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Circular Business Models in the Dairy Industry

Analyzing a consumer's propensity to buy a firm's product depending on the level of circularity of its business model

by

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Abstract

Following a brief introduction on the history of Corporate Social Responsibility (CSR) and the concept of the Circular Economy (CE), the impact of the dairy industry on the environment is introduced. This study then focuses on the gaps in research and the problem of implementing CE practices in the dairy industry. After a review of the literature on the Circular Economy and the Business Model, this study makes a conceptualization of the Circular Business Model (CBM) that fits the dairy industry, and of the Circular Business Strategies (CBSs) that the CBM includes. Thereafter, the paper mentions the importance of the level of circularity in a business model and the relevance of studying young consumers when studying the CBM. The study focuses on two main aspects: the importance that these young consumers give to CBSs in regards to their view on sustainability and the way the level of circularity of a firm's business model affects young consumer propensity to buy a product. To answer the research questions deriving from these aspects, a survey targeting students at the Lund University School of Economics and Management (LUSEM) was conducted using a selection of three companies in the dairy industry: Arla, Coop, and Oatly. Evidence that young consumers consider CBSs to be of importance and that high levels of circularity in a firm's business model positively affect a young consumer's intention to purchase a product can be found in the results of the survey. Differences in the results can be found depending on the sustainability consciousness of these consumers. This paper then discusses some practical implications for managers in the industry, including choosing the right level of circularity a firm's business model can possess and recognizing the role the CBM can play in helping a firm to evolve. Finally, deriving from the results of the survey, an integrated framework depicting the different CBSs that can be used in the CBM is proposed for further research into this area.

Keywords: circular economy, business model, business strategies, dairy industry, consumers

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Abbreviations

CBM	Circular Business Model
CBMs	Circular Business Models
CBS	Circular Business Strategy
CBSs	Circular Business Strategies
CE	Circular Economy
CSR	Corporate Social Responsibility
GHG	Greenhouse Gas
LUSEM	Lund University School of Economics and Management
PACE	Platform for Accelerating the Circular Economy

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1 Introduction

1.1 Background and Problematization

The push for sustainability has been one of the most pressing topics of the late 20th and 21st centuries. As of today, sustainability is acknowledged in all aspects of personal and corporate life. However, recognizing the responsibility that corporations have with regards to social and environmental issues has been a lengthy process. In 1970, Milton Friedman famously published in the New York Times an article in which he argued that the social responsibility of a company should solely benefit its shareholders. He proposed that, as business is only meant to maximize the profits of the shareholder, taking social and environmental measures should limit itself to complying with the legal requirements (Friedman, 1970).

A decade later, R. Edward Freeman's book "Strategic management: A stakeholder approach" was first published in 1984. He argued that management should take into account all of the stakeholders of the company when conducting business. He contended that corporations have a moral obligation to, not only acknowledge, but also address the impact of their corporate activities (Freeman, 2010). Freeman's stakeholder approach has greatly contributed to the widespread implementation of Corporate Social Responsibility (CSR) activity in today's corporations. It is now widely agreed upon that businesses should do more than solely comply with regulations and the adoption of CSR activities by companies has moved from the margins in the 1990s to the mainstream today (Hopkins, 2015).

Since Freeman's stakeholder approach, a more ambitious concept argues that if business ever wants to play an effective role in fighting climate change, it needs to put environmental goals at the centre of its business model. This concept of "creating shared value" was first introduced by Michael Porter and Mark Kramer, whereby they asserted that "[t]he most strategic CSR occurs when a company adds a social dimension to its value proposition, making social impact integral to the overall strategy" (Porter and Kramer, 2006, p.11). According to Carroll (2008), in order for firms to effectively fight climate change, environmental goals need to be intimately linked to company performance, so that the more successful the business becomes, the more environmental good is produced. Thus, if business wants to play a significant role in fighting climate change, not only should it engage in CSR, but it should align its business model to this very purpose (Logeais, 2019). One such business model is the Circular Business Model (CBM), based on the concept of the Circular Economy (CE) (De Angelis, 2018).

1.1.1 The Concept of the Circular Economy

The CE is the concept of an alternative economic system that originates from the view that our planet is a closed system with limited resources. As a solution for a sustainable future, it is based on the creation of a "loop", where products at the end of their lifecycle are further processed, reused, or recycled. Unlike the linear economy concept of "produce-use-throw away", the creation of waste and pollution in a CE is either reduced or avoided. Instead the product life cycle is extended to a maximum through recycling, and the product is eventually used as part of another product or service. Ultimately, the concept of CE is built on reducing consumption, while sustaining our current standards of living (De Angelis, 2018).

The CE has been part of research and has been mentioned in economic literature from the middle of the 20th century and has been studied thoroughly since (Kirchherr et al., 2017). In 2018, the 'Platform for Accelerating the Circular Economy' (PACE) was founded and today it consists of more than 75 executive leaders, among others the World Economic Forum, the World Resources Institute and the United Nations Environment Program. The platform's goal is the transition towards a global circular economy to ensure human and environment well being. PACE thereby focuses on the four areas: plastics, electronics and capital equipment, food and agriculture as well as textile and fashion (Platform For Accelerating The Circular Economy, 2020).

As explained earlier, circular business models (CBMs) are business models based on the CE (De Angelis, 2018). Firms can have such business models by adopting circular business strategies (CBSs) to their business model. CBSs are defined in this paper as specific business initiatives, based on the concept of the CE, that enhance a firm's sustainability. CBMs have already been implemented in many industries. In the textile industry, for instance, some firms contrast the fast fashion industry by having a CBM based on strategies that are intended to moderate demand for clothes as well as reuse clothing and recycle microfiber for the production of new clothes (e.g. Patagonia). Another example is in the automotive industry. The recycling of vehicle parts, which can not only reduce waste but also save costs for manufacturers, is common practice in the industry. One industry which has, however, received less focus concerning possible implementations of business models based on the CE is the dairy industry.

1.1.2 The Dairy Industry

The dairy industry, which is part of the livestock industry and the food industry in general, can be found in almost every country in the world. For as early as the Neolithic, humans in Europe, Africa and the Near-East have domesticated animals to produce milk (Vigne, 2015). It was during the industrial revolution that milk became a commercial commodity. From that point in time, production increased dramatically (Atkins, 1960). According to Sheng et al.

(2020) fast expansion and structural change have been taking place on a global scale in the dairy industry which has contributed to its growth. However, growth has been unequal among countries and Australia and New Zealand, for example, have become major exporting countries of dairy products. Likewise deregulation reforms in the European Union and the United States are believed to have increased the worldwide supply of dairy products (Sheng et. al, 2020). Dairy products range from milk, cheese and yogurt, to butter, milk powders and other products (Glavas and Fitzgerald, 2020). However, this study will focus on milk, as it is not only the foundation for all dairy products, but is also the one that is the most consumed (FAO, 2010).

The dairy industry combines several interdependent and sequential industries starting with dairy farming. It then includes milk processing followed by packaging and delivery, and eventually the sales process which sees the delivery of the dairy product to the consumer (Glavas and Fitzgerald, 2020). The first step in the dairy industry is the production of milk through dairy farming. There are different ways of dairy farming with differences in scale, pastures, milking operations, animal welfare and medical and hormone treatments. Thereafter, there are different types of dairy farming, for example conventional or organic farming. Farmers that run organic farms need to follow certain parameters like using non-genetically modified food, farming fewer cows per hectare of land, using less or no pesticides and providing mandatory grazing time for the cows. All these constraints raise costs for the farmers which, in turn, makes organic milk more expensive than conventional milk (Rosati and Aumaitre, 2004). This study only focuses on the final product while the dairy industry encompasses far more industrial activities such as agriculture, processing, manufacturing, packaging, transportation, or distribution.

One important aspect throughout all steps in the dairy industry is safety. The freshness and cooling of the dairy product has to be ensured along the entire supply chain, as it has direct effects on consumers. According to Ding et al. (2019), "in the dairy industry, quality and safety issues occur more frequently upstream of the supply chain, such as at the milk sources" (p.360). Many countries therefore have regulations regarding dairy farming and dairy products. The European Union for example has regulations concerning animal health requirements and veterinary certificate models as well as regulations on the "production, manufacture, handling, storage and dispatch of products", which are entered from non-EU countries (European Commission, 2020).

The dairy industry is especially harmful for the environment. It is responsible for producing high amounts of greenhouse gas (GHG) emissions, extensive land use and freshwater withdrawals, and eutrophication and acidification of soils. According to a report by the Food and Agriculture Organization of the United Nations (2013), the livestock industry alone contributes to 14.5% of the global GHG emissions (7.1 gigatonnes CO_2-eq per annum), of which 20% is used for cattle milk (1.4 gigatonnes CO_2-eq). A study investigating the impact of the dairy sector in California found that total GHG emissions increased between 1964 and

2014 (Naranjo et al., 2020). In addition, global demand for milk is expected to grow 58% by 2050, an indicator that emissions in the industry will most likely continue to increase in the near future (FAO, 2013). On an aggregated level, to become more sustainable and reach the goals of the Paris agreement, the consumption of dairy products as we know it today needs to be drastically reduced.

1.2 Problem Discussion

The dairy industry is, due to its ecological and ethical impact, a relevant topic which has been studied intensively. In fact, while milk is a product that can be found in a majority of households, the industry is facing some challenges due to its issues with sustainability. In fact, especially among the younger generations, people are changing their consumer patterns towards more sustainable consumption (Allen and Spialek, 2018; Kautish and Sharma, 2019). To address the pressing issue of climate change, companies in the dairy industry have been looking for solutions in order to become environmentally sustainable.

