literature review, ethical attributes are credence attributes that cannot be visible and evaluated by consumers even after a product is consumed, therefore, producers should place more emphasis on providing the necessary product information that may resolve this issue. Ethical aspects of meat substitutes may be explicit for those vegans, vegetarians or flexitarians, who are driven by ethical motives. However, to attract more consumers who may be ethically driven in their food choice but ignorant of deleterious effects of the meat industry, producers of meat substitutes could explore carbon footprint certification possibilities as a starting point and initiate "cruelty-free" or "animal-friendly" certification on food products. The possibility for consumers to identify less environmentally harmful products could help meat substitute producing companies to outcompete

less environmentally friendly rivals. In addition, as animal-friendliness of meat substitutes is a predictor of a positive word-of-mouth about such products, producers who deserve to be called "animal-friendly" should emphasize this aspect in a very explicit manner in online and offline communication campaigns.

Similar to ethical or so called symbolic product attributes, method of production or health effects of products are not easily observable to consumers. And as consumers often aim for effortless and fast food shopping, manufacturers should facilitate this process by making such product characteristics explicit through coherent branding and packaging. In regard to this study's findings, meat substitute producers could benefit by emphasizing that their products are made from natural ingredients, do not contain additives and preservatives, are free from animal ingredients and gluten, denoting production-related attributes. Similarly, nutritional value of meat substitutes should be highlighted through explicit information on nutritional attributes.

This study confirms the special role affordability and convenience play in the realm of meat substitutes. This is proved with price having an effect on 3 food consumption goals as well as serving as a predictor of willingness to pay and willingness to buy, "easy and fast to prepare" having an effect on pleasure goal, and availability predicting willingness to buy and word-of-mouth behavioral intentions. Besides, price is the sole product attribute in this study that exhibited a large effect size on a food consumption goal, implying that price alone explains "value for money" goal to a large extent, whereas availability has a medium effect on willingness to buy, implying that this attribute predicts such a behavioral intention better compared to the other product attributes.

These findings corroborate the fact that price competitiveness of meat substitutes is an issue in making meat substitutes mainstream (Kumar et al, 2017). To address this issue, price differentiation may be a solution by providing with cheaper and less advanced meat substitutes for price-sensitive consumers who are currently not willing to buy meat substitutes as they perceive them as too expensive, and thus are not willing to pay a price premium for such products. On the other hand, it is possible that due to the lack of economies of scale, price for meat substitutes is still comparably higher than for meat counterpart products. So, to tackle this issue it would seem rational to focus on those consumers who could pay more for meat substitutes, and as the number of consumers grow and demand increases, the price may fall. One way is to focus on health-driven consumers who indicated

to be willing to pay more for meat substitutes by raising awareness of the health benefits meat substitutes provide through collaboration with NGOs, nutritionists, doctors, athletes to name a few, as well as by engaging with such consumers and identifying their needs better. Another way is to make those product attributes linked to safety and quality goals (i.e., amino acids, sugar-free) salient. By priming those goals in consumers may increase the likelihood of such meat substitutes being bought. Finally, producers could exert effort in making potential consumers familiar with meat substitutes, boosting their interest and motivation because research suggests that familiarity with a product and higher motivation may reduce consumers' focus from the extrinsic cue, such as price and increase their willingness to expend the cognitive effort and shift attention to other product attributes (Mitra, 1995).

The importance of convenience-related attributes signifies the need to move beyond promoting the aforementioned benefits of meat substitutes and focus on producing easy and fast to prepare and widely available products, taking into consideration that availability influences consumers' willingness to buy and spread a positive message about meat substitutes. Therefore, producers would receive an incentive by prioritizing the improvement of the distribution of meat substitutes by expanding the network of food retailers and increasing the number of outlets their products are sold in. Producers could also engage with food retailers to merchandise meat substitutes in meat sections instead of vegetarian/vegan sections in stores. Currently, many meat substitute products are still in the frozen foods section or a vegetarian/vegan food section in supermarkets. But as more meat substitutes are becoming better in emulating meat-like characteristics, moving meat substitutes to the fresh meat section could attract attention from mainstream consumers, and thus broaden the customer base. "Minced meat" by *Naturli* in Denmark or "Beyond burger" by *Beyond Meat* in the U.S. are good examples of such a strategy.

It is recommended that meat substitutes' producing companies better exploit their social media channels for communicating the product attributes, such as animal-friendliness, low in sodium and availability that were found to be influencing consumers' willingness to generate favorable comments about meat substitutes and recommend them to other people. Internet is believed to be a more effective platform to facilitate eWOM as it allows an increased diffusion of information (Lis & Neßler, 2014), which can significantly contribute to the success of meat substitutes.

The findings provide implications for policy-makers and nonprofit organizations working for promoting plant-based meat substitutes. Reduced tax on meat substitutes for having a lower carbon footprint could help in cutting down prices of such products, making them affordable to a wider audience of consumers. In addition, policy-makers should add meat substitutes that meet health and safety requirements to the list of products helping to prevent obesity, cardiovascular diseases, diabetes among others, and could initiate informational campaigns for citizens about the benefits of plant-based meat. Moreover, nonprofit organizations should educate consumers by raising awareness of harmful effects associated with the meat industry, and suggest meat substitutes as one of the solutions by exploiting the most important linkages between product attributes and the corresponding goals identified in this study in their communication, as well as organize product trials to increase familiarity with meat substitutes. Such organizations as the Good Food Institute, operating in the U.S. on the premise that "*if plant-based products designed to replace animal products taste the same or better, cost the same or less, and are just as convenient or more convenient, then consumers will purchase them*" (personal communication, November 19, 2017) should acknowledge that convenience, price and taste are not sufficient anymore for a modern consumer, and should adjust their actions by incorporating other production-related and nutritional attributes and find ways to appeal to health driven consumers.

5.2.2 Implications for researchers

From a theoretical standpoint, this study contributed to an extremely scarce research on meat substitutes and employed, modified and extended the Means-end chain conceptual framework in a way that it has not been applied in the research on consumer behavior before, to the best of my knowledge. The modification refers to an application of a different data gathering approach by replacing the commonly used laddering technique with a survey strategy, which enabled to address downsides of the laddering technique mentioned in this study, as well as involve those consumers who do not have previous consumption experience with meat substitutes. This was done in order to identify the needs of potential consumers as well instead of focusing just on the current consumers. Further, instead of traditional value-based approach to MEC, consumers' food consumption goals were investigated and played a role of "benefits" or "ends" for consumers. Finally, the model was extended with positive behavioral intentions toward meat substitutes.

Many studies examining product attributes use choice-based experiments where trade-offs between several product attributes are investigated in an attempt to identify the most decisive product attributes that would lead to purchase decisions. However, such study designs are easier to conduct with a limited number of product attributes that are already inherent in the existing products in the market. The incorporation of desirable but maybe currently non-existent product attributes in meat substitutes requires more robust procedures in such studies. This is a gap in research on meat substitutes identified by Hoek et al (2011) who also propose that more research is needed on the desirable properties of meat substitutes. Hence, the selected study design of this work addresses this issue.

Moreover, the study answers the call from Elzerman et al (2013) by selecting a quantitative approach to studying consumer behavior in the area of meat substitutes instead of focusing purely on qualitative. The study's model and structural equation modelling approach enabled an investigation of the relationships between numerous variables in a nomological network. In addition, this study is deemed to be the first one incorporating an exhaustive list of product attributes in the context of meat substitutes that were derived from both the market (current and potential consumers) and the literature, whereas food studies in general look at four attributes on average (Mai & Hoffmann, 2012). This allowed for a broader exploration of desirable product attributes that should be taken into consideration by researchers in future studies. Besides, a new product attribute classification offered by me goes beyond the traditionally used grouping of product attributes into intrinsic vs extrinsic, tangible vs intangible, functional vs symbolic or ethical (green) vs egoistic prevailing in the literature, which allows researchers for viewing product attributes in separate categories that enact specific functions for consumers and point to a respective area of focus for producers. The study contributes to the existing research on meat substitutes by including categories of production, performance, ethical and convenience related attributes alongside a significant number of new attributes in most of these categories. It also contradicts some of the previous research in the context of meat substitutes that emphasize the importance of sensory attributes for the acceptance of meat substitutes (Hartmann & Siegrist, 2017; Hoek et al, 2011; Elzerman et al, 2013). On the other hand, the study highlights the relevance of nutritional and production-related attributes instead, which is a call for researchers to incorporate more product attributes of these categories in their work.

Finally, this study attempted to fill the gap in consumer behavior research by incorporating goals and acknowledging that consumer behavior is goal-driven. The most significant contribution of this study to research lies in an adaptation and validation of the multidimensional and context-sensitive Consumer Motivation Scale newly developed by Barbopoulos & Johansson (2017a) with multiple sub-goals. This scale has been applied only in a handful of studies by the authors for the development, purification and validation purpose, but has not been applied afterwards to other studies in the area of meat substitutes or food in general to the best of my knowledge. In addition, the scale was extended with a new Health sub-goal, which proved to be of a high relevance in predicting consumer behavior toward meat substitutes as it is the only food consumption goal that was found to predict willingness to pay a price premium for meat substitutes. Moreover, it confirms the rising effect of new evolving drivers in food purchasing. The final scale structure can be found in Appendix N.

Finally, this study addressed the need to combine consumer knowledge (consumption goals) and product knowledge (product attributes) in research on consumer behavior, which has been rather neglected in the context of meat substitutes. The findings may serve as a foundation for hypotheses development, testing and explanatory work in the area.

5.3 Limitations and Future Research

Despite meaningful contributions to both practice and research, this study has several limitations. Due to the nonprobability sampling in data selection, the sample is not representative and is skewed towards vegetarians and vegans, females, younger respondents living in the Capital region as well as foreigners living in Denmark. Therefore, external validity or generalizability of the results of this study is limited. Future research should exert efforts in designing a study with a more representative sample and encompassing a few countries with high meat consumption to examine if some differences exist between consumers, which would supply meat substitutes' producers with promising insights for appealing to consumers in different markets. In addition, given the exploratory nature of this work, it is important to emphasize that many explanations are tentative and that much more research is needed to understand and meaningfully explain the interplay between goals and product attributes of meat substitutes.

The survey as a tool widely applied in a traditional market research has several drawbacks. First, it may be difficult for respondents to articulate their true motives and needs by answering direct questions as people may be unaware of their motives and needs (Goffin et al, 2010; Koster, E.P., 2009). Second, as respondents' attention whilst filling the survey is strongly directed to specific product attributes, the risk of overestimating unimportant product attributes increases. This may not be the case in real purchasing behavior as proven experimentally by Enneking et al (2007). Researchers suggest that actual number of product attributes utilized by a consumer during a product evaluation process is relatively small and ranges from 3 to 7 attributes due to limited human ability to store information in short-term memory, which has been shown to reach maximum number of 9 unassociated items of information (Grunert, 1986). Moreover, the importance of ethical product attributes could have been overstated in this paper due to people's inclination to give more socially desirable answers and because the respondents were not pushed to make trade-offs between the attributes and make sacrifices (Auger et al, 2010; Auger et al, 2003). Thus, these downsides of the survey could have impeded the detection of true food consumption motives and essentially important attributes for meat substitutes. One of the pathways for future research could be focused on application of psychological techniques to identify consumers' hidden needs and then testing them in an experimental setting. Another possibility could be to redesign packaging of meat substitutes based on the recommendations provided in this study, and conduct an experiment in a real-store setting in an attempt to discover whether changed positioning affects purchasing behavior of meat substitutes.

Another limitation lies in the nature of a cross-sectional design chosen for this study when all variables are measured at one specific point in time. The direction of causality in this study was determined by me based on one possible theoretical underpinning. However, it is plausible that food consumption goals could influence product attributes, and this possibility opens an avenue for future researchers to investigate this direction of causality. In addition, this approach could allow for consumer segmentation based on food consumption goals, which might yield valuable insights for both businesses operating in alternative meat industry and researchers.

Few additional attributes were mentioned by the study respondents in an open question of the survey implying that this exhaustive list of attributes may be complemented by attributes such as "long shelf life", "palm oil free", "corn-free", "capable of replacing meat in common meat-based

recipes", "without processed soy", "available in the restaurants" and ethical attributes reflecting good working conditions for employees and care for the nature and wildlife. Thus, more production-related, convenience and ethical attributes could be incorporated in future research. In addition, the Consumer Motivation Scale could be supplemented with other dimensions defining distinct goals and sub-goals, thereby responding to the call from Barbopoulos & Johansson (2017a) suggesting to incorporate additional dimensions. Likewise the health sub-goal that has proved to be a valuable contribution to this study, other goals denoting self-identity, self-esteem or uniqueness, as well as weight control and wellness might provide with promising insights. Moreover, the ethics goal could be divided into three dimensions with one measuring environmental ethics, the second one animal-related ethics and the third one defining ethics towards humans, such as good working conditions (i.e. fair trade) among others.

The higher-order structure of the goals and product attributes was not tested in this study as it was not an objective. Nonetheless, this study could be extended by conducting an exploratory factor analysis and second-order factor analysis to confirm or reject the aggregation of lower-order dimensions, such as sub-goals and product attributes, on higher-order contructs, referring to master goals and the categories of product attributes that could play a role of abstract product attributes in Means-end chain theory.

One more limitation of the study stems from heterogeneous data, which exists when respondents are heterogeneous in regard to a study's variables, yielding significant differences in, for example, path coefficients. Hair et al (2014) claim that comparing several groups is beneficial from a practical and theoretical standpoint and facilitates obtaining differentiated findings that may build a strong foundation for consumer segmentation. This study's data might have been split into groups based on gender, eating style (vegetarians, vegans, omnivores etc.), familiarity and experience with meat substitutes and socio-demographic characteristics. PLS-MGA feature in SmartPLS allows for such comparison. However, as the number of observations in each group should meet minimum sample size requirements (Hair et al, 2014), it was impossible to perform such analysis in this study. Future research should replicate this study and conduct multigroup analysis, which would address the call from Apostolidis & McLeay, 2016 to focus on consumer segmentation for more differentiated product development and marketing strategies instead of targeting the average consumer.

Finally, food choice behavior is very complex and determined by many factors and their interactions (Koster, 2009). This study investigated interaction between product attributes (food-specific variables) and food consumption goals (individual characteristics). Additional individual factors as well as environmental factors, as established in the introduction could be incorporated in future research. Consumer atttitudes, familiarity, knowledge, involvement, socio-cultural and situational factors should not be neglected in studying purchasing behavior toward meat substitutes (Apostolidis & McLeay, 2016; Apostolidis & McLeay, 2016a; Forbes, 2008; MacFie, 2007) and could be explored as a part of complex models or as mediators or moderators of this behavior.

5.4 Concluding Remarks

Despite rising popularity of meat substitutes, research on this topic is extremely scarce. The extant literature in this area mainly focuses on barriers towards acceptance of meat substitutes alongside beliefs, attitudes and perceptions associated with different types of meat substitutes. There is a clear need to shift attention to consumer needs and preferences in regards to various characteristics of meat substitutes, and how these are connected to motives and goals underpinning their food choice behavior.

This study with all its limitations has taken a small step in the direction of shedding light on consumer behavior in the area of meat substitutes by applying theories of means-end chains and goal framing. The thesis combines product knowledge, referring to product attributes, and consumer knowledge, referring to food consumption goals, in an attempt to examine their relationships and their potential to predict positive behavioral outcomes toward meat substitutes.

The knowledge gained is expected to inform product development and positioning of innovative plant-based meat substitutes that could lead to a higher acceptance of these products, which is one of the possible ways to replace meat and thereby reduce meat consumption leading to lower green house emissions, saving of water and land resources, lesser animal suffering as well as better human health. As such, the meat alternatives industry has tremendous potential in contributing towards creating a more liveable and sustainable planet for us all to savour and enjoy for generations to come.

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Appendices

Appendix A. Definitions of sub-goals

Figure 1. The nine preliminary sub-goals of the gain, hedonic, and normative master goals

Goal	Sub-goal	Underlying motive
Gain	Value for Money	To get value for money, pay a reasonable price, avoid wasting money[a]
	Quality	To get something of high quality and reliability, that meets one's highest expectations[b]
	Function	To get something useful and practical, that serves many purposes[c]
	Safety	To feel safe, calm and prepared for the unforeseen[d]
Hedonic	Pleasure	To get something that satisfies immediate needs, that makes one feel good and happy[e]
	Stimulation	To get something exciting, stimulating or unique, avoid dullness[f]
	Comfort	To get something pleasant and comfortable, avoid hassle and discomfort[g]
Normative	Ethics	To act in accordance with one's moral principles and obligations, avoid guilt[h]
	Social Acceptance	To make a good impression, identify with peers, live up to expectations[i]

Source: Retrieved from Barbopoulos & Johansson (2017, p 120)

Appendix B. An example of a goal structure

Figure 1. An example of a goal structure
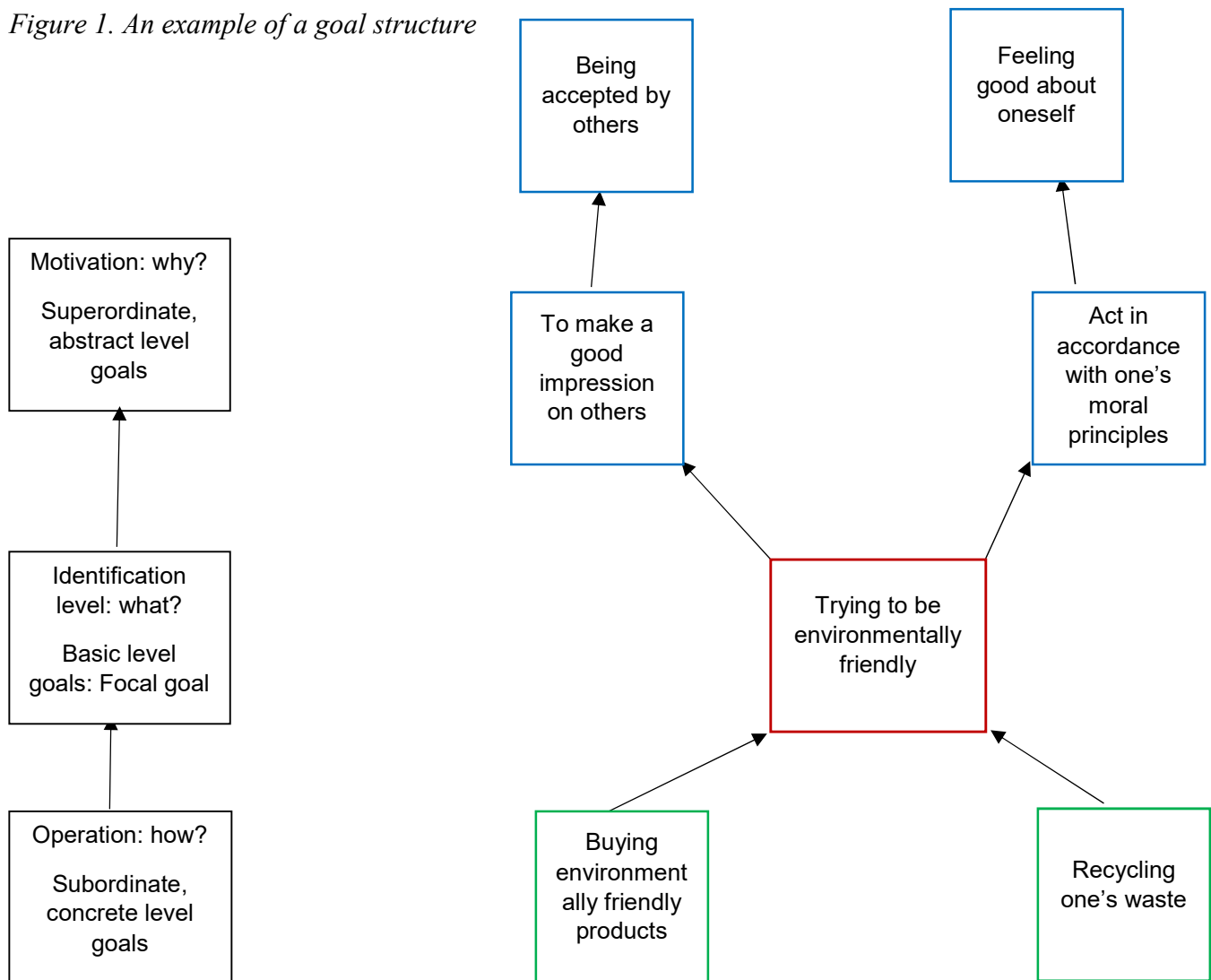
Source: Author's own work based on Haugtvedt et al (2008) and Pieters et al (1995)

Appendix C. Questionnaire items

* Reverse scored items

Q1. I am currently living in Denmark
- ❏ Yes
- ❏ No (in order to participate in this survey you should be living in Denmark)

Q2. Which description below best defines your eating?
- ❏ Meat-eater ("I eat meat every day or almost every day without purposeful restrictions")
- ❏ Pescatarian ("I don't eat any kind of meat but I still eat fish and/or other kinds of seafood")
- ❏ Flexitarian/Meat-reducer ("I actively and consciously reduce meat from my diet but still eat meat")
- ❏ Vegetarian ("I do not eat any types of meat, fish and seafood at all")
- ❏ Vegan ("I do not eat any animal products")

Q3. How familiar are you with meat substitutes?
- ❏ Not at all familiar
- ❏ Slightly familiar
- ❏ Somewhat familiar
- ❏ Moderately familiar
- ❏ Very familiar

Q4. How often do you consume meat substitutes?
- ❏ I have never tried any meat substitutes
- ❏ I tried them just a few times
- ❏ Less than once per month
- ❏ Once per month or more but less than once per week
- ❏ Once or twice per week
- ❏ Three or four times per week
- ❏ Five times per week or more

Q5. How long have you been consuming meat substitutes?
- ❏ Less than 1 month
- ❏ 1 month to less than 6 months

- ❑ 6 months to less than 12 months
- ❑ 1 year to 5 years
- ❑ 6 years to 10 years
- ❑ More than 10 years

Q6-Q8. In the following 3 questions you will be presented with various **product attributes.** Please indicate **to what extent** each product attribute **IS** or **WOULD BE IMPORTANT** for you when considering purchasing a plant-based meat substitute as a part of your diet or as a replacement for meat.

Note: your answers **DO NOT NECESSARILY** have to be based on the existing meat substitute products on the market but can also indicate what you think **IS DESIRABLE** for you.

Please choose the most appropriate response:

MTaste	Meaty taste
SoyF	Soy-free
EFPrep	Easy and fast to prepare
AminoA	Essential amino acids
CookedSW	Can be cooked in the same way as meat
FS	Fat source
AnF	Animal-friendly
SuF	Sugar-free
AnIngr	Contains no animal ingredients
MSmell	Meaty smell
Price	Not more expensive than a meat counterpart product
LSod	Low in sodium
MText	Meaty texture
AddPres	Contains no artificial additives and preservatives
Org	Organic
VitB	Vitamin B complex
Avail	Widely available (in the shops and supermarkets around me)
Iron	High in iron
VitMin	High in vitamins and minerals

EnvF	Environmentally-friendly
NGMO	Not genetically modified
GlutenF	Gluten-free
Protein	High in protein
NatIngr	Made from natural ingredients
MAppear	Meaty appearance
LFat	Low in fat
SubstMeat	Suitable to substitute meat dishes

Q9. Please check all the attributes listed above, and if you think an important one is missing, please, write it here:

_____

Q9.1. Please indicate the level of its importance for you:

Q10. Please select the most appropriate response to the statement below:
"I love eating metal"

Q11. Please indicate the extent to which you agree with the following statements whilst considering that meat substitutes have those attributes that you indicated as important ones in the previous questions:

WTB_1	Whenever available, I would prefer to buy meat substitutes
WTB_2	I would never buy a meat substitute *
WTB_3	I do not like the idea of consuming meat substitutes *
WTB_4	I am considering buying a meat substitute in my upcoming grocery shopping
WOM_1	I bring up meat alternatives in a positive way in conversations with my friends and acquaintances
WOM_2	In social situations, I often speak favorably about meat substitutes as a food product or as a replacement for meat
WOM_3	I am willing to recommend meat substitutes for other people to buy

Q12. How much more would you be willing to pay for a meat substitute product compared to a meat counterpart product?