Some of these companies seem to have found their solution in principles of the CE. In fact, an increasing number of firms, including Arla (i.e the leading dairy company in Scandinavia), are implementing circular business strategies to their business model so as to reduce their waste and emissions, in the hope of achieving sustainable business structures. Some firms in the industry even take it a step further by bringing the CE to the centre of their business model. An example of this is the global leading oat milk distributor, Oatly, which has managed to implement a CBM in an extensive manner. In fact, its business model includes numerous CBSs that make its product a sustainable direct substitute to the environmentally harmful cow's milk. Although we are witnessing an increase in the adoption of practices based on the CE in the dairy industry, very little research has been made on the possible use of CBMs in the dairy industry. CBMs in the dairy industry use different assumptions than in other industries, as will be explained later on. The delay in the implementation of the CE in the dairy industry stems, in part, from the impracticalities of the current frameworks and conceptualizations when applied to such an industry (De Angelis, 2018). That is why a better conceptualization of what it means to have CBMs in the dairy industry is needed.

Another aspect concerning the CE which will be studied, and which according to De Angelis (2018) has received little attention, deals with the various levels of circularity companies may have implemented in their business models. The 'level of circularity' of a firm is defined in this paper as the extent to which it adopts business strategies based on the CE. The level of circularity in a firm's business model can therefore be used as an indicator of its level of engagement in the CE. While it is acknowledged that a CBM can have different levels of circularity, it is unclear how much of this circularity a firm's business model needs in order to be considered a part of the CE. Would only a full integration of CE practices at the core of the business model be enough for a firm to be considered in the CE? Or could a limited

implementation of CE practices in a firm's strategies suffice? These questions have further implications for firm managers (De Angelis, 2018).

The answers to these questions lie in the consumer's expectations and preferences. However, despite the fact that the subject is extremely relevant, consumer knowledge and opinions on CBMs in the dairy industry have not been explored much. In fact, consumers tend to be neglected in the literature on the subject of the CE, as only 19% of definitions on the CE include the mention of 'consumption' (Kirchherr et. al., 2017). Failing to take into consideration the consumer could lead to authors "possibly adopting a supply-side view regarding CE" where they then could run the risk of "developing business models that are unviable due to lacking consumer demand" (Kirchherr et. al., 2017, p.228).

Thus, it is crucial to take into consideration consumers when studying CBMs as they are the key determinant factor for choosing the right level of circularity for a firm's business model. More specifically, the authors are more interested in studying the perspective of young consumers. The consumer group that will be focused on is the younger segment born between 1989 and 2000. It is an especially interesting consumer group to examine when studying business models and the CE for a number of reasons that will be discussed later in this paper (Allen and Spialek, 2018; Kautish and Sharma, 2019, Kanchanapibul et al., 2014). To study the perspective of young consumers, a survey targeting students at LUSEM was conducted.

In order to align this study with the consumer's understanding of the topic, the 'level of circularity' will be simplified by categorizing each firm as having either 'low', 'medium', or 'high' levels of circularity depending on the number of CBSs each firm has implemented in their CBM. The three dairy companies that will be used for this study, Coop, Arla and Oatly, respectively have one of these three levels of circularity. These three firms have been chosen as they are direct competitors in the Swedish market and can be found on the same supermarket shelves. This increases the chances for the consumers to know each brand and will help them make the comparisons between these products more easily. In fact, while these firms compete in the same market, the strategies they use are very different in regard to their approach to sustainability. The fact that they show a widely different ecological impact in their product offering (this will be discussed in 3.1.1) leaves no room for ambiguity and allows the authors to accurately estimate the relative levels of circularity of each firm's business model. The purpose of this paper is not to measure the level of circularity in a firm but rather to study if and how consumers are influenced by the firm's perceived level of circularity when making a purchasing decision. Thus, it is not believed that this simplification will negatively impact the quality of the study. This will be discussed in greater detail in the literature review.

1.3 Research Purpose

In sum, this study could provide the dairy industry with new relevant insights on how important CBMs are to young consumers in regards to their view on sustainability. The authors of this paper want to understand better the young consumer's propensity to buy a product depending on the level of implementation of CBSs in the CBMs of firms in the dairy industry. More specifically, this study will focus on whether or not young consumers have a tendency to purchase dairy products more when they are aware of the higher levels of circularity of a firm's business model. Based on these aims and objectives for this thesis, the research questions have been formulated as follows:

RQ1: *How important are CBSs in the dairy industry to young consumers in regard to their view on sustainability?*

RQ2: *How does the level of circularity of a firm's business model in the dairy industry influence the young consumer propensity to buy the firm's product?*

1.4 Thesis Outline

Following the introduction in Chapter 1, Chapter 2 is a literature and theoretical review of the aspects of the CE and the dairy industry that are of interest to this study. In this chapter, the definitions of the CE and of the Business Model which best fit the analysis will be used. Thereafter, a conceptualization of the CBM that is suitable for the dairy industry will be formulated and the different CBSs that a CBM can include will be enunciated. Literature that discusses the 'level of circularity' firms can have when implementing such strategies will also be mentioned. Finally, the theory that provides the reasons why firms should consider adopting a CBM by implementing some CBSs in the near future will be used. Chapter 3 is the methodology part of the thesis. It will describe the research approach and design, as well as the data collection method and analysis. In Chapter 4, the results from the survey will be analyzed and the hypotheses derived from the research questions will be tested. In Chapter 5, the necessary conclusions from the analysis will be drawn. This chapter will also include the practical implications of these conclusions, and will finally discuss potential future research.

2 Literature Review

2.1 The Circular Economy

Many of the earlier conceptualizations of the CE defined the theory as a 'closed loop', where products at the end of their life cycle are then processed, reused, or recycled. Deng and Doberstein (2008) infamously described the CE as "the realisation of a closed loop of materials flow in the whole economic system" (Deng and Doberstein, 2008 p.282). Most definitions include the 3R framework of 'reduce, reuse, recycle' and many share the idea of 'closed loops' (Kirchherr et. al., 2017).

While it is understood that this concept was formulated this way for the purpose of simplification, having a 'closed loop' as an economy remains unrealistic in the foreseeable future. In fact, the dairy industry (like many industries for that matter) is not a closed loop. Dairy products, being food, cannot be reused once they have been consumed but rather have to be produced again 'from scratch'. Moreover, demand for food, being a necessity, will continue to grow as the world's population continues to increase. People will always buy food and the demand for food per person is relatively stable, independent of changes in income. As World population carries on growing, so will the food industry. A sustainable business model based on the CE in the dairy industry therefore supposes different assumptions than in other industries. The following definitions fit our interpretation of the CE for this study.

Geissdoerfer et al. (2017) define the CE as "a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops." (p.759) Here, rather than viewing the CE as a closed loop where every resource is reused and recycled, the CE is viewed as an open loop, where the consumption of raw materials is minimized in order to slow down the loop and allow natural regeneration to occur.

A pioneer in the field of CE and one of the founders of the earlier mentioned PACE (1.1) is the Ellen MacArthur Foundation. On its website, the foundation supports this view of the CE. It proposes that "[t]he Circular Economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems." (Ellen Macarthur Foundation, 2020) This perspective of the CE as a system that is regenerative and restorative by design has been increasingly used as a result of the Ellen MacArthur Foundation contributions. According to Kirchherr et. al. (2017) who compiled 114 definitions of the CE, 47% of definitions included this aspect after the foundation mentioned it in 2012, while only 29% of definitions did so prior to that date. This perspective fits how the authors view the CE for the dairy industry, where the use of natural resources must be kept at a

minimum to allow natural reproduction rates.

Alternatively, Korhonen et al. (2018) view the CE as "an economy constructed from societal production-consumption systems that maximizes the service produced from the linear nature-society-nature material and energy throughput flow" (p. 39). This definition paradoxically views the CE in a linear way and, by this, points out the unrealistic ambitions of having an economy as a 'closed loop'. Rather than having this notion of a 'closed loop', it more realistically chooses to keep the linear concept of the economy that we have today and views the CE as an extension of the product life cycle to its maximum. The purpose of extending the product life cycle as much as possible being to limit the use of raw materials and natural resources to allow a sustainable preservation of ecosystems. This definition is also suitable to allow the dairy industry to fit into the CE. While the industry will continue to use raw materials to make its product, the exploitation of natural resources (i.e. land, water, etc) in the CE will be kept at a minimum in order to allow natural regeneration.

2.2 Business Model

To better understand the potential implementations of the CE in the dairy industry, it is important to understand the business model and the role it plays. Research on the business model gained momentum in the mid 1990s. From 1975 to 1994, only 166 papers mentioned the term *business model*. Since then, a growing need for knowledge about this concept has led to an increasing number of mentions, with 1,563 papers mentioning 'business model' from 1995 onwards (Zott et al., 2011). A possible reason for such a late interest in the business model perhaps comes from the difficulty of agreeing on what it represents. For instance, in its literature review, Zott et. al. (2011) compiled all the ways the business model has been referred to in its many definition attempts. In fact, the business model has been described as "a *statement* (Stewart & Zhao, 2000), a *description* (Applegate, 2000; Weill & Vitale, 2001), a *representation* (Morris, Schindehutte, & Allen, 2005; Shafer, Smith, & Linder, 2005), an *architecture* (Dubosson-Torbay, Osterwalder, & Pigneur, 2002; Timmers, 1998), a *conceptual tool or model* (George & Bock, 2009; Osterwalder, 2004; Osterwalder, Pigneur, & Tucci, 2005), a *structural template* (Amit & Zott, 2001), a *method* (Afuah & Tucci, 2001), a *framework* (Afuah, 2004), a *pattern* (Brousseau & Penard, 2006), and a *set* (Seelos & Mair, 2007)" (Zott et al., 2011, p.1022). Nevertheless, the fact that no clear conceptualization of the business model has been made does not seem to deter scholars from writing about them and applying them to the industry. In fact, less than half of the papers on the subject actually make an attempt at conceptualizing the business model and more than a third of the papers do not bother defining the concept at all (Zott et al., 2011). By focusing on the aspects that are deemed to be of importance for this study, the conceptualizations that best describe the business model in relation to the application of the CE in the dairy industry will be used.