- ❑ 0% (nothing)
- ❑ 10% more
- ❑ 20% more
- ❑ 30% more
- ❑ 40% more
- ❑ 50% more
- ❑ 75% more
- ❑ 100% more (twice as much)
- ❑ More than 100% (more than twice as much)

Q13. Please select the most appropriate response to the statement below:

"I often eat stones"

Q14. For the upcoming set of questions you will be asked to indicate to what extent the following statements ARE IMPORTANT FOR YOU when YOU CHOOSE YOUR FOOD PRODUCTS. When I shop for food, it is important that what I choose....

VfM_1	Is reasonably priced
VfM_2	Is not too expensive
VfM_3	Offers value for the money
VfM_4	Is not a waste of money
Qual_1	Is of high quality
Qual_2	Is well made
Qual_3	Is consistent in quality
Qual_4	Meets my highest expectations
Saf_1	Makes me feel safe
Saf_2	Is free from harmful substances
Saf_3	Does not put my safety or security at risk
Saf_4	Is produced in a safe way

Stimul_1	Is interesting
Stimul_2	Gives a unique experience
Stimul_3	Is not boring
Stimul_4	Offers novelty

Pl_1	Is pleasant
Pl_2	Is enjoyable
Pl_3	Is gratifying
Pl_4	Is delicious

SoA_1	Is accepted among my friends and people close to me
SoA_2	Is what my friends and people close to me would expect me to choose
SoA_3	Makes a good impression on people who are important to me
SoA_4	Is chosen by people who are important to me

Eth_1	Is not morally wrong
Eth_2	Does not violate my principles of ethics
Eth_3	Is consistent with my personal and moral obligations
Eth_4	Is consistent with my personal values

H_1	Keeps me healthy
H_2	Is nutritious
H_3	Is good for my body
H_4	Helps to maintain a balanced diet

Q15. Please indicate your gender:
❑   Female
❑   Male

Q16. Please indicate your age:

_____

Q17. Please indicate your employment status:
- ❑ Full-time employment
- ❑ Part-time employment
- ❑ Self-employed/freelance
- ❑ Full-time student
- ❑ Part-time student
- ❑ Unemployed
- ❑ Retired

Q18. Please indicate your highest level of completed education:
- ❑ I have no formal education
- ❑ High school or equivalent
- ❑ Vocational/technical school
- ❑ College degree
- ❑ Bachelor degree
- ❑ Master degree
- ❑ PhD

Q19. Please select the region you live in Denmark:
- ❑ Capital Region (Hovedstaden)
- ❑ Central Jutland Region (Midtjylland)
- ❑ North Jutland Region (Nordjylland)
- ❑ South Denmark Region (Syddanmark)
- ❑ Zealand Region (Sjælland)

Q20. Please choose one of the options below which best describes the settlement of your living place here in Denmark:
- ❑ Urban (an area with a high population density and infrastructure of built environment)
- ❑ Suburban (a residential area on the outskirts of a city with lower population density than inner city neighborhoods)
- ❑ Rural (sparsely populated areas outside towns and cities where inhabitants live in villages, hamlets, on farms or in other isolated dwellings)

Q21. Please indicate your nationality (e.g., Danish, Australian, American, Indian etc.)

_____

Appendix D. Socio-demographic characteristics

Figure 1. Share of the study respondents according to their eating style
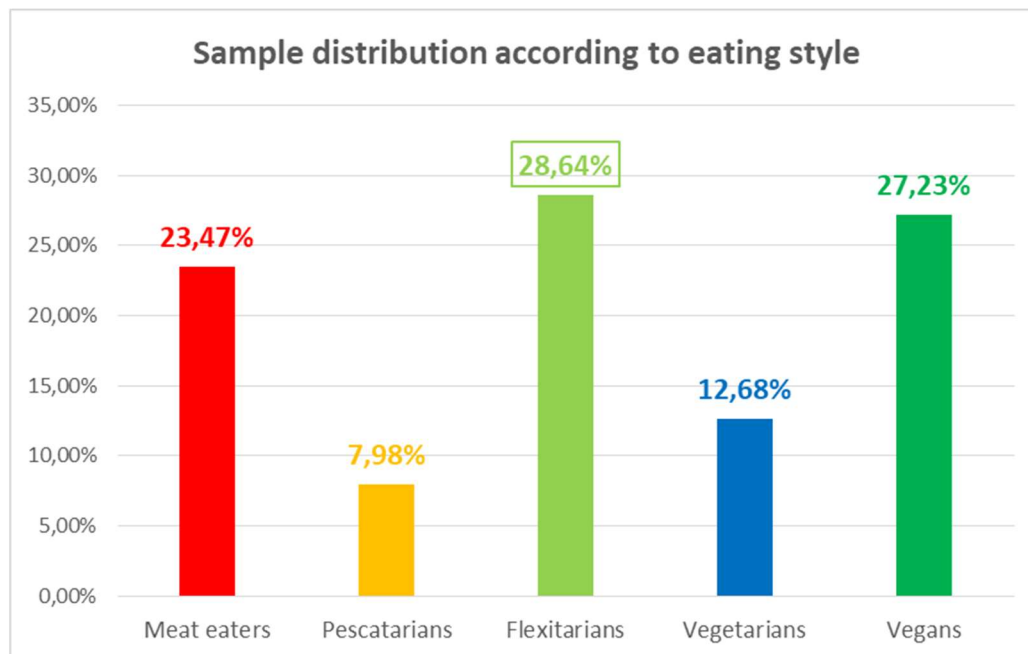
Source: Author's work based on the sample data

Figure 2. Gender distribution in the Danish population and the sample
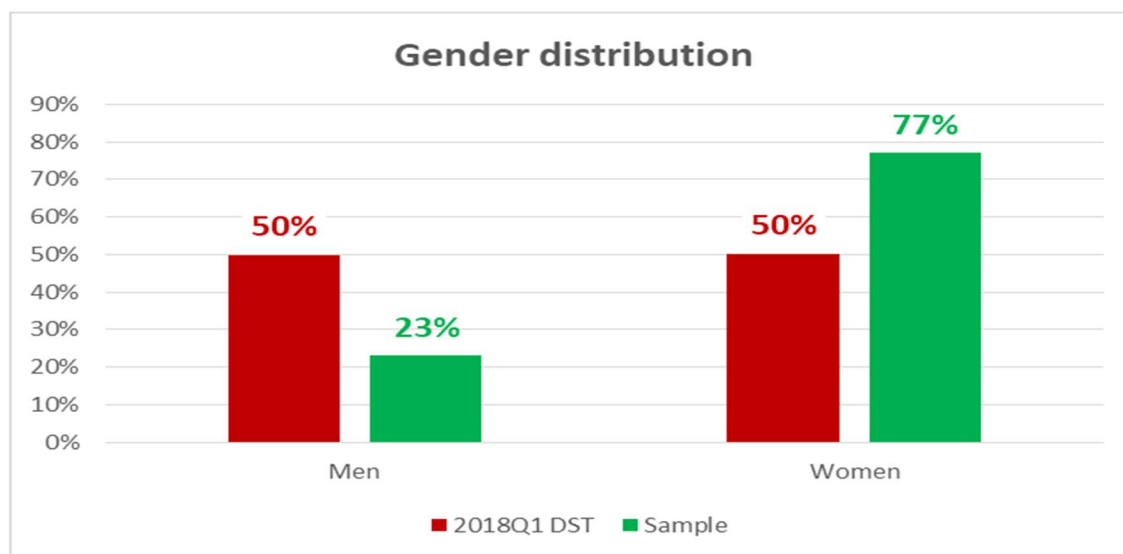
Source: Author's work based on the sample data and data derived from Danmarks Statistik (2018a)

Figure 3. Age distribution of the sample compared to the Danish population
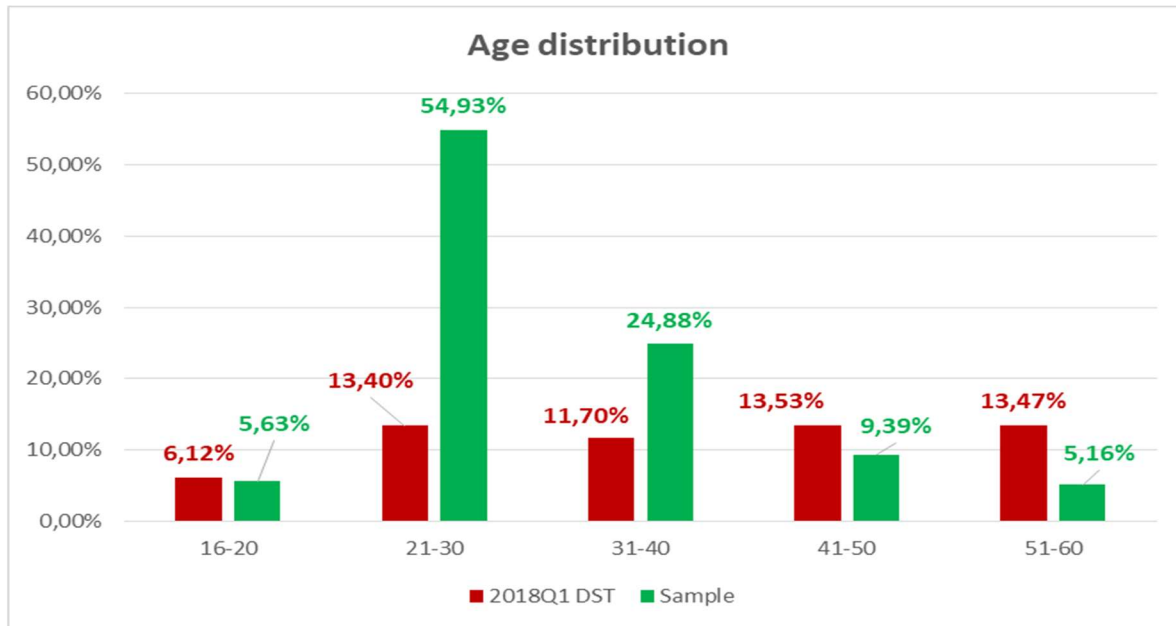
Age distribution

Source: Author's work based on the sample data and data derived from Danmarks Statistik (2018b)

Figure 4. Geographical distribution of the sample compared to the Danish population
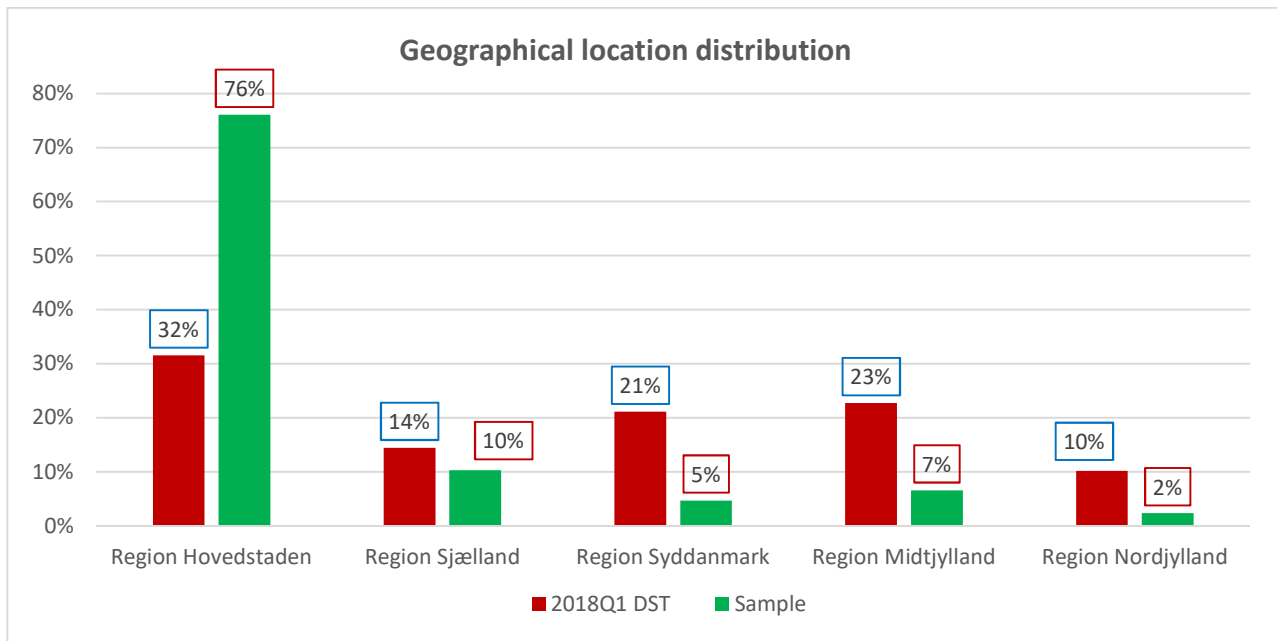
Geographical location distribution

Source: Author's work based on the sample data and data derived from Danmarks Statistik (2018c)

Figure 5. The distribution of the respondents according to the type of their settlement in Denmark: comparison of the sample and the Danish population
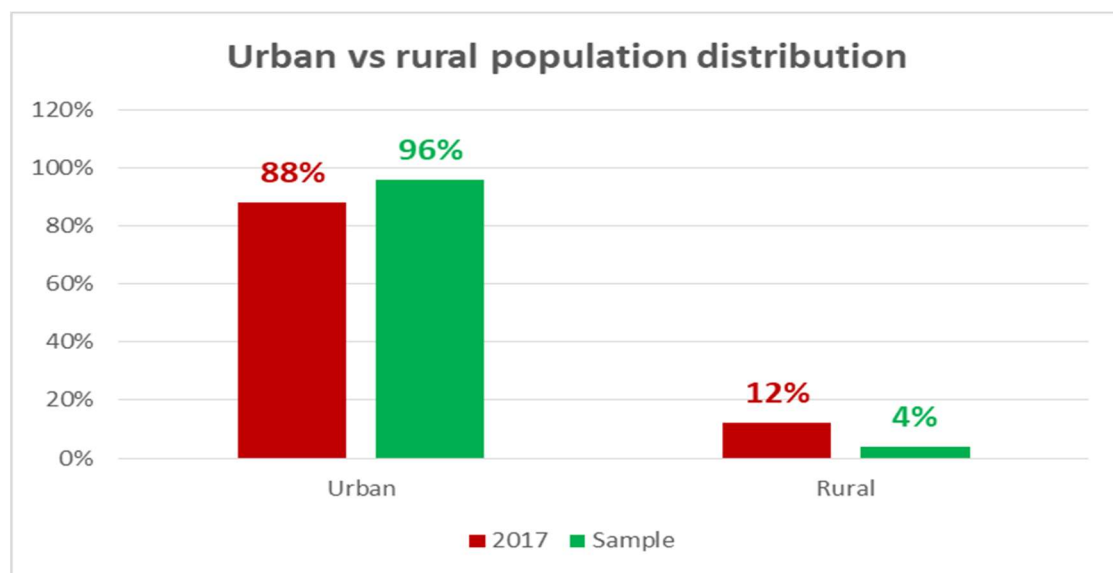
Source: Author's work based on the sample data and data derived from The World Bank (2017a; 2017b)

Figure 6. The share of Danish and foreign citizenship holders: the sample compared to the Danish population
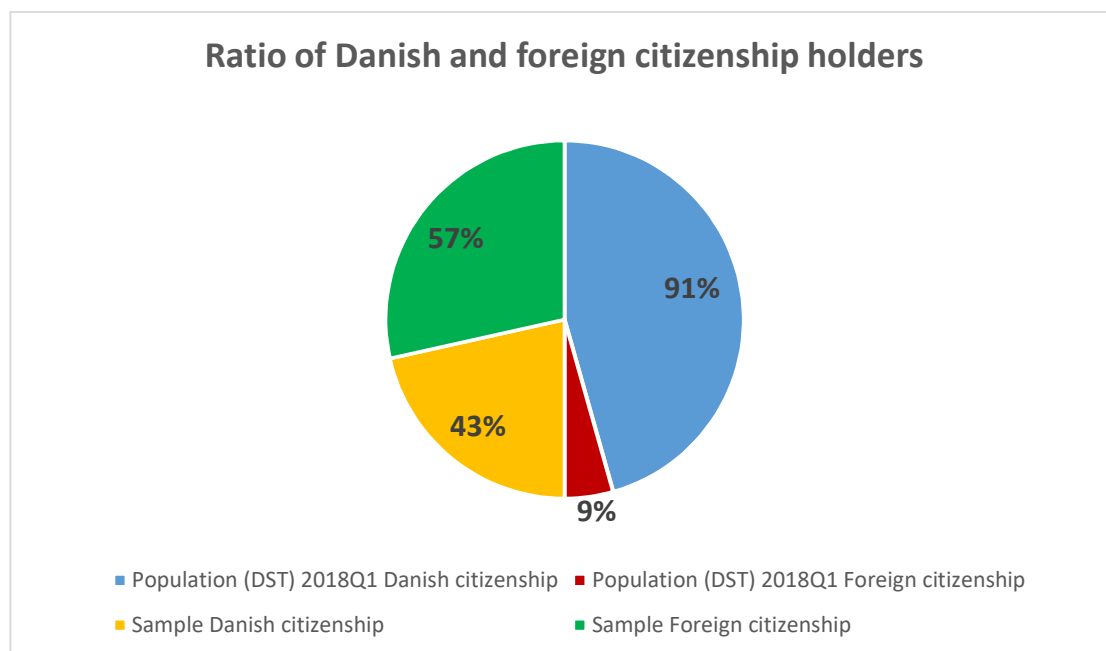
Source: Author's work based on the sample data and data derived from Danmarks Statistik (2018d)

Appendix E. Data normality test

Cells in red indicate skewness and kurtosis values outside the range for normally distributed data, while the cells in green represent values of normally distributed data

	Kurtosis	Skewness		Kurtosis	Skewness
AddPres	- 0,120	- 0,867	Price	0,830	- 1,043
Age	1,230	1,247	Protein	0,394	- 0,800
AminoA	- 0,364	- 0,346	Qual_1	- 0,359	- 0,347
AnF	1,353	- 1,418	Qual_2	1,737	- 0,979
AnIngr	- 0,802	- 0,844	Qual_3	2,253	- 0,931
Avail	2,460	- 1,278	Qual_4	1,230	- 0,676
Con_dur	0,824	- 0,146	RegionDK	1,547	1,789
Con_freq	- 0,801	0,286	Saf_1	1,016	- 0,881
CookedSW	- 0,888	- 0,210	Saf_2	2,518	- 1,373
Eating	- 1,308	- 0,142	Saf_3	3,773	- 1,772
Edu	0,202	- 1,087	Saf_4	2,257	- 1,206
EFPrep	0,269	- 0,699	Settlem	1,987	1,691
Empl	- 1,031	0,290	SoA_1	- 0,215	0,837
EnvF	2,683	- 1,359	SoA_2	0,401	1,084
Eth_1	1,637	- 1,287	SoA_3	- 0,622	0,571
Eth_2	1,287	- 1,183	SoA_4	- 0,300	0,681
Eth_3	1,678	- 1,297	SoyF	- 0,857	0,291
Eth_4	1,860	- 1,304	Stimul_1	0,202	- 0,588
Familiar	- 0,861	- 0,489	Stimul_2	0,257	- 0,119
FS	- 0,875	- 0,076	Stimul_3	0,072	- 0,532
Gender	- 0,334	1,292	Stimul_4	- 0,222	- 0,246
GlutenF	- 0,388	0,597	Stones	5,848	2,638
H_1	0,508	- 0,818	SubstMeat	0,556	- 0,946
H_2	1,782	- 1,006	SuF	- 1,093	- 0,136
H_3	2,638	- 1,189	VfM_1	0,623	- 0,697
H_4	2,044	- 1,188	VfM_2	1,478	- 0,954
Iron	- 0,303	- 0,343	VfM_3	0,561	- 0,569
LFat	- 0,408	- 0,195	VfM_4	- 0,658	- 0,551
LSod	- 0,396	- 0,270	VitB	- 0,194	- 0,427
MAppear	1,034	0,122	VitMin	0,400	- 0,697
MSmell	- 0,644	0,657	WOM_1	- 0,649	- 0,557
MTaste	1,094	0,015	WOM_2	- 1,021	- 0,219
MText	- 0,834	- 0,269	WOM_3	0,362	- 0,925
NatIngr	2,633	- 1,473	WTB_1	- 1,262	-
Nation	- 1,942	- 0,277	WTB_2_R	2,318	- 1,623
NGMO	- 0,694	- 0,743	WTB_3_R	- 0,211	- 0,848
Org	0,133	- 0,721	WTB_4	- 0,827	- 0,436
Pl_1	0,534	- 0,413	WTP	2,517	1,681
Pl_2	4,024	- 1,393			
Pl_3	- 0,535	0,025			
Pl_4	0,395	- 0,843			

Appendix F. Measurement model assessment: before the removal of the indicators

Table 1. Values of reliability and convergent validity measures

	Cronbach's α	Composite Reliability	AVE
ETH	0.937	0.955	0.841
HEALTH	0.838	0.888	0.666
PL	0.753	0.733	**0.447**
QUAL	0.815	0.845	0.593
SAF	0.790	0.845	0.587
STIMUL	0.721	0.804	0.512
SoA	0.847	0.880	0.649
VfM	0.796	0.861	0.612
WOM	0.882	0.927	0.809
WTB	0.829	0.884	0.655
WTP	1.000	1.000	1.000

Table 2. Outer loadings

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB	WTP
Eth_1	0.928										
Eth_2	0.898										
Eth_3	0.940										
Eth_4	0.902										
H_1		0.794									
H_2		0.846									
H_3		0.873									
H_4		0.746									
Pl_1			0.802								
Pl_2			**0.611**								
Pl_3			0.855								
Pl_4			**0.196**								
Qual_1				0.851							
Qual_2				0.921							
Qual_3				0.796							
Qual_4				**0.410**							
Saf_1					**0.534**						
Saf_2					0.803						
Saf_3					0.710						
Saf_4					0.955						
SoA_1							0.883				
SoA_2							0.761				
SoA_3							0.723				
SoA_4							0.846				
Stimul_1						0.805					
Stimul_2						0.730					
Stimul_3						**0.509**					
Stimul_4						0.780					
VfM_1								0.889			
VfM_2								0.881			
VfM_3								**0.626**			
VfM_4								**0.700**			
WOM_1									0.904		
WOM_2									0.902		
WOM_3									0.893		
WTB_1										0.800	
WTB_2_R										0.823	
WTB_3_R										0.787	
WTB_4										0.827	
WTP											**1.000**

Table 3. Fornell-Larcker matrix

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB	WTP
ETH	0.917										
HEALTH	0.373	0.816									
PL	0.315	0.232	0.668								
QUAL	0.436	0.486	0.433	0.770							
SAF	0.562	0.602	0.245	0.568	0.766						
STIMUL	0.353	0.237	0.299	0.289	0.286	0.716					
SoA	0.006	-0.037	0.046	0.011	-0.013	0.376	0.806				
VfM	-0.023	0.183	0.055	0.124	0.083	-0.014	0.074	0.782			
WOM	0.366	0.011	0.049	0.044	0.162	0.095	-0.100	-0.017	0.899		
WTB	0.236	0.017	0.042	0.009	0.143	0.091	-0.154	0.055	0.685	0.809	
WTP	0.263	0.115	0.177	0.162	0.123	0.061	-0.131	-0.350	0.260	0.208	1.000

Table 4. HTMT ratios

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB
ETH										
HEALTH	0.404									
PL	0.352	0.371								
QUAL	0.553	0.593	0.685							
SAF	0.603	0.695	0.367	0.741						
STIMUL	0.449	0.326	0.483	0.505	0.362					
SoA	0.066	0.089	0.086	0.105	0.161	0.524				
VfM	0.096	0.279	0.299	0.208	0.174	0.166	0.086			
WOM	0.400	0.072	0.064	0.070	0.151	0.108	0.090	0.063		
WTB	0.239	0.089	0.121	0.107	0.137	0.142	0.151	0.080	0.785	
WTP	0.273	0.117	0.148	0.137	0.119	0.090	0.115	0.348	0.279	0.214