The first aspect of the business model that is of importance is the notion of value. Johnson et al. (2008) place the *value proposition* at the center of the business model and argue that, in order to invent or reinvent a firm's business model, it is crucial to clearly identify the customer value proposition. Chesbrough and Rosenbloom (2002) use the term *value creation* and define the business model as " a construct that mediates the value creation process" (p. 550). In addition, they also claim that the role of a business model is to help *capture value* from innovation and commercialization. Teece (2010) combines these three notions by arguing that, "[a] good business model yields value propositions that are compelling to customers, achieves advantageous cost and risk structures, and enables significant value capture by the business that generates and delivers products and services" (p.174). Thus, from these definitions, the three notions of *value proposition*, *value creation* and *value capture mechanisms* are considered essential components of a business model. This threefold definition of the business model is formulated in a similar manner by De Angelis (2018) as she makes a conceptualization of the CBM (this will be examined in greater detail in 2.3.1).

Another aspect that will be taken into consideration in this thesis is the link between business models and business strategies. There have been many ambiguous and contradicting explanations of the relationship between the business model and strategy and the two terms are often used synonymously (Grant, 2016). Nevertheless, many conceptualizations of the business model and its relationship with strategy fit the way the business model is viewed in this study. For example, Richardson (2008) argues that the business model works as a bridge between strategy formulation and implementation. Its role is to maneuver the firm's activities towards a set strategy. Similarly, Casadesus-Masanell and Ricart (2010) claim that the business model is "a reflection of a firm's realized strategy" (p.195). However, Grant's conceptualization of the relationship between the business model and strategy is the one that will be used throughout this thesis. According to Grant (2016), "[w]hile 'business model' describes the overall configuration of a firm's business system,'strategy' describes the specifics of how that business model fits a firm's particular market context and its resource and capability endowments" (p.171) Thus, the business model is more of a general framework that includes a set of strategies which are organized to guide the firm's activities. This view is exactly suited to how this study will describe the business model and strategies in relation to the CE and the dairy industry.

The last aspect of the business model that will be taken into consideration in this thesis is the role it can play in helping a firm evolve. Zott et. al. (2011) use the term 'business model innovation' (BMI) and claim that the business model can be a "vehicle for corporate transformation and renewal" (p.1033). In fact, in order to survive and grow sustainably, firms need to continuously reevaluate their business models as the environment that surrounds them evolves (Drucker, 1994). By being flexible and able to adopt new business strategies, a firm can redesign its business model and be better prepared for future uncertainties. As an extension of the BMI, Bocken and Geradts (2019) anticipate the upcoming challenge of climate change for which most firms will need to react in order to become more

environmentally sustainable. They propose the 'sustainable business model innovation' (SBMI) and describe it as an "innovation to create significant positive impacts, and significantly reduced negative impacts for the environment and society, through changes in the way the organization and its value-network create, deliver and capture value or change their value propositions" (Bocken and Geradts, 2019, p.2). Thus, for a firm to significantly become more sustainable, it will need to readapt its business model.

2.3 Circular Business Models

2.3.1 Conceptualizing the Circular Business Model (CBM)

One conceptualization of how firms can become more sustainable through business model innovation is the CBM. According to Kirchherr et. al. (2017), business models are hardly ever mentioned in literature on the CE, with only 11% of definitions doing so. However, business models play an important role in any economy and omitting them when defining the CE makes its conceptualization incomplete. According to De Angelis (2018), the conceptualization of the CBM is almost non-existent and Linder and Williander's study (2015) is the one exception. They define the CBM as "a business model in which the conceptual logic for value creation is based on utilizing economic value retained in products after use in the production of new offerings" (p.183). This definition follows the logic of the CE being a closed-loop, in which CBMs function with closed-loop supply chains. This definition therefore does not quite fit the way the CE is viewed in this study for its implementation in the dairy industry. De Angelis (2018), who describes business models as " one of the crucial constituents" of the CE (p46), proposes a more satisfactory conceptualization of the CBM. The definition she proposes is threefold and encompasses the same notions of 'value proposition', 'value creation', and 'value capture mechanisms':

"Circular business models are business models wherein enhanced customers' value is produced as a result of more comprehensive 'circular offerings' (e.g. products as services; greater convenience; dematerialised products; superior product durability and ecological performances; product upgradability; take-back schemes) and 'circular relationships' (access over ownership, e.g. leasing, renting, sharing). In circular business models diffused forms of value are created, local/regional supply chains are implemented, maximisation of resources value across the activity system is pursued, boundaries spanning relational competences for the adaptation or development of 'circular' resources and capabilities are developed, and idiosyncratic value capture mechanisms are observed" (De Angelis, 2018, p.65).

As mentioned previously, the business model is the overall configuration of a firm's business system in which a set of business strategies are organized (Grant, 2016). Thus, the CBM is viewed as a business model which includes a combination of CBSs. There are numerous ways

in which CBMs can be implemented in the complex industry which is the food industry. Such aspects encompass agriculture, processing, manufacturing, packaging, transportation, and distribution. As supporting examples for De Angelis' (2018) conceptualization of the CBM, examples of business strategies in the food industry put forward by Bocken et. al. (2020) will be used. Despite the fact that these examples of sustainable business strategies were used for a relatively different study on the subject of 'sufficiency business models' (see Appendix A), they apply well to De Angelis' (2018) conceptualization of the CBM. In fact, the notion of 'sufficiency' put forward by Bocken et al. (2020) fits the definition of the CE that is used in this study. Thus, all of the 'sufficiency business strategies' described by Bocken et al. (2020) appear to also be potential circular business strategies (CBSs) (i.e. specific business initiatives that enhance a firm's sustainability). Thus, the business strategies formulated by Bocken et al. (2020) will be described as CBSs for the purpose of this study.

Value Proposition

Circular offerings

De Angelis (2018) describes the value propositions of CBMs as first "characterised by enhanced customers' value as a result of more comprehensive 'circular offerings' [...]" (p. 62). The following examples of business strategies from Bocken et. al. (2020) focus on the customers' offerings and illustrate well the 'circular offerings' aspect of the value propositions of CBMs:

- Strategy 1: Implementing choice architecture
Making it easy for consumers to shift to better alternatives (e.g. changing the in-store product placement in order to convince consumers to choose healthier and 'better' products).

- Strategy 2: Choice editing
Eliminate products that are inherently unsustainable to provide 'better' and healthier products instead.

- Strategy 3: Encouraging substitution of animal-based products
Encourage people to change their diets in order to avoid the consumption of products with a large environmental footprint (e.g. avoid eating dairy by replacing it with plant-based alternatives that have lower environmental impact).

- Strategy 4: Setting default options
Nudge people to consume less (e.g. setting smaller default sizes to deter consumers from consuming unnecessarily high quantities). This business model enhances a healthier and more sustainable consumption.

- Strategy 5: Selling inconvenience for a better price

Offer products at a cheaper price to the consumer, at the expense of convenience, in order to reduce waste (e.g. offer loose or bulk products, or unsold products that are close to their expiry date, at a cheaper price).

- Strategy 6: Developing products that last

Design products in a way that enhances durability, reparability, and upgradability

Circular Relationships

Secondly, another aspect which can be found in the value proposition of a CBM alongside the 'circular offerings' are the 'circular relationships'. The following business strategies proposed by Bocken et. al. (2020) exemplify De Angelis' (2018) concept of 'circular relationships':

- Strategy 7: Applying conscious sales and marketing techniques

Satisfying 'needs' rather than promoting 'wants'

- Strategy 8: Changing conventional consumer perception

Influence consumer tastes (e.g. convince consumers that 'ugly' vegetables can still be eaten).

- Strategy 9: Educating and engaging consumers

Address unsustainable consumption behavior, promoting green habits

Value Creation

Following the value proposition aspect of the CBM, De Angelis (2018) goes on to describe the CBM's value creation. She describes CBM value creation as diffused, with a "maximisation of resources value across the activity system, local/regional supply chains and boundary spanning relational competences for the adaptation or development of 'circular' resources and capabilities" (p.63). The following examples of business strategies from Bocken et. al. (2020) illustrate what the value creating aspect of the CBM in the food industry could look like:

- Strategy 10: Repurposing food

Apps that seek to generate value from what would have otherwise been waste

- Strategy 11: Offering quality local products

Local cooperation among businesses

- Strategy 12: Shortening the ingredient list

Reducing the number and amount of ingredients that are consumed per product

- Strategy 13: Designing products for sustainable consumption

Use and end-of-life phase of food products by implementing eco-feedback (e.g. anti-littering labels on packaging), stay-on-tabs on cans to prevent them from becoming loose and ending up as litter)

- Strategy 14: Providing refillable packaging for consumables

Value Capture Mechanism

Finally, De Angelis (2018) argues that CBMs are characterised by "idiosyncratic value capture mechanisms". Bocken et. al. (2020) propose a similar idea with strategy 15.

- Strategy 15: Creating new revenue models

Identifying new revenue models that have a lower environmental footprint while delivering the same or better customer experience.

CIRCULAR BUSINESS MODEL (CBM)	
I. Value Propositions	
Circular Offerings	Circular Relationships
1. Implementing choice architecture 2. Choice editing 3. Encouraging substitution of animal-based products 4. Setting default options 5. Selling inconvenience for a better price 6. Developing products that last	7. Applying conscious sales and marketing techniques 8. Changing conventional consumer perception 9. Educating and engaging consumers
II. Value Creation	
10. Repurposing food 11. Offering quality local products 12. Shortening the ingredient list	13. Designing products for sustainable consumption 14. Providing refillable packaging for consumables
III. Value Capture Mechanisms	
15. Creating new revenue models	

Fig. 2.1 A Conceptualization of the CBM (Based on De Angelis (2018) definition of the CBM and Bocken et al. (2020) examples of sustainable business strategies)

Thus, a CBM is a combination of value propositions based on 'circular offerings' and 'circular relationships', sustainable value creating strategies, and idiosyncratic value capture mechanisms (De Angelis, 2018). Each one of these aspects can be implemented differently using the CBSs that best fit the company. Associated together, these CBSs can form the CBM.

2.3.2 Levels of Circularity

Another aspect which needs to be taken into account when studying CBMs is the 'level of circularity' of a business model (De Angelis, 2018). Literature rarely focuses on the different possible implementations of the CBM depending on the extent to which these firms can become circular. However, the extent to which businesses can implement CE principles to their business models varies greatly and, as previously mentioned, this has some serious practical implications for managers (De Angelis, 2018). Therefore, evaluating which level of circularity is the best suited option is very important for a firm's strategy. While there have been some methodological proposals for evaluating the benefits of implementing CE business practices and some attempts at building frameworks, there lacks a real understanding of how to calculate the level of circularity a company may possess in its business model.