Table 5. HTMT confidence intervals

	Original Sample (O)	Sample Mean (M)	Bias	2.5%	97.5%
HEALTH -> ETH	0.404	0.403	-0.001	0.232	0.549
PL -> ETH	0.352	0.359	0.007	0.196	0.464
PL -> HEALTH	0.371	0.370	-0.001	0.194	0.556
QUAL -> ETH	0.553	0.555	0.002	0.417	0.668
QUAL -> HEALTH	0.593	0.593	0.000	0.426	0.723
QUAL -> PL	0.685	0.683	-0.002	0.542	0.802
SAF -> ETH	0.603	0.607	0.003	0.442	0.725
SAF -> HEALTH	0.695	0.696	0.001	0.555	0.817
SAF -> PL	0.367	0.372	0.005	0.189	0.530
SAF -> QUAL	0.741	0.743	0.002	0.632	0.832
STIMUL -> ETH	0.449	0.450	0.002	0.263	0.612
STIMUL -> HEALTH	0.326	0.336	0.011	0.184	0.473
STIMUL -> PL	0.483	0.498	0.015	0.319	0.635
STIMUL -> QUAL	0.505	0.506	0.001	0.325	0.669
STIMUL -> SAF	0.362	0.373	0.011	0.160	0.538
SoA -> ETH	0.066	0.107	0.040	0.036	0.080
SoA -> HEALTH	0.089	0.139	0.051	0.061	0.104
SoA -> PL	0.086	0.140	0.055	0.060	0.098
SoA -> QUAL	0.105	0.151	0.046	0.060	0.132
SoA -> SAF	0.161	0.195	0.035	0.105	0.197
SoA -> STIMUL	0.524	0.526	0.002	0.369	0.674
VfM -> ETH	0.096	0.136	0.040	0.055	0.116
VfM -> HEALTH	0.279	0.289	0.009	0.138	0.467
VfM -> PL	0.299	0.322	0.023	0.136	0.438
VfM -> QUAL	0.208	0.244	0.036	0.145	0.291
VfM -> SAF	0.174	0.207	0.033	0.085	0.301
VfM -> STIMUL	0.166	0.216	0.050	0.091	0.207
VfM -> SoA	0.086	0.132	0.046	0.054	0.102
WOM -> ETH	0.400	0.394	-0.006	0.257	0.555
WOM -> HEALTH	0.072	0.116	0.043	0.040	0.085
WOM -> PL	0.064	0.123	0.059	0.048	0.069
WOM -> QUAL	0.070	0.119	0.050	0.041	0.076
WOM -> SAF	0.151	0.184	0.032	0.066	0.255
WOM -> STIMUL	0.108	0.164	0.056	0.050	0.163
WOM -> SoA	0.090	0.129	0.039	0.033	0.129
WOM -> VfM	0.063	0.118	0.055	0.043	0.066
WTB -> ETH	0.239	0.248	0.009	0.119	0.376
WTB -> HEALTH	0.089	0.138	0.049	0.059	0.099
WTB -> PL	0.121	0.164	0.043	0.066	0.158
WTB -> QUAL	0.107	0.157	0.050	0.059	0.118
WTB -> SAF	0.137	0.176	0.039	0.075	0.220
WTB -> STIMUL	0.142	0.197	0.055	0.076	0.177
WTB -> SoA	0.151	0.174	0.022	0.072	0.263
WTB -> VfM	0.080	0.139	0.059	0.049	0.101
WTB -> WOM	0.785	0.784	-0.001	0.684	0.881
WTP -> ETH	0.273	0.273	0.001	0.151	0.362
WTP -> HEALTH	0.117	0.123	0.006	0.039	0.223
WTP -> PL	0.148	0.162	0.014	0.060	0.242
WTP -> QUAL	0.137	0.154	0.017	0.049	0.221
WTP -> SAF	0.119	0.149	0.030	0.047	0.170
WTP -> STIMUL	0.090	0.115	0.026	0.022	0.144
WTP -> SoA	0.115	0.138	0.023	0.036	0.210
WTP -> VfM	0.348	0.349	0.001	0.197	0.487
WTP -> WOM	0.279	0.278	-0.001	0.130	0.395
WTP -> WTB	0.214	0.214	0.000	0.095	0.336

Appendix G. Measurement model assessment: after the 1st removal

Table 1. Values of reliability and convergent validity measures

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
ETH	0.937	0.955	0.841
HEALTH	0.838	0.888	0.666
PL	0.727	0.843	0.642
QUAL	0.831	0.896	0.742
SAF	0.790	0.845	0.586
STIMUL	0.721	0.803	0.511
SoA	0.847	0.880	0.649
VfM	0.796	0.861	0.612
WOM	0.882	0.927	0.809
WTB	0.829	0.884	0.656

Table 2: Outer loadings after removal of indicators

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB	WTP
Eth_1	0.928										
Eth_2	0.898										
Eth_3	0.94										
Eth_4	0.902										
H_1		0.793									
H_2		0.847									
H_3		0.872									
H_4		0.747									
Pl_1			0.842								
Pl_2			0.727								
Pl_3			0.831								
Qual_1				0.859							
Qual_2				0.927							
Qual_3				0.793							
Saf_1					0.532						
Saf_2					0.804						
Saf_3					0.709						
Saf_4					0.956						
SoA_1							0.883				
SoA_2							0.761				
SoA_3							0.724				
SoA_4							0.846				
Stimul_1						0.806					
Stimul_2						0.729					
Stimul_3						0.504					
Stimul_4						0.781					
VfM_1								0.889			
VfM_2								0.881			
VfM_3								0.626			
VfM_4								0.7			
WOM_1									0.904		
WOM_2									0.903		
WOM_3									0.891		
WTB_1										0.796	
WTB_2_R										0.826	
WTB_3_R										0.791	
WTB_4										0.826	
WTP											1.000

Table 3. HTMT ratios

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB
ETH										
HEALTH	0.404									
PL	0.389	0.368								
QUAL	0.506	0.605	0.643							
SAF	0.603	0.695	0.363	0.695						
STIMUL	0.449	0.326	0.508	0.433	0.362					
SoA	0.066	0.089	0.080	0.072	0.161	0.524				
VfM	0.096	0.279	0.228	0.207	0.174	0.166	0.086			
WOM	0.400	0.072	0.058	0.068	0.151	0.108	0.090	0.063		
WTB	0.239	0.089	0.126	0.072	0.137	0.142	0.151	0.080	0.785	
WTP	0.273	0.117	0.149	0.157	0.119	0.090	0.115	0.348	0.279	0.214

Table 4. HTMT confidence intervals

	Original Sample (O)	Sample Mean (M)	Bias	2.5%	97.5%
HEALTH -> ETH	0.404	0.399	-0.005	0.238	0.566
PL -> ETH	0.389	0.391	0.002	0.240	0.519
PL -> HEALTH	0.368	0.376	0.007	0.177	0.546
QUAL -> ETH	0.506	0.503	-0.003	0.365	0.628
QUAL -> HEALTH	0.605	0.608	0.003	0.459	0.746
QUAL -> PL	0.643	0.648	0.005	0.461	0.787
SAF -> ETH	0.603	0.602	-0.001	0.447	0.725
SAF -> HEALTH	0.695	0.698	0.003	0.537	0.819
SAF -> PL	0.363	0.371	0.008	0.192	0.575
SAF -> QUAL	0.695	0.696	0.001	0.539	0.820
STIMUL -> ETH	0.449	0.440	-0.009	0.280	0.618
STIMUL -> HEALTH	0.326	0.340	0.014	0.173	0.478
STIMUL -> PL	0.508	0.513	0.005	0.290	0.661
STIMUL -> QUAL	0.433	0.438	0.005	0.253	0.611
STIMUL -> SAF	0.362	0.374	0.012	0.173	0.548
SoA -> ETH	0.066	0.109	0.042	0.044	0.080
SoA -> HEALTH	0.089	0.136	0.047	0.051	0.113
SoA -> PL	0.080	0.134	0.054	0.054	0.099
SoA -> QUAL	0.072	0.121	0.049	0.054	0.084
SoA -> SAF	0.161	0.193	0.032	0.097	0.199
SoA -> STIMUL	0.524	0.524	0.001	0.364	0.667
VfM -> ETH	0.096	0.134	0.038	0.049	0.121
VfM -> HEALTH	0.279	0.298	0.019	0.133	0.437
VfM -> PL	0.228	0.260	0.032	0.115	0.362
VfM -> QUAL	0.207	0.245	0.038	0.116	0.299
VfM -> SAF	0.174	0.217	0.044	0.063	0.281
VfM -> STIMUL	0.166	0.217	0.051	0.117	0.211
VfM -> SoA	0.086	0.130	0.044	0.060	0.100
WOM -> ETH	0.400	0.397	-0.003	0.226	0.539
WOM -> HEALTH	0.072	0.120	0.048	0.042	0.081
WOM -> PL	0.058	0.116	0.058	0.019	0.061
WOM -> QUAL	0.068	0.112	0.044	0.033	0.092
WOM -> SAF	0.151	0.183	0.032	0.063	0.254
WOM -> STIMUL	0.108	0.157	0.049	0.050	0.150
WOM -> SoA	0.090	0.124	0.034	0.038	0.130
WOM -> VfM	0.063	0.117	0.054	0.041	0.073
WTB -> ETH	0.239	0.252	0.013	0.100	0.376
WTB -> HEALTH	0.089	0.140	0.051	0.051	0.102
WTB -> PL	0.126	0.161	0.036	0.062	0.176
WTB -> QUAL	0.072	0.121	0.050	0.047	0.079
WTB -> SAF	0.137	0.181	0.044	0.051	0.235
WTB -> STIMUL	0.142	0.193	0.051	0.097	0.168
WTB -> SoA	0.151	0.177	0.026	0.062	0.269
WTB -> VfM	0.080	0.135	0.056	0.046	0.094
WTB -> WOM	0.785	0.785	-0.000	0.670	0.878
WTP -> ETH	0.273	0.268	-0.004	0.159	0.375
WTP -> HEALTH	0.117	0.123	0.006	0.031	0.240
WTP -> PL	0.149	0.157	0.008	0.051	0.282
WTP -> QUAL	0.157	0.153	-0.004	0.056	0.273
WTP -> SAF	0.119	0.147	0.028	0.015	0.183
WTP -> STIMUL	0.090	0.114	0.024	0.021	0.154
WTP -> SoA	0.115	0.130	0.015	0.036	0.207
WTP -> VfM	0.348	0.348	-0.000	0.195	0.495
WTP -> WOM	0.279	0.281	0.001	0.144	0.399
WTP -> WTB	0.214	0.213	-0.001	0.086	0.331

Appendix H. Measurement model assessment: after the 2nd removal

Table 1. Values of reliability and convergent validity measures

	Cronbach's α	Composite Reliability	AVE
ETH	0.937	0.955	0.841
HEALTH	0.838	0.888	0.666
PL	0.727	0.843	0.642
QUAL	0.831	0.896	0.742
SAF	0.794	0.867	0.689
STIMUL	0.670	0.816	0.597
SoA	0.847	0.880	0.650
VfM	0.796	0.861	0.612
WOM	0.882	0.927	0.809
WTB	0.829	0.884	0.656
WTP	1.000	1.000	1.000

Table 2. Outer loadings

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB
Eth_1	0.928									
Eth_2	0.898									
Eth_3	0.940									
Eth_4	0.902									
H_1		0.793								
H_2		0.847								
H_3		0.872								
H_4		0.747								
Pl_1			0.842							
Pl_2			0.727							
Pl_3			0.831							
Qual_1				0.859						
Qual_2				0.927						
Qual_3				0.793						
Saf_2					0.807					
Saf_3					0.700					
Saf_4					0.962					
SoA_1							0.883			
SoA_2							0.761			
SoA_3							0.724			
SoA_4							0.846			
Stimul_1						0.804				
Stimul_2						0.728				
Stimul_4						0.783				
VfM_1								0.889		
VfM_2								0.881		
VfM_3								0.626		
VfM_4								0.700		
WOM_1									0.904	
WOM_2									0.903	
WOM_3									0.891	
WTB_1										0.795
WTB_2_R										0.827
WTB_3_R										0.792
WTB_4										0.825