A systematic literature review conducted by Sassanelli et.al. (2019) has attempted to compile all of the CE performance assessment methods in order to build a framework to facilitate the firms' evaluation of their CE performance. The review reveals that, while different methodologies cover specific aspects of the company's activities, it is extremely difficult to evaluate the overall degree of circularity in a company. In fact, the evaluation must cover a multitude of factors (e.g. all of the company's environmental externalities) throughout the different stages of the product life cycle. In addition, the evaluation must also be made on different levels of analysis, for example on a micro or macro level. Therefore, having to take into account a huge number of variables and angles of analysis makes evaluating the overall level of circularity of a company extremely complex (Sassanelli et.al., 2019).

While the complexity of properly assessing the level of circularity of a firm's business model is acknowledged, what is meant by "level of circularity" will be simplified. As previously mentioned, each firm will be categorized as either having a low, medium, or high level of circularity for the purpose of this study. These levels will depend on the number of CBSs each firm has implemented in their business models. Thus, the number of business strategies (presented throughout 2.3.1) used by a firm will give us a good idea of the level of circularity of a business model. For example, a firm which has implemented five of the mentioned CBSs in its business model will be considered to have a lower level of circularity than a firm that uses ten of those strategies but also a higher level of circularity than a business model which does not use any of those strategies. As already mentioned in Chapter 1, the purpose of this

study is not to measure the degree of circularity of a firm but rather to study how consumers react to the products resulting from the firm's circularity. Describing each firm with the CBSs they have implemented in their business model will help consumers to better picture the firm's level of circularity.

2.3.3 Circular Business Models as a License to Operate

The question of which level of circularity a firm's business model should possess is not only a question managers in the dairy industry should address (De Angelis, 2018), it is also a question that should be answered from the consumer's viewpoint (Kirchherr et. al., 2017). As already discussed, the consumer group that will be focused on is the younger segment of the millennials, those born between 1989 and 2000. This consumer group is arguably the most relevant when it comes to studying CBMs. For instance, people this age are more prone to use technology and social networks to share information about environmental issues and responsible consumption (Allen and Spialek, 2018; Kautish and Sharma, 2019). In addition, individuals in this age group are not only interested in the present, but are also more likely to consider the future consequences of their purchasing decisions (Kanchanapibul et al., 2014). As a consequence, younger people "tend to hold a more environmentally positive attitude than older people" (Kautish and Sharma, 2019, p.339) and are more inclined to buy sustainable products. Moreover, not only are younger people more prone to base their purchasing decisions on concerns over sustainability, but they also seem to have more of an "ability to reflect on their choice of environmentally-friendly products. (Kanchanapibul et al., 2014, p.528).

Kanchanapibul et al. (2014) further elaborates that the distribution of knowledge about environmental issues and sustainable behavior amongst young people is distributed unevenly. In fact, only some young people have a high degree of ecological knowledge. Nevertheless, "[d]espite the fact that the young respondents did not show a great degree of knowledge in the investigation, their personal responsibility to the environment compensated for this inadequate correlation" (Kanchanapibul et al., 2014, p.533). For instance, as young people are in the demographic cohort that will experience the effects of climate change the most, they tend to be aware of the challenges linked to environmental sustainability even if they are not knowledgeable about the subject.

As the norms and beliefs of the consumers evolve, CMBs could be a good solution for long term competitive advantage. The neo-institutional theory emphasizes the importance for firms to gain legitimacy in order to succeed economically by conforming to the norms, beliefs and rules of society (DiMaggio and Powell, 1983). In fact, De Angelis (2018) believes the neo-institutional theory to be "an appropriate theoretical perspective to understand the rationale for adopting CBMs" (p.84). While De Angelis (2018) does not explicitly mention the consumer in her argumentation, a firm's legitimacy can only be acquired and maintained

if its activities conform, not only with other institutions, but also with what the consumer believes in. As mentioned earlier, younger millennials tend to be more concerned with environmental issues and are more liable to buy sustainable products. Thus, as younger generations will increasingly take a higher share of the consumer base and as other firms in the industry will adopt CMBs, companies in the dairy industry should consider such business models so as to seek legitimacy and social approval in order to survive.

2.4 Summary of Literature and Hypotheses Formulation

This literature review encompassed different theoretical concepts that lead to the conceptualization of the CBM. Firstly, the definitions of the CE that best fit the study were compiled. Due to the different assumptions upon which the dairy industry is based, many of the definitions that were come across were unsatisfactory and unsuitable as they view the CE as a 'closed loop'. Instead, this study is based on the definitions that rather view the CE as an 'open loop', where resource consumption is reduced to a level that will allow natural regeneration to occur.

Secondly, the concept of the 'business model' is so abstract that it makes its conceptualization difficult. However, some of the most important aspects that make a business model were compiled. With the notion of 'value', the business model is described as a construct that yields 'value proposition', 'value creation' and 'value capture' in a firm. In its relation to strategy, the business model is also described as the general framework of a firm, which includes a set of specific strategies. Finally, the business model is depicted as a tool for firm adaptation and renewal, where a firm can reinvent its business model by adopting new strategies in order to grow sustainably.

These two theoretical concepts of the CE and the 'business model' were then built upon to better describe the CBM. The concept of the CBM in this study uses both De Angelis' (2018) threefold conceptualization of the CBM and Bocken et al. (2020) examples of business strategies that fit the different aspects of the CBM. The CBM is therefore viewed as a set of CBSs. Each one of these business strategies are either part of the value proposition, the value creation, or the value capture mechanisms of the CBM. This conceptualization of the CBM, and the CBSs it can include, will be used to answer RQ1.

Furthermore, the CBM was further analyzed as a potential solution for achieving long term competitive advantage, as concern for sustainability becomes more entrenched in our society and in firms' consumer bases. In fact, young consumers hold a more positive attitude towards the environment and are more able to reflect on the choice of environmentally-friendly products. Furthermore, Kuah and Wang (2019) have shown that environmental consciousness

is a factor, which plays a role in the acceptance of circular economy solutions for consumers (Kuah and Wang, 2019). Thus, the authors tested the following hypothesis:

RH1a: Young consumers consider the circular business strategies, and in turn circular business models, to be of importance in regard to sustainability.

Additionally, the authors noted in the literature review that there is a difference in the sustainability consciousness of young consumers, which will affect their level of knowledge on the topic of sustainability. This difference in the sustainability consciousness of consumers, as stated in the literature, will be further explored by the authors. As CBSs are business strategies based on the circular economy, the link between CBSs and a firm's sustainable business practices is easily observable. However, the link between CBSs and a consumer's sustainable behavior is not so clear. It is therefore interesting to test whether young consumers who have a high sustainability consciousness, and arguably a more sustainable behavior, would perceive the CBSs as more important than young consumers with a low sustainability consciousness. Thus, the following research hypothesis is stated as follows:

RH1b: Circular business strategies are more important to young consumers with a high sustainability consciousness, than young consumers with a low sustainability consciousness.

In addition, literature states that a firm's business model can possess different 'levels of circularity' depending on the extent to which it has implemented CBSs. If CBSs are considered to be of importance to young consumers (RQ1), the authors could then assume that the extent to which these strategies are implemented in a firm's business model will affect the consumer's propensity to buy its product. The authors will examine this theory in practice on three defined examples. As previously explained, each firm will be described as either having a low, medium or high level of circularity depending on the number of CBSs it has in its CBM. When young consumers will be presented with new information about the number of strategies based on the CE the firm uses, they would then have an idea of its level of circularity. Thus, to answer research question 2, the authors tested the following hypothesis:

RH2a: Having a high level of circularity in a firm's business model will have a positive impact on young customers' intentions to buy the firm's product.

After having tested the impact that the level of circularity can have on young consumers, the difference in the sustainability consciousness of consumers will once again be explored by the authors. As previously mentioned, having a 'low sustainability consciousness' would affect the level of knowledge and the level of importance that the topic of sustainability plays for

these consumers. Therefore, a young consumer with a 'high sustainability consciousness' would be more eager to learn about a firm's sustainable practices and engagement in the CE and more reactive to its influence on the consumer's purchase decision. Thus, as a more detailed answer to research question 2, the authors tested the following hypothesis:

RH2b: Having a high level of circularity in a firm's business model will have an even more positive impact on young consumers' intentions to buy the firm's product, if the consumer has a high sustainability consciousness.

3 Methodology

In this chapter, the methodological choices used in this study to answer the research questions are described. First, the research approach for the collection of data and a description of the case study is presented. Then, the design of the research is laid out. This is followed by the underlying considerations of the qualitative data collection method, and the data analysis. Finally, the quality of the research and its limitations are discussed.

3.1 Research Approach

3.1.1 Experimental Stimuli Selection

For this study, two milk products, namely "Arla Organic Milk" and "Coop Skimmed Milk", as well as one milk substitute product, "Oatly Oat Drink Semi", were selected as stimuli. The choice for these three brands was based on several aspects. As previously mentioned, all products are easily comparable, as they compete against each other for the same consumers. Despite the fact that Arla and Coop milk are in the dairy category while Oatly is part of the plant-based dairy substitute category, all three brands are in competition for the same market and can be found on the same shelves in supermarkets. While the products differ in price, content, taste, brand perception, sustainability and other aspects, the same consumers are targeted. Secondly, all three brands are global consumer products, which are generally known. This leads to an awareness of the products and decreases the chance of consumers being unaware of one specific brand or product. For this particular reason small, locally or regionally operating milk brands were excluded. Finally, the three companies, while producing comparable products, use different CBMs with different circular business strategies. While Oatly AB uses ten of the fifteen business strategies presented in section 2.3, Arla uses five and Coop uses zero. Coop follows a low price sales strategy, for which its business model will therefore be considered to have a 'low' level of circularity. Arla, which sells organic milk, is considered in this study to have a 'medium' level of circularity. Finally, Oatly, which sells oat milk, is considered to have a 'high' level of circularity. The products therefore have different levels of circularity and offer a good possibility for comparison. The three companies and the respective products will now be introduced in more detail.

Oatly AB: Oat drink Semi

Oatly AB, hereafter referred to as Oatly, was founded in the 1990s under the name Ceba Foods by Rickard Öste. It was renamed Oatly AB in 2006. The company headquarters are situated in Malmö and its production facilities can be found in Sweden, the U.S. and Canada. The products are based on the creation of a liquid from oats, enabled by a patented enzyme

technology based on research from Lund University. Oatly therefore sells substitutes for animal-based dairy products like milk, yogurt and ice cream. The products are sold in over 20 countries and the company has more than 290 employees. Oatly's self declared mission is to "make it easy for people to turn what they eat and drink into personal moments of healthy joy without recklessly taxing the planet's resources in the process" (Oatly, 2019). The main strategy and core principle of Oatly's CBM is encouraging the substitution of less sustainable animal-based products with more sustainable plant-based products. As briefly introduced in chapter 1, the use of resources (i.e. land and water) and GHG emissions are much higher for animal-based dairy products than for plant-based products. In fact, producing a glass of dairy milk requires over ten times the land use, more than thirteen times the amount of water, and emits more than three times the GHG emissions than a glass of oat milk (Poore and Namecek, 2018). This makes Oatly's Oat Drink much more sustainable than the other two products.

Besides setting itself sustainability goals and reducing the company's environmental impact through the reduction of emissions, Oatly has a CBM with a high level of circularity. In fact, of the business strategies mentioned in section 2.3, Oatly uses at least ten. By selling the plant-based products as substitutes for animal-based dairy products (3), Oatly creates a new revenue model (15) and designs products for sustainable consumption (13). Another business strategy used by Oatly is the offering of quality local products (11), as Oatly's products are of high quality and are also offered close to their production sites. Furthermore, through different initiatives such as teasing advertisements encouraging people to switch to their plant-based milk alternative, the company applies conscious sales and marketing techniques (7) and educates and engages consumers (9). Another strategy used by Oatly is the implementation of choice architecture (1) by offering a broader variety of choices which serve as an alternative to different types of traditional dairy products. Moreover, another strategy is the shortening of the ingredient list (12), as the oat drink consists of only roughly seven ingredients and does not include flavor enhancers. In addition, as oat drinks have no need to be cooled, Oatly develops products that last (6). Finally, by using oats for its products, Oatly repurposes food that otherwise might have been used for animal feed (10).

Arla Foods: Organic Milk

Arla Foods, hereafter referred to as Arla, is the world's largest dairy cooperative consisting of a merger of dairy farmers in Denmark, Sweden, Germany and the United Kingdom. Arla currently has 10,300 owners and around 19,000 employees (Arla Foods, 2020). Arla offers a wide range of dairy products and strongly emphasizes the importance of natural products, animal welfare and sustainable farming (Arla Foods, 2020). For its organic dairy products, Arla only uses natural fertilizer, no hormones or antibiotics, promotes wildlife friendly farming and uses eco-cycle bottles made from 50 % recycled material.

Arla Foods has a CBM with a medium level of circularity as it uses five of the business strategies that are mentioned in section 2.3. Firstly, by offering organic instead of regular milk

Arla implements a choice architecture (1). Organic farming underlies special requirements for example only using natural and wildlife friendly fertilisers and keeping fewer cows per hectare. Furthermore, the volume of milk each cow produces is lower and Arla pays its farmers a higher price for the milk (Mea Arla, 2020). This leads to a higher price for organic milk, which sets default options (4) and makes people consume less. Additionally, as Arla's organic milk undergoes a "Ultra High Temperature" (UHT) process, it stays fresh longer and has a longer shelf life in the supermarket (6). Another business strategy is the education and engagement of consumers about reducing food waste (9), which Arla does on its website (Arla, 2020). Lastly, Arla offers quality local products (11) as the company is based on a farmer owned cooperative model and sells its organic products in its respective regions.

Coop: Skimmed Milk

Coop (in some countries Co-op), hereafter referred to as Coop, are national consumer cooperatives, which exist in many countries such as the United Kingdom, Germany, France, Sweden, Norway and Denmark. The national cooperatives are united through the International Cooperative Alliance. More than 1,2 billion members are part of the alliance, which makes it one of the largest non-governmental organisations worldwide (ICA Coop, 2020). In the operating countries Coop runs different businesses in several industries for example food retail (e.g. supermarkets), pharmaceutical, insurance, real estate, legal services and funeral care, among others. The product at study is skimmed milk from the British cooperative, which is the fifth biggest retail market in the United Kingdom (Co-operative Coop, 2020). While the company carries out some projects on sustainability, equality and health, for the production of the skimmed milk, none of the business strategies in section 2.3 could be identified by the authors. Instead the commodity is the product of a low price sales strategy.

3.1.2 Specification of information needed

In the following section, every component of the survey is analyzed and all information needed is stated (Malhotra, 2010). The specification of information obtained must ensure that all components are correctly studied and based on relevant theories (Malhotra, 2010). The survey was split into two studies. In the first study, a five point multi-item scale was used in order to identify the importance of CBSs, and in turn CBMs, for consumers in regard to their view on sustainability. Using a five point scale left the participant the possibility to give a neutral answer if a clear choice could not be made. Each component will be described in more detail in the following sections. The second study explored RQ2 and the influence that the level of circularity of a CBM has on the young consumer's intention to buy a product. Therefore a semantic differential scale from 1 to 10 was used.

Independent Variable

High and Low Sustainability Consciousness

The independent variable used in both studies was the 'High and Low Sustainable Consciousness' of the young consumers. This independent variable was presented in the eighth question, in which the respondents needed to respond to a set of six statements regarding sustainability. The set of statements was used in another paper to study the consumer perception of students in HongKong (Lee, 2014). A Cronbach's Alpha test was run to measure the reliability of these six items. According to Burns and Burns (2008) "[a]n alpha of 0.8 or above is regarded as highly acceptable for assuming homogeneity of items, while 0.7 is the limit of acceptability" (p. 418). The results of the Cronbach Alpha test for these items was 0.89 (Lee, 2014). Thus, this question was deemed valid and reliable in the study conducted by Lee (2014). An additional Cronbach Alpha test was run with the data from the survey results to test the reliability of this question in this study and therefore determine the sustainability consciousness variable. The result of the test showed an alpha of 0.849, which can be regarded as highly acceptable for assuming homogeneity of variance (Burns and Burns, 2008).

Through the five point Likert scale, which consists in allocating points ranging from -2 to +2 to each participant and for each question, two groups would be determined. The first group, scoring an accumulated result which is negative would be labeled as "low sustainable consciousness", and the second group scoring an accumulated result which is positive would be labelled "high sustainable consciousness". All participants who scored exactly zero, would be disregarded for the purposes of the analysis as no clear level of sustainability consciousness would be able to be determined. The method for determining the 'High and Low Sustainable Consciousness' independent variable and its results will be discussed in more detail in the preparation of data section (4.1.2).

Dependent Variables

Business Strategies

In the first study, the fifteen business strategies formulated by Bocken et al. (2020) and stated in the literature review constituted the dependent variables of the first study. The importance that young consumers gave to CBSs thus depended on each of these fifteen business strategies.

Products with different level of circularity

In the second study, the 'Products with different levels of circularity' were used as the dependent variables. As shown in section 3.1.1 the authors chose three different products, which are based on three different CBMs. These CBMs used by the producing companies use different business strategies. The products represent a high, medium and low level of

circularity. Therefore the three products constituted the dependent variable when testing the influence that the CBM's level of circularity has on the young consumer's intention to buy a product.

Other socio-demographic information

In order to get a better understanding of the sample group and understand possible biases or limitations, other information (e.g. age, sex, profession and the country of residence) was gathered. Information on age plays an especially important role, as the survey was targeted towards young people up to 34 years of age. Participants above the age of 34 were removed from the analysis.

3.2 Research Design

For this paper, the study takes a deductive approach, which is "the search to explain causal relationships between variables" (Saunders et al., 2009). With this approach, the hypotheses about the relationship between the variables mentioned in the previous section (3.1.2) are formulated from the theory. This study therefore uses a causal research design, which is defined as an experimental research intended to provide evidence for a cause-and-effect relationship (Malhotra, 2010). In fact, this research aims at examining if a firm's engagement in the CE, which represents the cause, can lead to a particular effect on the consumer. A research strategy that is usually associated with a deductive approach is the use of a survey. A survey strategy allows for the collection of primary, quantitative data which can then be analyzed using statistical tools. It is an appropriate research tool for a deductive approach as "the data collected using a survey strategy can be used to suggest possible reasons for particular relationships between variables and to produce models of these relationships" (Saunders et al., 2009, p.144). Thus, a survey was created to gather evidence as to how important CBSs are to young consumers depending on their sustainability consciousness and how their buying intentions are influenced by the level of circularity of business models.

3.2.1 Study Design

In order to answer the two research questions, the research design is split into two separate studies. The first study is a descriptive design. It is dedicated to the first research question, which is to investigate how important the different CBSs in the dairy industry are for young consumers in regard to their view on sustainability. As already mentioned in the previous section, the fifteen circular business strategies formulated by Bocken et. al (2020) will be the items at study. Here, in order to measure the importance of each respective strategy, a simple t-test in the form of a one way ANOVA will be conducted. This method is used to determine the mean differences (Burns and Burns, 2008). First, the mean value of all the strategies put together will be computed to determine whether CBSs are generally considered important.

Next, the means of each of the 15 individual strategies will be examined to identify potentially significant differences in importance given to these CBSs. Lastly, the differences in means between the sustainability consciousness groups is compared.