Table 3. Fornell-Larcker matrix

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB	WTP
ETH	0.917										
HEALTH	0.373	0.816									
PL	0.321	0.270	0.801								
QUAL	0.459	0.492	0.502	0.861							
SAF	0.561	0.600	0.296	0.587	0.830						
STIMUL	0.349	0.235	0.302	0.312	0.277	0.773					
SoA	0.006	-0.037	0.022	0.023	-0.031	0.373	0.806				
VfM	-0.023	0.184	0.131	0.121	0.073	-0.019	0.074	0.782			
WOM	0.366	0.011	0.032	0.037	0.164	0.097	-0.100	-0.017	0.900		
WTB	0.234	0.015	0.055	-0.001	0.143	0.088	-0.155	0.055	0.684	0.810	
WTP	0.263	0.115	0.136	0.151	0.135	0.065	-0.131	-0.349	0.260	0.207	1.000

Table 4. HTMT ratios

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB
ETH										
HEALTH	0.404									
PL	0.389	0.368								
QUAL	0.506	0.605	0.643							
SAF	0.609	0.711	0.394	0.715						
STIMUL	0.442	0.338	0.455	0.417	0.348					
SoA	0.066	0.089	0.080	0.072	0.093	0.520				
VfM	0.096	0.279	0.228	0.207	0.140	0.118	0.086			
WOM	0.400	0.072	0.058	0.068	0.160	0.133	0.090	0.063		
WTB	0.239	0.089	0.126	0.072	0.140	0.147	0.151	0.080	0.785	
WTP	0.273	0.117	0.149	0.157	0.117	0.077	0.115	0.348	0.279	0.214

Table 5. HTMT confidence intervals

	Original Sample (O)	Sample Mean (M)	Bias	2.5%	97.5%
HEALTH -> ETH	0.404	0.409	0.005	0.232	0.543
PL -> ETH	0.389	0.393	0.004	0.254	0.528
PL -> HEALTH	0.368	0.381	0.013	0.181	0.538
QUAL -> ETH	0.506	0.507	0.002	0.369	0.638
QUAL -> HEALTH	0.605	0.607	0.002	0.438	0.735
QUAL -> PL	0.643	0.649	0.006	0.427	0.782
SAF -> ETH	0.609	0.614	0.005	0.426	0.737
SAF -> HEALTH	0.711	0.716	0.004	0.561	0.850
SAF -> PL	0.394	0.394	-0.000	0.219	0.562
SAF -> QUAL	0.715	0.715	-0.000	0.587	0.828
STIMUL -> ETH	0.442	0.448	0.007	0.284	0.596
STIMUL -> HEALTH	0.338	0.354	0.016	0.185	0.494
STIMUL -> PL	0.455	0.467	0.012	0.270	0.613
STIMUL -> QUAL	0.417	0.421	0.004	0.232	0.597
STIMUL -> SAF	0.348	0.359	0.012	0.150	0.543
SoA -> ETH	0.066	0.104	0.038	0.047	0.082
SoA -> HEALTH	0.089	0.138	0.049	0.058	0.099
SoA -> PL	0.080	0.132	0.052	0.051	0.097
SoA -> QUAL	0.072	0.124	0.052	0.043	0.086
SoA -> SAF	0.093	0.132	0.039	0.057	0.115
SoA -> STIMUL	0.520	0.518	-0.001	0.348	0.659
VfM -> ETH	0.096	0.136	0.040	0.060	0.116
VfM -> HEALTH	0.279	0.293	0.014	0.132	0.442
VfM -> PL	0.228	0.252	0.025	0.119	0.346
VfM -> QUAL	0.207	0.237	0.029	0.115	0.321
VfM -> SAF	0.140	0.179	0.039	0.067	0.233
VfM -> STIMUL	0.118	0.182	0.064	0.077	0.136
VfM -> SoA	0.086	0.134	0.047	0.048	0.101
WOM -> ETH	0.400	0.393	-0.007	0.253	0.561
WOM -> HEALTH	0.072	0.117	0.044	0.045	0.082
WOM -> PL	0.058	0.117	0.059	0.037	0.059
WOM -> QUAL	0.068	0.106	0.039	0.023	0.106
WOM -> SAF	0.160	0.185	0.025	0.072	0.265
WOM -> STIMUL	0.133	0.178	0.045	0.035	0.238
WOM -> SoA	0.090	0.128	0.038	0.044	0.135
WOM -> VfM	0.063	0.119	0.056	0.043	0.069
WTB -> ETH	0.239	0.247	0.008	0.115	0.390
WTB -> HEALTH	0.089	0.139	0.049	0.060	0.106
WTB -> PL	0.126	0.159	0.034	0.054	0.183
WTB -> QUAL	0.072	0.121	0.049	0.047	0.085
WTB -> SAF	0.140	0.171	0.030	0.055	0.238
WTB -> STIMUL	0.147	0.195	0.048	0.084	0.191
WTB -> SoA	0.151	0.178	0.027	0.070	0.297
WTB -> VfM	0.080	0.141	0.061	0.052	0.091
WTB -> WOM	0.785	0.788	0.002	0.678	0.873
WTP -> ETH	0.273	0.272	-0.000	0.143	0.354
WTP -> HEALTH	0.117	0.126	0.009	0.032	0.226
WTP -> PL	0.149	0.165	0.016	0.035	0.256
WTP -> QUAL	0.157	0.165	0.008	0.047	0.266
WTP -> SAF	0.117	0.149	0.033	0.032	0.176
WTP -> STIMUL	0.077	0.111	0.034	0.017	0.141
WTP -> SoA	0.115	0.134	0.020	0.037	0.207
WTP -> VfM	0.348	0.354	0.006	0.200	0.482
WTP -> WOM	0.279	0.279	-0.000	0.139	0.401
WTP -> WTB	0.214	0.221	0.007	0.094	0.334

Appendix I. Measurement model assessment: antecedent variables added, final model after the final removal

Table 1. Values of reliability and convergent validity measures

	Cronbach's α	Composite Reliability	AVE
ETH	0.937	0.955	0.842
HEALTH	0.838	0.892	0.673
PL	0.727	0.846	0.648
QUAL	0.831	0.898	0.746
SAF	0.794	0.878	0.708
STIMUL	0.670	0.818	0.602
SoA	0.847	0.894	0.679
VfM	0.802	0.882	0.715
WOM	0.882	0.927	0.809
WTB	0.829	0.886	0.661

Table 2. Outer loadings

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB
Eth_1	0,927									
Eth_2	0,902									
Eth_3	0,94									
Eth_4	0,9									
H_1		0,819								
H_2		0,801								
H_3		0,871								
H_4		0,788								
Pl_1			0,873							
Pl_2			0,797							
Pl_3			0,738							
Qual_1				0,882						
Qual_2				0,901						
Qual_3				0,805						
Saf_2					0,877					
Saf_3					0,723					
Saf_4					0,912					
SoA_1							0,821			
SoA_2							0,82			
SoA_3							0,792			
SoA_4							0,86			
Stimul_1						0,822				
Stimul_2						0,84				
Stimul_4						0,652				
VfM_1								0,891		
VfM_2								0,9		
VfM_3								0,735		
WOM_1									0,901	
WOM_2									0,902	
WOM_3									0,895	
WTB_1										0,732
WTB_2_R										0,841
WTB_3_R										0,843
WTB_4										0,832

Appendix J. Final measurement model
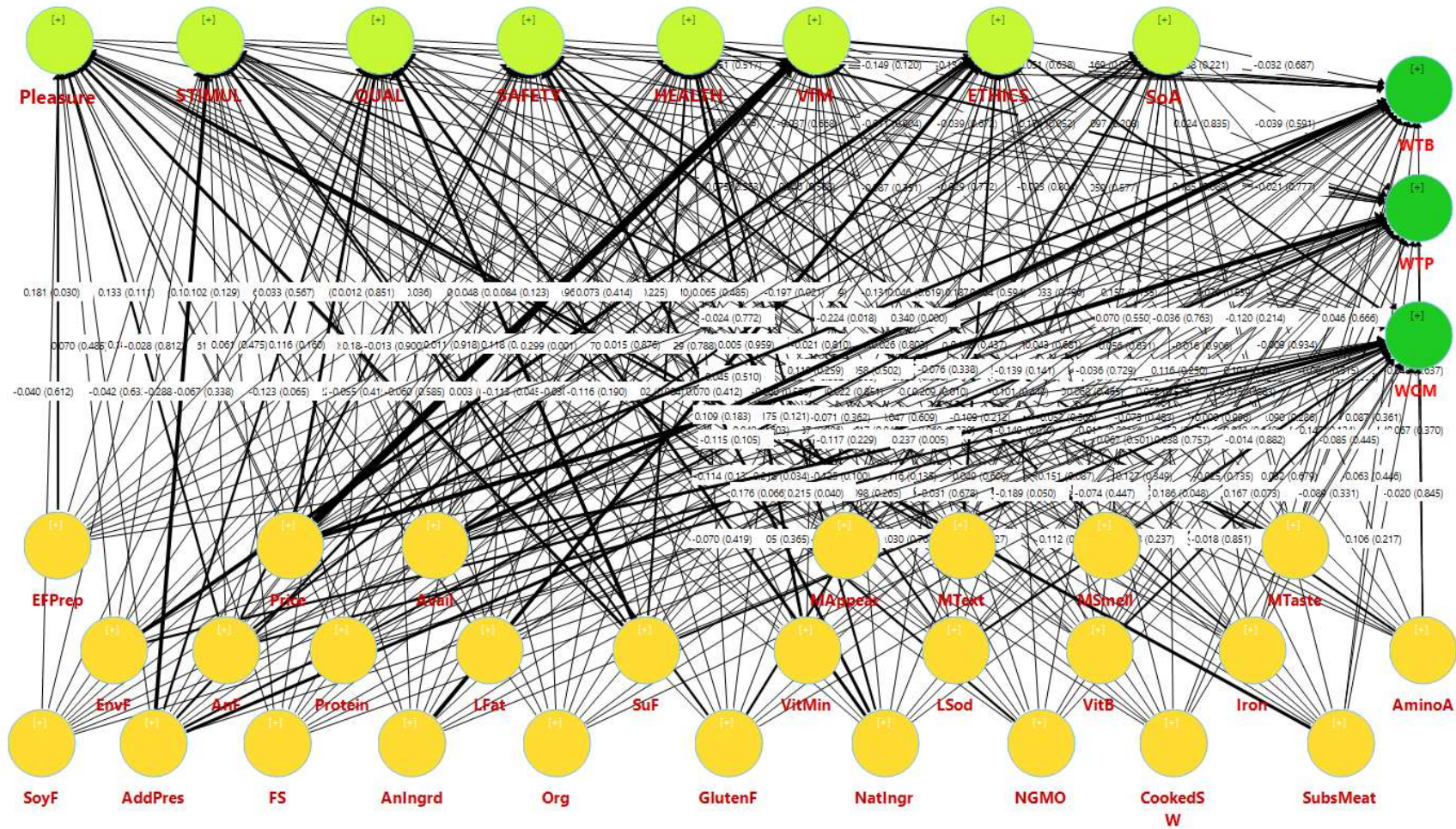
Source: Author's own work, created in SmartPLS