The second study uses an experimental, repeated measures design (Burns and Burns, 2008). The repeated measure design indicates that a pre- and post-test design is used, in which the same sample group is used to test a measure first without any information and afterwards with additional information provided (Malhotra, 2010). To be more precise, in the beginning, the participant is asked on the likelihood of purchasing the three products "Arla Organic Milk", "Oatly Oat Drink" and "Coop Skimmed Milk", without any further information on the product. Then fifteen different business strategies are identified and information on the use of these strategies for each product is presented. With the increased knowledge by the participant regarding the level of circularity of each product, the likelihood of the participant purchasing the products is then asked again. The two observations before and after the treatment constitute the independent variable whereas the three products each constitute the dependent variable. The level of the independent variable is manipulated and the changes in the dependent variables are tested (Burns and Burns, 2008). Again a one way repeated ANOVA test is run in order to compare the treatment effects between the three brands as well as differences between the purchase intention among the high and low sustainability consciousness groups.

While the repeated measure design is the most suited for this study, Malhotra (2010) raises several disadvantages for this design. The main concern is the validity of the results, as there is no control group to compare the tested sample against. Thus, by testing the dependent variable (i.e in this case the likelihood of purchasing the three products before and after the treatment of informing on business strategies used for each product), the participant might not be able to give an unbiased answer to the same question for the second time (Malhotra, 2010). In fact, some respondents may understand halfway through the survey that they need to act favorably for the firm with highest level of circularity (i.e. Oatly) and in disfavor of the firm with the lowest level of circularity (i.e. Coop). Thus, their responses for how likely they will purchase each product may be amplified and exaggerated in comparison to their real purchasing decisions. To reduce this bias as much as possible, each firm is described in the most objective manner (i.e. only stating the business strategies they use) and they are not presented by order of level of circularity (i.e. Arla is presented first, then Oatly, then Coop).

3.2.2 Questionnaire Design

For this thesis, a closed-ended response questionnaire was created (see Appendix B). Before starting the questionnaire, general information on the purpose and the length of the questionnaire as well as the reference for anonymity was provided. The first questions concerned socio-demographic information such as sex, age, occupation and country of

residence. The options for sex included male, female, prefer not to say, and other. The age distribution included under 18, 18-25, 26-34, and above 34 years old. The participants could choose their occupation between pupil, student, unemployed, employed, self-employed, and other. In case of being a student, the participation in a Bachelor's program at the Lund University School of Economics and Management was asked in order to test the homogeneity of the sample group.

Following these preliminary questions, the participants were shown a picture of the products "Arla Organic Milk", "Oatly Oat Drink" and "Coop Skimmed Milk". At this point, the participants needed to indicate whether they know the brands or not. After this, the first question of the repeated measures test was raised, in which the participant had to indicate how likely they were to buy each product on a scale from zero to ten, without any further information given. In the next section, six questions concerning sustainable purchasing behavior needed to be answered on a 5 point Likert scale ranging from "Never", over "Rarely", to "Sometimes", followed by "Often" and "Always". This enabled the creation of two groups, one with high and one with low sustainability consciousness.

The next question let the participants rank the importance of fifteen identified circular economy business strategies in regard to sustainability. Here, a 5 point Likert scale was used again including the options "Not important", "Less important", "Neutral", "Important", "Very Important". This was followed by some general information on the companies producing the three products and the number of the above mentioned circular economy strategies used in the production of each product. By this means it was made apparent that Oatly AB, scores as the most sustainable, Arla as second best and Coop as rather unsustainable in terms of the business strategies based on the CE each firm uses. Now that the participant has gained deeper knowledge on the level of circularity of each firm's CBM, the same question concerning the likelihood of purchasing each product was asked again. The questionnaire ended with thanking the participants for taking part in the survey.

3.2.3 Sampling

In order to specify the research, it is important to focus the study towards a specific target group. As previously mentioned in the literature review, young people especially show concern for environmental issues and are therefore responsive to consuming sustainable products. Moreover, despite the fact that knowledge about environmental issues and sustainable behavior amongst young people is distributed unevenly, young people generally have a good understanding of issues related to climate change (Kanchanapibul et al., 2014). Furthermore, young people will increasingly take a higher share of the consumer base as they enter the workforce, which makes the conclusions interesting for companies to understand their customer base better.

As this study focuses on studying the importance that consumers give to CBSs and how different levels of circularity affect consumers' intentions to buy a dairy product depending on different levels of circularity, the authors found that young people aged between the ages of 18 and 34 were therefore the most suitable group to study for all the reasons mentioned above. In order to gather the quantitative data for the analysis, a survey targeting students at LUSEM was conducted. Despite the fact the sampling frame used in this study only includes LUSEM students, the authors believe this sample population to be the most appropriate given the limited time frame and resources available for this study. In fact, a survey that would cover young people of every background was not possible for the authors, which is why LUSEM students were targeted for this survey. In fact, surveying students from LUSEM provided an easily accessible pool of young people.

Nevertheless, limiting the sample frame to LUSEM students provides the study with a homogenous sub-group of young people. With this particular sample group, the risk of having a high degree of variability in the results is minimized and enables the authors to study the group in great depth. Thus, the authors believe this sample group to be at least representative of a certain sub-group of young people (i.e fairly well-educated and well-travelled young people). Despite the fact that the findings of this study should not be generalized beyond the sampling frame (i.e LUSEM students), the authors believe that the formulated hypotheses are founded on enough theoretical ground to have wider applicability than the population from which the sample was selected.

For the study it is important to define the sample size. As a rule of thumb n=30 for the determination of the sample size is mentioned by Hogg, Tanis and Zimmermann (2010). As two groups with high and low sustainability consciousness and three different products are used a minimum of 180 responses was determined. As invalid responses due to misfit to the targeted group need to be accounted for, an additional 30 responses were added for a total of 210 targeted responses.

3.3 Data Collection Method

The survey was conducted online, in a self-completion format. This is the fastest and most economical way to ensure a sufficient number of responses in a short period of time (Burns and Burns, 2008). The questionnaire was created through the program Google Forms. The Google Forms program interface is very user-friendly and provides a simple way of writing and editing the survey questions. It also allows for a simple conversion of these questions into an online survey that internet users can then access by simply clicking a link. In order to avoid invalid surveys, all questions were made mandatory to answer. The survey was distributed through Facebook and other social media. It was specifically posted in the Facebook groups of the Bachelor classes at LUSEM. Unfortunately, due to COVID-19 regulations, direct

conductions of the survey in person could not be done. Therefore, the survey was conducted completely online.

3.4 Data Analysis

When conducting a quantitative study, the authors should pay particular attention to the data preparation, as it is necessary for reliable results. First, the fact that the survey was conducted through Google Forms allowed for a simple way of collecting, coding and transferring the raw data for the analysis. Thus, the risk for errors through manual processing is limited. The statistical tool that is used for the data analysis in this study is SPSS, which is a major tool that is used in many academic papers from a wide range of fields of studies. Preparing the data in SPSS before the analysis consists in defining the variables and organizing the data so that it can be used for the analysis (Burns and Burns, 2008).

The first step after having opened the SPSS software is setting up the data file. After entering the data, the variables first need to be defined. After having inserted all the necessary variable names in the variable view tag, a new screen is displayed where each row represents a different variable for each individual survey response (i.e 1, 2, 3, etc) and the row of columns is headed with the data attributes (i.e. gender, age, country, occupation, student at LUSEM, etc). Then the variable measure is defined.

The data is now organized and allows the pre analysis to be conducted (4.1). Thus, proper screening of the data can be made (4.1.1), the 'high and low sustainability consciousness' groups can be created, and the treatment effect can be conducted (4.1.2).

Before running the statistical tests, the reliability and consistency of the sustainability consciousness questions and the fifteen strategies is conducted. Following the one-way ANOVA tests to answer the research hypotheses are run. The results are compared and analyzed in chapter 4.

3.5 Validity and Reliability

Regarding the validity of this paper, the research for secondary sources was conducted in a systematic way. The literature and theoretical frameworks used were rigorously analyzed and are believed to be credible resources. Every article used in this paper is published in a highly respected journal and the peer review system is assumed to be authentic and valid. Even though the notions of 'business model' and 'circular economy' are widely used in literature, their conceptualizations are still ambiguous and subjective. This is especially true for the concept of the CBM, which is still in its infancy. Being aware of this, the subject of the paper

is still believed to be founded on enough theoretical ground, with the relevant scientific papers from recognized authors, for it to be openly discussed and analyzed.

For the survey validity, the sample is representative of at least a sub-group of young people (i.e. fairly educated and well-travelled) in regards to the subject. Moreover, the fact that all of the young people in the sample are LUSEM students ensures the homogeneity of the sample group and thus minimizes the risk of a high degree of variability in the results. Moreover, the questions were written rigorously so that they could reflect the issue and ensure that the collected data would help us answer the research questions. By properly choosing the dependent variables (i.e. Oatly, Arla and Coop) and the independent variables (i.e. high and low sustainability consciousness), some of the factors that influence the consumer's propensity to buy a product were identified. In addition, the few results that were not representative of the study population were removed from the sample to make sure there were no sampling errors.

The authors also believe that the study and its results are reliable. The scale used for the questions is clear enough for the respondents to understand how to answer which in turn provide the study with consistent answers. Thus, the authors are confident that the gathered results are sufficient to help to better understand the propensity to buy a product (with regards to the level of circularity of firms in the dairy industry) of a young, fairly well-educated and well-travelled population in Sweden.

In order to ensure internal consistency for the questions, determining the sustainability consciousness group, as well as the fifteen circular business strategies, several Cronbach Alpha tests were run. The Cronbach Alpha test is especially useful for questionnaires, as the reliability of the questions measuring the same construct is determined (Burns and Burns, 2008). All tests run scored an alpha > 0.8, which is regarded highly acceptable for the reliability and consistency of the items (Burns and Burns, 2008). All additional statistical tests were run successfully, to ensure that the ANOVA tests could be used for this study.

3.6 Chapter Summary

In the methodology chapter, the research approach is first stated. Here, the three companies that are used for this study, Oatly, Arla and Coop, and its respective products are introduced. Then, the variables for the data testing are defined. The sustainability consciousness group is the independent variable for both studies. For the first research question, the fifteen identified circular strategies are the dependent variable, while for the second research question, the three products are the dependent variable. This is followed by the description of the design of the study and the questionnaire design. The first study has a descriptive, the second study an experimental design. The sample population for the studies were defined as young people, between the ages of 18 and 34, who are currently studying at LUSEM. The subsequent

sections dealt with the collection and analysis of the data. The survey was conducted entirely online and analyzed through several mean comparisons and ANOVA tests in SPSS. Despite some limitations, the authors claim the literature and theoretical implications in this study, as well as the collected data from the survey and its analysis, to be valid and reliable. In the following chapter the data from the survey will be analyzed in depth and the findings will be discussed.