Appendix K. Structural model assessment

Table 1. Assessing collinearity between the constructs

	ETH	HEALTH	PL	QUAL	SAF	STIMUL	SoA	VfM	WOM	WTB	WTP
AddPres	3.200	3.200	3.200	3.200	3.196	3.200	3.200	3.200	3.465	3.454	3.465
AminoA	2.171	2.171	2.171	2.171	2.171	2.171	2.171	2.171	2.290	2.286	2.290
AnF	2.361	2.361	2.361	2.361	2.188	2.361	2.361	2.361	2.499	2.410	2.499
AnIngrd	2.246	2.246	2.246	2.246	2.238	2.246	2.246	2.246	2.543	2.540	2.543
Avail	1.421	1.421	1.421	1.421	1.421	1.421	1.421	1.421	1.544	1.544	1.544
CookedSV	1.643	1.643	1.643	1.643	1.643	1.643	1.643	1.643	1.685	1.685	1.685
EFPrep	1.345	1.345	1.345	1.345	1.336	1.345	1.345	1.345	1.415	1.411	1.415
ETH									3.009	2.706	3.009
EnvF	2.036	2.036	2.036	2.036		2.036	2.036	2.036	2.297		2.297
FS	1.326	1.326	1.326	1.326	1.326	1.326	1.326	1.326	1.390	1.389	1.390
GlutenF	1.677	1.677	1.677	1.677	1.675	1.677	1.677	1.677	1.792	1.785	1.792
HEALTH									2.302	2.291	2.302
Iron	2.877	2.877	2.877	2.877	2.852	2.877	2.877	2.877	3.021	3.012	3.021
LFat	1.509	1.509	1.509	1.509	1.509	1.509	1.509	1.509	1.603	1.602	1.603
LSod	2.098	2.098	2.098	2.098	2.081	2.098	2.098	2.098	2.209	2.195	2.209
MAppear	2.942	2.942	2.942	2.942	2.935	2.942	2.942	2.942	3.024	3.015	3.024
MSmell	2.259	2.259	2.259	2.259	2.237	2.259	2.259	2.259	2.375	2.354	2.375
MTaste	2.812	2.812	2.812	2.812	2.763	2.812	2.812	2.812	2.890	2.858	2.890
MText	3.617	3.617	3.617	3.617	3.597	3.617	3.617	3.617	3.750	3.749	3.750
NGMO	2.099	2.099	2.099	2.099	2.099	2.099	2.099	2.099	2.216	2.209	2.216
NatIngr	2.895	2.895	2.895	2.895	2.740	2.895	2.895	2.895	3.096	2.968	3.096
Org	2.265	2.265	2.265	2.265	2.179	2.265	2.265	2.265	2.360	2.279	2.360
PL									1.797	1.796	1.797
Price	1.650	1.650	1.650	1.650	1.628	1.650	1.650	1.650	2.458	2.433	2.458
Protein	2.032	2.032	2.032	2.032	2.031	2.032	2.032	2.032	2.104	2.100	2.104
QUAL									2.405	2.404	2.405
SAF									2.685	2.684	2.685
STIMUL									1.721	1.706	1.721
SoA									1.404	1.404	1.404
SoyF	1.621	1.621	1.621	1.621	1.620	1.621	1.621	1.621	1.702	1.702	1.702
SuF	1.997	1.997	1.997	1.997	1.997	1.997	1.997	1.997	2.206	2.205	2.206
SubstMea	2.104	2.104	2.104	2.104	2.066	2.104	2.104	2.104	2.245	2.197	2.245
VfM									1.981	1.972	1.981
VitB	2.729	2.729	2.729	2.729	2.709	2.729	2.729	2.729	2.834	2.829	2.834
VitMin	2.724	2.724	2.724	2.724	2.660	2.724	2.724	2.724	2.863	2.807	2.863

*Table 2. Comparison of **R² and R² adjusted estimates***

	R Square	R ² Adjusted
ETH	0.574	0.512
SAF	0.469	0.394
VfM	0.460	0.381
HEALTH	0.439	0.357
WTP	0.419	0.304
WOM	0.399	0.281
QUAL	0.391	0.303
WTB	0.367	0.246
STIMUL	0.229	0.117
PL	0.210	0.095
SoA	0.147	0.023

Table 3. Nonsignificant path coefficients between product attributes and consumption goals

Relationship between the variables	Path Coefficient	p value	Relationship between the variables	Path Coefficient	p value
AddPres -> ETH	-0.030	0.720	MSmell -> ETH	-0.006	0.935
AddPres -> HEALTH	-0.060	0.595	MSmell -> HEALTH	-0.131	0.130
AddPres -> PL	-0.158	0.232	MSmell -> PL	0.085	0.422
AddPres -> QUAL	-0.179	0.103	MSmell -> QUAL	0.021	0.824
AddPres -> SAF	0.025	0.813	MSmell -> SAF	0.030	0.751
AddPres -> SoA	-0.002	0.986	MSmell -> STIMUL	0.066	0.616
AminoA -> ETH	-0.036	0.589	MSmell -> SoA	0.157	0.142
AminoA -> HEALTH	-0.002	0.979	MSmell -> VfM	-0.117	0.186
AminoA -> PL	-0.089	0.354	MTaste -> ETH	-0.115	0.228
AminoA -> QUAL	-0.009	0.910	MTaste -> HEALTH	-0.046	0.604
AminoA -> STIMUL	0.058	0.563	MTaste -> PL	-0.103	0.435
AminoA -> SoA	-0.009	0.934	MTaste -> QUAL	-0.071	0.513
AminoA -> VfM	-0.032	0.710	MTaste -> SAF	-0.127	0.128
AnF -> ETH	0.170	0.051	MTaste -> STIMUL	-0.186	0.130
AnF -> HEALTH	0.011	0.917	MTaste -> SoA	-0.079	0.511
AnF -> PL	0.182	0.102	MTaste -> VfM	0.026	0.780
AnF -> QUAL	0.116	0.192	MText -> ETH	0.187	0.070
AnF -> SAF	0.160	0.057	MText -> HEALTH	0.155	0.117
AnF -> STIMUL	0.061	0.579	MText -> PL	0.177	0.181
AnF -> SoA	0.029	0.792	MText -> QUAL	0.113	0.317
AnF -> VfM	0.115	0.196	MText -> SAF	0.081	0.409
AnIngrd -> HEALTH	0.084	0.279	MText -> STIMUL	0.028	0.828
AnIngrd -> PL	-0.008	0.938	MText -> SoA	0.033	0.786
AnIngrd -> QUAL	-0.031	0.728	MText -> VfM	0.066	0.524
AnIngrd -> SAF	-0.049	0.568	NGMO -> ETH	-0.029	0.661
AnIngrd -> STIMUL	0.069	0.471	NGMO -> HEALTH	0.097	0.220
AnIngrd -> SoA	-0.060	0.559	NGMO -> PL	-0.010	0.921
AnIngrd -> VfM	0.052	0.528	NGMO -> QUAL	0.116	0.162
Avail -> ETH	0.021	0.772	NGMO -> SAF	0.096	0.216
Avail -> HEALTH	0.003	0.965	NGMO -> STIMUL	0.162	0.089
Avail -> PL	-0.095	0.294	NGMO -> SoA	0.068	0.476
Avail -> QUAL	0.094	0.239	NGMO -> VfM	-0.065	0.418
Avail -> SAF	0.130	0.063	NatIngr -> ETH	0.123	0.173
Avail -> STIMUL	-0.068	0.446	NatIngr -> HEALTH	0.182	0.103
Avail -> VfM	-0.018	0.814	NatIngr -> PL	0.136	0.309
CookedSW -> ETH	-0.044	0.468	NatIngr -> SAF	0.208	0.077
CookedSW -> HEALTH	-0.030	0.697	NatIngr -> STIMUL	0.140	0.279
CookedSW -> PL	-0.079	0.374	NatIngr -> SoA	-0.101	0.436
CookedSW -> QUAL	-0.067	0.356	NatIngr -> VfM	-0.075	0.420
CookedSW -> SAF	-0.087	0.205	Org -> ETH	0.045	0.537
CookedSW -> STIMUL	-0.005	0.955	Org -> HEALTH	0.103	0.203
CookedSW -> SoA	-0.052	0.583	Org -> PL	-0.035	0.722
CookedSW -> VfM	-0.110	0.111	Org -> QUAL	0.104	0.209
EFPrep -> ETH	0.084	0.153	Org -> SAF	0.127	0.099
EFPrep -> HEALTH	0.012	0.849	Org -> STIMUL	0.038	0.700
EFPrep -> QUAL	0.102	0.143	Org -> SoA	0.022	0.853
EFPrep -> SAF	0.028	0.640	Org -> VfM	-0.120	0.114
EFPrep -> STIMUL	0.133	0.118	Price -> ETH	-0.078	0.214
EFPrep -> SoA	0.073	0.419	Price -> HEALTH	0.048	0.496
EFPrep -> VfM	-0.055	0.431	Price -> PL	-0.150	0.111
EnvF -> HEALTH	-0.013	0.896	Price -> STIMUL	-0.046	0.617
EnvF -> PL	0.070	0.475	Price -> SoA	0.065	0.491

EnvF -> QUAL	0.061	0.485	Protein -> ETH	-0.070	0.302
EnvF -> SAF	0.080	0.446	Protein -> HEALTH	0.118	0.167
EnvF -> STIMUL	-0.028	0.804	Protein -> PL	-0.008	0.940
EnvF -> SoA	0.015	0.882	Protein -> QUAL	0.058	0.520
EnvF -> VfM	0.047	0.531	Protein -> SAF	0.043	0.630
FS -> ETH	-0.069	0.178	Protein -> STIMUL	-0.073	0.444
FS -> HEALTH	0.003	0.960	Protein -> SoA	0.005	0.960
FS -> PL	-0.132	0.086	Protein -> VfM	0.098	0.251
FS -> QUAL	0.036	0.607	SoyF -> ETH	-0.113	0.066
FS -> SAF	-0.020	0.732	SoyF -> HEALTH	-0.055	0.417
FS -> STIMUL	-0.056	0.463	SoyF -> PL	-0.040	0.618
FS -> SoA	0.070	0.412	SoyF -> QUAL	-0.067	0.326
FS -> VfM	-0.034	0.586	SoyF -> SAF	-0.121	0.076
GlutenF -> ETH	0.120	0.055	SoyF -> STIMUL	-0.042	0.629
GlutenF -> HEALTH	0.074	0.286	SoyF -> SoA	-0.116	0.201
GlutenF -> PL	-0.016	0.853	SoyF -> VfM	-0.109	0.139
GlutenF -> QUAL	0.031	0.663	SuF -> ETH	0.011	0.879
GlutenF -> SAF	0.073	0.295	SuF -> SAF	0.072	0.342
GlutenF -> VfM	0.051	0.528	SuF -> STIMUL	0.174	0.085
Iron -> ETH	-0.091	0.288	SuF -> SoA	0.026	0.805
Iron -> HEALTH	-0.049	0.651	SuF -> VfM	0.123	0.101
Iron -> PL	0.109	0.412	SubstMeat -> ETH	-0.058	0.428
Iron -> QUAL	0.060	0.590	SubstMeat -> HEALTH	-0.025	0.743
Iron -> SAF	-0.166	0.108	SubstMeat -> PL	0.218	0.056
Iron -> STIMUL	0.063	0.599	SubstMeat -> QUAL	0.114	0.213
Iron -> SoA	-0.016	0.909	SubstMeat -> SAF	0.105	0.200
Iron -> VfM	-0.103	0.286	SubstMeat -> STIMUL	0.105	0.301
LFat -> ETH	-0.055	0.340	SubstMeat -> SoA	-0.015	0.881
LFat -> HEALTH	0.077	0.223	SubstMeat -> VfM	0.093	0.236
LFat -> PL	-0.115	0.136	VitB -> ETH	0.125	0.123
LFat -> QUAL	-0.043	0.521	VitB -> HEALTH	0.068	0.557
LFat -> SAF	-0.088	0.166	VitB -> PL	0.039	0.732
LFat -> STIMUL	0.052	0.574	VitB -> QUAL	-0.049	0.627
LFat -> SoA	-0.021	0.816	VitB -> SAF	0.023	0.797
LFat -> VfM	0.074	0.296	VitB -> STIMUL	0.094	0.427
LSod -> ETH	0.044	0.563	VitB -> SoA	-0.056	0.647
LSod -> HEALTH	0.039	0.591	VitB -> VfM	0.096	0.317
LSod -> PL	0.073	0.480	VitMin -> ETH	0.036	0.698
LSod -> QUAL	-0.018	0.823	VitMin -> PL	0.093	0.463
LSod -> STIMUL	0.039	0.722	VitMin -> QUAL	0.145	0.209
LSod -> SoA	0.043	0.688	VitMin -> SAF	0.063	0.550
LSod -> VfM	-0.121	0.174	VitMin -> STIMUL	-0.006	0.957
MAppear -> ETH	0.046	0.627	VitMin -> SoA	0.103	0.439
MAppear -> HEALTH	0.026	0.787	VitMin -> VfM	0.068	0.479
MAppear -> PL	-0.136	0.243			
MAppear -> QUAL	-0.026	0.799			
MAppear -> SAF	-0.010	0.910			
MAppear -> STIMUL	0.129	0.340			
MAppear -> SoA	0.064	0.582			
MAppear -> VfM	0.026	0.803			