4 Analysis and Discussion

4.1 Pre Analysis

4.1.1 Data Screening

From the survey, 205 responses were collected in total. The survey was online for 15 days between 25.04.2020 and 09.05.2020. First, all invalid responses and errors were excluded from the data set. These were for example questionnaires, where an obvious pattern (e.g. all answers chosen were the most positive possibility) was chosen. Thereafter, responses, which did not fit the target group, were filtered out. As specified in section 3.2.3 the target group for this study were young people between the age of 18 and 34 years. Therefore, all responses below and above the age of the target group were filtered out. Afterwards, screening of the occupation factor was conducted. All responses from non-students and students that do not study a bachelors program at LUSEM were removed from the data set. This left 184 valid responses for the analysis. Of the 184 respondents, 95 were female, 87 were male and 2 respondents preferred to not state their gender. 23 countries were represented in the 184 responses, with a majority of 54 % participants from Sweden.

4.1.2 Preparation of data

Before running the main analysis, the data set resulting from the survey had to be prepared.

Sustainability Consciousness Variable

First, in order to be able to split consumers in regard to their sustainability consciousness, a grouping variable was created. More precisely, it was decided to split the data set into two groups - a "high sustainable consciousness" and a "low sustainable consciousness" group. This was done by creating a "Sustainability Factor" by taking the average value of each respondent in regard to the following six statements from (Lee, 2014):

- I regularly buy products that are labeled as fair-trade.
- When shopping, I regularly and deliberately check products for environmentally harmful ingredients.
- When shopping, I deliberately look for a certified organic label.
- When shopping, I deliberately check for a product with recyclable packaging.
- I choose to buy sustainable products even if they are more expensive than other products.
- When I consider buying a product, I check to see if it is against animal testing.

For all of these statements, the values of the Likert scale ranging from "Not Important" to "Very Important" were translated to points from -2 ("Not Important") to +2 ("Very Important"). As a next step, the data set was split into the lower and upper 50% of the total. Statistically speaking, this was done by splitting the data set by quartiles. An analysis of the quartile values revealed that the second quartile ended at exactly 0.00. This value is taken as a reference to split the data set into two groups. On the one hand, respondents with an average value being smaller than the reference value 0.00 belong to the lower two quartiles and thus are part of the "low sustainability consciousness" group. On the other hand, the upper 50% of the data set make up the "high sustainability consciousness" group by having scores which are on average higher than 0.00. Respondents scoring exactly zero need to be removed from the data set, as no clear sustainability consciousness could be determined. However, no respondent of the present data set scored 0.00 in average, which is why the grouping factor could include every single respondent. Lastly, a Cronbach's Alpha test was run to measure the reliability of the set of six statements that determine the sustainable consciousness variable. The result for the Cronbach's Alpha test was 0.832.

In the end, a total of 94 respondents were part of the "low sustainability consciousness group" whereas 90 respondents were part of the "high sustainability consciousness group". While both groups consist of young students from LUSEM, it is interesting to note that 55% of women are in the 'high sustainability consciousness' group (compared to 42% of men) and 58% of men are in the 'low sustainability consciousness group' (compared to 45% of women). While this study only focuses on differences between the 'high and low sustainability consciousness groups', it ignores the potential effects of the socio-demographic traits of consumers such as gender. This point will be raised in the future research section 5.4.

Treatment Effect

As another preparation for the final data set, the treatment effect of a consumer's purchase intention needed to be created. A treatment effect is defined as the mean difference of the two observations (Burns and Burns, 2008). The two observations in this study where observation 1 (O1) and observation 2 (O2). O1 was the respondent's answers to the question about the purchase intention concerning the three respective products from Arla, Oatly and Coop. Here, no further information towards the product was given. O2 was the respondents answer to the same question, but after being exposed to the information on the level of circularity of the brands through the use of circular business strategies. The treatment effect therefore here was calculated as follows:

Treatment effect = O2 - O1

Thus, it helps to compare the influence of the treatment, which in this case was the exposure to the circular business effort of the three brands Arla, Oatly, and Coop. The treatment effect allows the mean differences, namely the likelihood of purchasing this product by consumers

before and after receiving the information on the use of circular business strategies, to be compared.

Reliability of circular business strategies

In order to ensure internal reliability of the 15 circular business strategy scale, a Cronbach Alpha test was performed. The 15 item scale produced an alpha of 0.849. According to Burns and Burns (2008), "An alpha of 0.8 or above is regarded as highly acceptable for assuming homogeneity of items" (p. 418). The statistical results for the Cronbach Alpha test can be found in Appendix C.

4.2 Analysis and discussion of key findings

In the following, the respective research questions will be analysed with the help of the statistical tests run for each question. In addition, key findings will be discussed. Additional figures and information concerning the SPSS data analysis can be found in Appendix A.

4.2.1 Analysis Research Question 1

As stated in section 1.2 the first research question investigates the importance of the circular business strategies defined in the literature review. To clarify, the research question will again be stated in the following:

> **RQ1:** *How important are circular business strategies in the dairy industry to young consumers in regard to their sustainability?*

This research question was split into two different research hypotheses which will be analyzed separately in the following sections. Important to mention is that this chapter is only dedicated to the statistical analysis of the research hypotheses. A discussion of the key findings will follow in chapter 4.2.1.

RH1a: *Young consumers consider the circular business strategies, and in turn CBMs, to be of importance in regard to sustainability.*

First, the importance of the 15 circular business strategies for the young consumers was analyzed. This was done by establishing a Likert Scale where consumers were asked to rank the respective strategies. As already described in section 3.4. consumers' answers were translated into values ranking from -2 ("Not Important") to +2 ("Very Important") with a neutral zero. A first analysis was therefore to compare the means of each strategy in regard to its importance which is also illustrated in the following table:

Strategy	Mean
Strategy 1: Creating new revenue models	0.82
Strategy 2: Implementing choice architecture	0.98
Strategy 3: Choice editing	0.86
Strategy 4: Encouraging substitution of animal products	0.59
Strategy 5: Conscious sales and marketing techniques	0.56
Strategy 6: Setting default options	-0.08
Strategy 7: Educating and engaging consumers	1.18
Strategy 8: Offering quality local products	1.51
Strategy 9: Shortening the ingredient list	0.13
Strategy 10: Designing products for sustainable consumption	0.68
Strategy 11: Changing conventional consumer perception	0.87
Strategy 12: Selling inconvenience for a better price	0.4
Strategy 13: Developing products that last	1.11
Strategy 14: Providing refillable packaging	0.72
Strategy 15: Repurposing food	0.36

Table 4.1 Mean for the importance of each CBS

When having a closer look, the CBSs can be divided into three different groups which will be described in the following:

Group 1: Strategies with a mean > 1.00

As can be derived by ocular inspection of the means, three of the 15 strategies scored a mean on average greater than 1.00 (being the translated value for "Important").

- Strategy 8: Offering quality local products (M = 1.51)
- Strategy 7: Educating and engaging consumers (M = 1.18)
- Strategy 13: Developing products that last (M = 1.11)

Such strategies can be considered as highly important to consumers as they are on average more than "Important" to the totality of respondents. Especially the 8th strategy, "Offering

quality local product," is outstanding with a mean of M > 1.50 indicating that the totality of consumers ranked this as the most important strategy.

Group 2: Strategies with a mean > 0.50

Here, eight strategies were identified. The strategies in this category are listed below:

- Strategy 2: Implementing choice architecture (M = 0.98)
- Strategy 11: Changing conventional consumer perception (M = 0.87)
- Strategy 3: Choice editing (M = 0.86)
- Strategy 1: Creating new revenue models (M =0.82)
- Strategy 14: Providing refillable packaging (M =0.72)
- Strategy 10: Designing products for sustainable consumption (M =0.68)
- Strategy 4: Encouraging substitution of animal products (M =0.59)
- Strategy 5: Conscious sales and marketing techniques (M =0.56)

Group 3: Strategies with a mean < 0.50

Following, strategies are listed that scored a mean of M <= 0.50:

- Strategy 12: Selling inconvenience for a better price (M =0.4)
- Strategy 15: Repurposing food (M =0.36)
- Strategy 9: Shortening the ingredient list (M =0.13)
- Strategy 6: Setting default options (M =-0.08)

Being closer to the neutral zero than to the value 1.00 "Important", such strategies seem to be less important to the average consumer. Due to the low mean, the importance of the strategies can thus be neglected. The strategy to "set default options" is of particular interest as it is the only one scoring on average negatively. This means the average consumer does not only have a neutral opinion towards this strategy but is slightly more inclined to think that the strategy would not be important.

Conclusion RH1a

As a reminder, RH1a aimed at investigating whether circular business strategies matter to consumers in regard to sustainability. More precisely, the research hypothesis states that the researchers of this paper claim that circular business strategies would matter to young consumers in regard to sustainability. As was explained above, the researchers found out that 11 out of 15 strategies did on average matter to consumers. In such cases, RH1a can be accepted by stating that these strategies matter to consumers. However, even though all of these 11 strategies scored on average greater than 0.50, one needs to say that there were significant differences between the respective strategies. Moreover, four out of 15 strategies cannot be seen as important by scoring less than 0.50. It thus needs to be concluded that some of the analyzed strategies do not matter to consumers. For these 4 strategies, one therefore

needs to reject RH1a. However, with a majority of theories being considered important by young consumers in regard to sustainability, RH1a can (partially) be accepted. Caution is important as no general conclusion was possible and the importance of the circular business strategy depends highly on the strategy itself.