*Table 4. Nonsignificant path coefficients between product attributes and outcomes*

Relationship between the variables	Path Coefficient	p value
AddPres -> WOM	-0.105	0.361
AddPres -> WTB	-0.175	0.125
AminoA -> WOM	-0.020	0.839
AminoA -> WTB	-0.048	0.618
AminoA -> WTP	-0.067	0.392
AnF -> WTB	0.119	0.252
AnF -> WTP	0.087	0.292
AnIngrd -> WOM	0.030	0.766
AnIngrd -> WTB	-0.047	0.601
AnIngrd -> WTP	0.116	0.119
Avail -> WTP	0.059	0.352
CookedSW -> WOM	0.036	0.678
CookedSW -> WTB	0.090	0.289
CookedSW -> WTP	0.032	0.689
EFPrep -> WOM	-0.115	0.126
EFPrep -> WTB	-0.024	0.769
EFPrep -> WTP	-0.045	0.532
EnvF -> WOM	0.176	0.055
EnvF -> WTP	-0.049	0.614
FS -> WTB	-0.071	0.362
FS -> WTP	-0.125	0.107
GlutenF -> WOM	0.112	0.158
GlutenF -> WTB	-0.052	0.579
GlutenF -> WTP	0.151	0.077
Iron -> WOM	-0.089	0.374
Iron -> WTB	-0.066	0.540
Iron -> WTP	0.145	0.145
LFat -> WOM	-0.032	0.682
LFat -> WTB	-0.076	0.322
LFat -> WTP	0.069	0.358
LSod -> WTB	0.116	0.255
LSod -> WTP	-0.052	0.573

MAppear -> WOM	0.067	0.521
MAppear -> WTB	0.070	0.544
MAppear -> WTP	0.114	0.289
MSmell -> WOM	-0.014	0.882
MSmell -> WTB	-0.120	0.203
MSmell -> WTP	-0.097	0.265
MTaste -> WOM	-0.085	0.449
MTaste -> WTB	0.046	0.662
MTaste -> WTP	0.059	0.593
MText -> WOM	0.038	0.757
MText -> WTB	-0.036	0.770
MText -> WTP	-0.007	0.951
NGMO -> WOM	-0.018	0.855
NGMO -> WTB	-0.000	0.996
NGMO -> WTP	-0.025	0.752
NatIngr -> WOM	-0.118	0.256
NatIngr -> WTB	-0.075	0.458
NatIngr -> WTP	0.127	0.328
Org -> WOM	0.020	0.826
Org -> WTB	-0.109	0.207
Org -> WTP	0.049	0.605
Price -> WOM	-0.117	0.219
Protein -> WOM	0.098	0.265
Protein -> WTB	0.058	0.518
Protein -> WTP	0.017	0.847
SoyF -> WOM	-0.070	0.417
SoyF -> WTB	0.109	0.167
SoyF -> WTP	-0.114	0.157
SuF -> WTB	-0.139	0.143
SuF -> WTP	-0.149	0.094
SubstMeat -> WOM	0.106	0.228
SubstMeat -> WTB	0.087	0.353
SubstMeat -> WTP	-0.063	0.451
VitB -> WOM	0.167	0.077
VitB -> WTB	0.104	0.340
VitB -> WTP	0.049	0.648
VitMin -> WOM	-0.075	0.464
VitMin -> WTB	-0.036	0.741
VitMin -> WTP	-0.012	0.896

Table 5. Nonsignificant path coefficients between food consumption goals and outcomes

Relationship between the variables	Path Coefficient	p value
ETH -> WOM	0.186	0.097
ETH -> WTB	0.158	0.209
ETH -> WTP	0.024	0.833
HEALTH -> WOM	-0.023	0.803
HEALTH -> WTB	0.051	0.634
PL -> WOM	-0.075	0.341
PL -> WTB	-0.051	0.513
PL -> WTP	0.068	0.411
QUAL -> WOM	-0.087	0.348
QUAL -> WTB	-0.149	0.102
QUAL -> WTP	-0.010	0.900
SAF -> WOM	-0.029	0.759
SAF -> WTB	0.134	0.247
SAF -> WTP	-0.039	0.662
STIMUL -> WOM	0.046	0.584
STIMUL -> WTB	0.090	0.327
STIMUL -> WTP	-0.037	0.667
SoA -> WOM	-0.021	0.765
SoA -> WTB	-0.032	0.686
SoA -> WTP	-0.039	0.597
VfM -> WOM	0.050	0.577
VfM -> WTB	0.169	0.070
VfM -> WTP	-0.097	0.233

Appendix L. Final structural model incorporating just significant paths
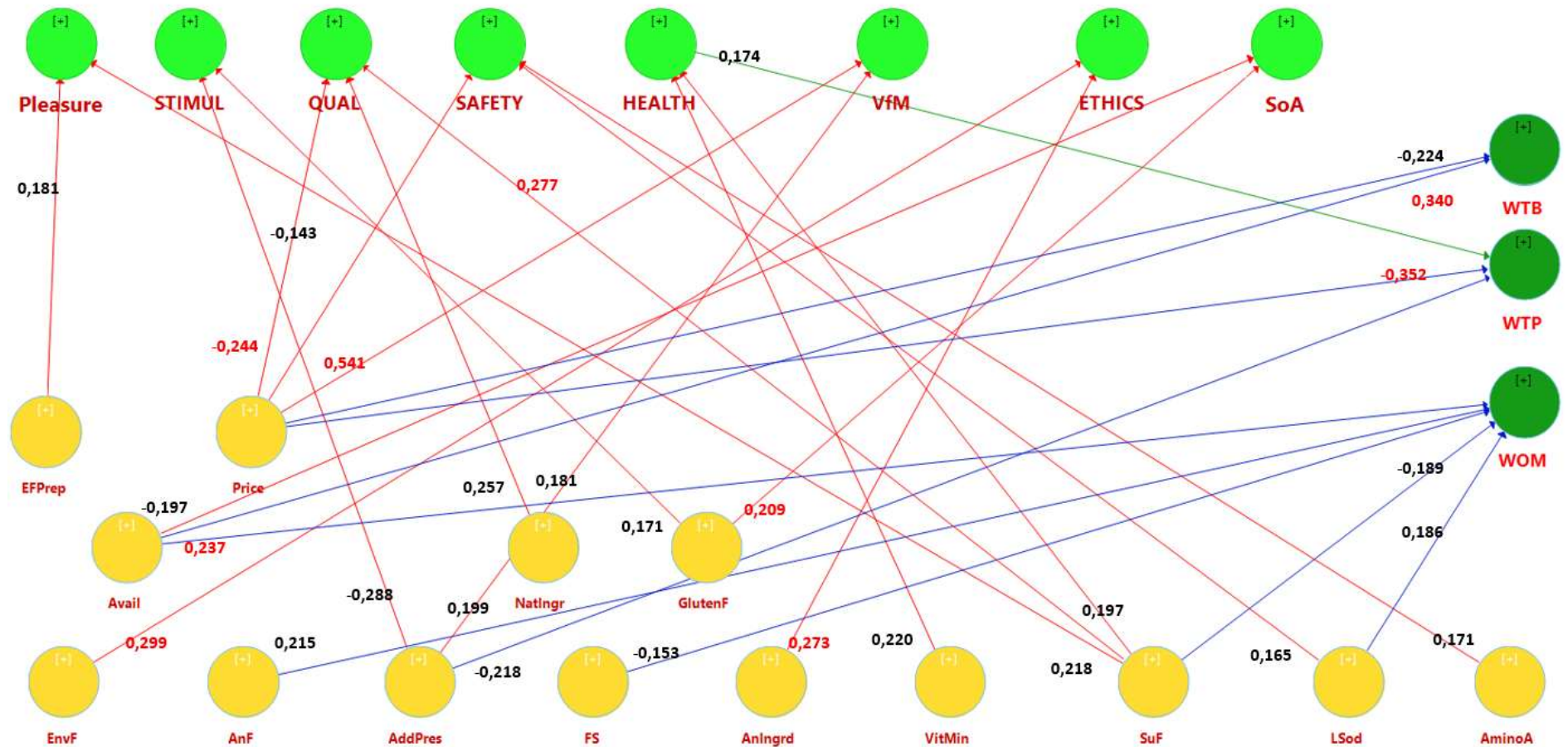
Source: Author's work constructed in SmartPLS and Powerpoint

Appendix M. Written communication with GFI

Written communication with Nicole Rawling, Director of International Engagement at the Good food Institute, November 19, 2017

Nicole: GFI takes the position that consumers purchase products based on taste, price, and convenience. Thus, our mission is based on the premise that if plant-based products designed to replace animal products taste the same or better, cost the same or less, and are just as convenient or more convenient, then consumers will purchase them. There are scholarly articles on this theory but they do not specifically address plant-based products. Thus, I think your research question combining these two factors would be useful.

We "support" companies in two main ways: (1) providing connections and business advice and (2) connecting them with funders. We try and help as many companies and entrepreneurs in (1) as we can and the nutritional value does not play a role. Most of the plant-based meat alternatives are high in sodium and protein but low in saturated fats and cholesterol. We will advise companies on their nutritional composition if it matters for their goals. For example, getting into government programs in the European market will require healthier foods. The Minister of Ecology in France just announced his support for plant based products. In one of the news segments, they interviewed a nutritionist who talked about how a lot of the plant-based meats are high in sodium and thus not that healthy. We haven't been in a position where we had to choose between helping a company with a better nutritional profile than another. If so, if everything else is pretty much constant, I would think we would help the company with a better nutritional profile.

As for helping them get funding, we will also only connect them to funders who support their type of product. I am not currently aware of any venture capital fund which would not support a product because of the lower nutritional composition if the product otherwise showed significant potential. Most of the new products are taking these types of considerations into account and are focusing on ingredients people will recognize.

Our goal is to replace as many animal products with plant-based alternatives as we can. The benefits of plant-based alternatives, even if they are higher in things like sodium, far outweigh the negatives from animal products. As this industry develops, I am confident in saying that companies will be focusing more on the nutritional components of their products.

Appendix N. The Consumer Motivation Scale Structure

Table 1. The items for the measurement of all the sub-goals

Dimension (sub-goal)		When I shop for food, it is important that what I choose…
Stimulation	Stimul_1	Is interesting
	Stimul_2	Gives a unique experience
	Stimul_3	*Is not boring*
	Stimul_4	Offers novelty
Pleasure	Pl_1	Is pleasant
	Pl_2	Is enjoyable
	Pl_3	Is gratifying
	Pl_4	*Is delicious*
Value for Money	VfM_1	Is reasonably priced
	VfM_2	Is not too expensive
	VfM_3	Offers value for the money
	VfM_4	*Is not a waste of money*
Quality	Qual_1	Is of high quality
	Qual_2	Is well made
	Qual_3	Is consistent in quality
	Qual_4	*Meets my highest expectations*
Safety	*Saf_1*	*Makes me feel safe*
	Saf_2	Is free from harmful substances
	Saf_3	Does not put my safety or security at risk
	Saf_4	Is produced in a safe way
Health	H_1	Keeps me healthy
	H_2	Is nutritious
	H_3	Is good for my body
	H_4	Helps to maintain a balanced diet
Ethics	Eth_1	Is not morally wrong
	Eth_2	Does not violate my principles of ethics
	Eth_3	Is consistent with my personal and moral obligations
	Eth_4	Is consistent with my personal values
Social Acceptance	SoA_1	Is accepted among my friends and people close to me
	SoA_2	Is what my friends and people close to me would expect me to choose
	SoA_3	Makes a good impression on people who are important to me
	SoA_4	Is chosen by people who are important to me

Source: The table is author's work. The Scale is adapted from Barbopoulos & Johansson (2017)

Note: the items in blue in italics have been removed after examining for reliability and validity