Moreover, the researchers of this paper did not only want to distinguish between the different strategies existing but also between the level of sustainability consciousness of the consumer. RH1a aimed at examining whether circular business strategies generally matter to young consumers. The results of RH1a will now be extended by testing whether the importance of such strategies differs between different consumer profiles in regard to their sustainability consciousness. Therefore, the data set was split into profiles having a low or high sustainability consciousness, as the researchers suppose that there might be a difference in the importance of circular economy strategies depending on the consumer profile. Thus, the research hypothesis that has been established and will be analysed within this section is the following:

RH1b: Circular business strategies are more important to young consumers with a high sustainability consciousness, than consumers with low sustainability consciousness.

In order to be able to analyze the importance of each circular economy strategy on low and high sustainability consumer profiles, several one-way ANOVAs were conducted. More precisely, a one-way ANOVA tests the mean of both consumer groups for significant difference.

Strategy	Sustainability Consciousness	N	Mean	MD	Std Deviation	Std Error	Lower Bound	Upper Bound	Levene	F-Value	Sig
Strategy 1: Creating new revenue models	Low	94	0.640	0.370	1.014	0.105	0.430	0.850	0.210	6.297	0.013
	High	90	1.010		1.000	0.105	0.800	1.220			
Strategy 2: Implementing choice	Low	94	0.690	0.600	1.136	0.117	0.460	0.920	0.000	19.578	0.000
	High	90	1.290		0.604	0.064	1.160	1.420			
Strategy 3: Choice editing	Low	94	0.550	0.630	0.990	0.102	0.350	0.760	0.384	19.386	0.000
	High	90	1.180		0.931	0.098	0.980	1.370			
Strategy 4: Encouraging substitution of	Low	94	0.090	1.030	1.179	0.122	-0.160	0.330	0.560	37.664	0.000
	High	90	1.120		1.110	0.117	0.890	1.350			
Strategy 5: Conscious sales and	Low	94	0.290	0.550	1.179	0.122	0.050	0.530	0.008	12.081	0.001
	High	90	0.840		0.982	0.104	0.640	1.050			
Strategy 6: Setting default options	Low	94	-0.210	0.270	1.015	0.105	-0.420	0.000	0.063	2.660	0.105
	High	90	0.060		1.212	0.128	-0.200	0.310			
Strategy 7: Educating and engaging consumers	Low	94	0.950	0.480	1.091	0.113	0.720	1.170	0.142	11.595	0.001
	High	90	1.430		0.822	0.087	1.260	1.610			
Strategy 8: Offering quality local	Low	94	1.340	0.350	0.811	0.084	1.170	1.510	0.008	10.764	0.001
	High	90	1.690		0.612	0.084	1.560	1.820			
Strategy 9: Shortening the	Low	94	-0.020	0.310	1.126	0.116	-0.250	0.210	0.507	3.376	0.068
	High	90	0.290		1.164	0.123	0.050	0.530			
Strategy 10: Designing products	Low	94	0.450	0.470	1.043	0.108	0.230	0.660	0.166	9.765	0.002
	High	90	0.920		1.019	0.107	0.710	1.140			
Strategy 11: Changing	Low	94	0.690	0.370	1.107	0.114	0.460	0.920	0.237	5.416	0.021
	High	90	1.060		1.010	0.106	0.840	1.270			
Strategy 12: Selling inconvenience for a	Low	94	0.270	0.260	1.147	0.118	0.030	0.500	0.097	2.866	0.092
	High	90	0.530		0.985	0.104	0.330	0.740			
Strategy 13: Developing products	Low	94	0.900	0.420	1.088	0.112	0.680	1.130	0.055	8.509	0.004
	High	90	1.320		0.832	0.088	1.150	1.500			
Strategy 14: Providing refillable	Low	94	0.470	0.510	1.143	0.118	0.230	0.700	0.004	10.285	0.002
	High	90	0.980		1.005	0.106	0.770	1.190			
Strategy 15: Repurposing food	Low	94	-0.010	0.770	1.196	0.123	-0.260	0.230	0.815	19.524	0.000
	High	90	0.760		1.154	0.122	0.510	1.000			

Table 4.2 Mean importance of each CBS, split by sustainability consciousness group

As illustrated in Table 4.2, the means of low and high sustainability consumer profiles do clearly differ in regard to each circular economy strategy. When having a closer look, one realizes that the means for low sustainability consumer profiles are always lower than for high sustainability consumer profiles. This is also illustrated by the mean differences between high and low sustainability consciousness responses ("MD" in table 4.2). As can be seen, the mean difference is positive for each strategy. Thus, it can be derived that the circular economy strategies are considered less important for consumers having a low sustainability consciousness compared to the ones having a higher sustainability consciousness.

However, just by ocular inspection of the descriptives, one cannot be certain about significant differences which is why the focus will now be given to the results of the one-way ANOVAs. The null hypothesis for the one-way ANOVA will be stated in the following:

H0: There is no significant difference between low and high sustainability consumer profiles.

H1: There is a significant difference of means between the two groups.

Scenario 1: Positive tendency and significant mean differences
For 12 of the 15 strategies, significant results were found with an associated probability that is smaller than p = 0.05. Therefore, the null hypothesis of equal means can be rejected for the following strategies:

- Strategy 1: Creating new revenue models (MD = 0.370, p(6.297) = 0.013)

- Strategy 2: Implementing choice architecture (MD = 0.600, p(19.578) = 0.000)
- Strategy 3: Choice editing (MD = 0.630, p(19.386) = 0.000)
- Strategy 4: Encouraging substitution of animal based products (MD = 1.030, p(37.664) = 0.000)
- Strategy 5: Conscious sales and marketing strategies (MD = 0.550, p(12.081) = 0.001)
- Strategy 7: Educating and engaging consumers (MD = 0.480, p(11.595) = 0.001)
- Strategy 8: Offering quality local products (MD = 0.350, p(10.764) = 0.001)
- Strategy 10: Designing products for sustainable consumption (MD = 0.470, p(9.765) = 0.001)
- Strategy 11: Changing conventional consumer perception (MD = 0.370, p(5.416) = 0.021)
- Strategy 13: Developing products that last (MD = 0.420, p(8.509) = 0.004)
- Strategy 14: Providing refillable packaging (MD = 0.510, p(10.285) = 0.002)
- Strategy 15: Repurposing food (MD = 0.770, p(19.524) = 0.000)

For each of these 12 strategies the F-change value is relatively high, the associated probability is lower than p = 0.05. Therefore, the null hypothesis indicating no significant difference between the high and low sustainability consciousness group can be rejected. Especially the fourth strategy, being "Encouraging substitution of animal based products", stands out with the highest mean difference of MD = 1.030 and an associated probability of p = 0.000 for a F-change of F = 37.664. Here, one can assume highly significant results indicating that low sustainability consciousness profiles did rank the strategy significantly lower compared to the other group. Also, Strategies 15, 2 and 3 show a strong difference between the two groups with a MD >= 0.600 and an associated probability of p = 0.000, as well as an F-change value of F > 19.000.

In summary, it can thus be derived that there are significant differences in the importance of the strategies for low and high sustainability consumer profiles. When wanting to describe these differences more precisely, the mean difference between low and high consumer profiles (calculated: Mean(HS)-Mean(LS)) gives clarification. As explained above, mean differences are positive for all of the stated twelve strategies which indicates that the means are higher for high sustainability profiles compared to low sustainability profiles. This said, the respective strategies analyzed within this scenario can be considered more important to consumers with a 'high sustainability consciousness' than to consumers with a' low sustainability consciousness'.

Scenario 2: Positive tendency but no significant mean differences
This argument is also supported by the last three strategies, even though not significant. An inspection of the mean differences shows that also for the last three strategies, the mean differences are all positive, which thus follows the same tendency as already explained above. However, with mean differences being smaller than 0.4 and comparably small F-changes, no significant results could be found as the associated probability is greater than 0.05 for all of

the three strategies. More precisely, this indicates that the small mean differences found between low and high sustainability consumer profiles cannot be considered significant. The null hypothesis of equal means therefore needs to be accepted for these strategies.

- Strategy 6: Setting default options (MD = 0.270, p(2.660) = 0.105)
- Strategy 9: Shortening the ingredient list (MD = 0.310, p(3.376) = 0.068)
- Strategy 12: Selling inconvenience for a better price (MD = 0.260, p(2.866) = 0.092)

Conclusion RH1b

To conclude, RH1b, assuming that circular business strategies would be more important to young consumers with a high sustainability consciousness, can be accepted with very high certainty. For every single circular business strategy, a positive tendency was found. Thus, for all respective strategies, high sustainability consumer profiles considered the strategy as more important compared to low sustainability consumer profiles. Even though three of fifteen strategies could not demonstrate significant mean difference between low and high, they still showed the general tendency of having higher means for high sustainability conscious people. Therefore, RH1b was accepted with high certainty and it is thus statistically proven that the level of sustainability consciousness matters when talking about the importance of circular business strategies.

4.2.2 Discussion Research Question 1

In the following the findings for research question 1 and its derived research hypotheses are discussed. Here, in a first step, the general importance of the strategies for the consumers and secondly the differences in importance of the strategies for the two sustainability consciousness groups are discussed. In a second step, a framework, developed by the authors, is introduced which emphasizes the different levels of importance for the circular strategies on the consumers.

As established in section 2.4., Kuah and Wang (2019) show that environmental consciousness plays a role in the acceptance for circular economy solutions. In addition, as Kanchanapibul et al. (2014) found especially young people to have a profound understanding of climate change related issues, the importance of circular business strategies in regard to sustainability for young consumers was tested in research question 1. Therefore, first the frame for which statistical result can be accepted to be important was defined. The authors determined strategies with a mean of M >= 1 as highly important. Strategies with a mean of 0.5 < M < 1 were defined as important, and strategies with a mean of M <= 0.5 as not important and can therefore be neglected. In total three circular strategies are perceived as very important, eight as important and four strategies as not important.

Out of all fifteen strategies, three have a mean > 1. The strategy of "offering quality local products" scores the highest mean with M = 1.51. It can be argued that consumers are most knowledgeable about products offered by local suppliers. Moreover, one can imply that

consumers associate local quality products with a high level of sustainability due to low transportation distances and the association of organic and high quality local production (Edwards-Jones et. al, 2008). Edwards-Jones et al. (2008) also mention the support of the regional farmers and thereby local economies instead of multinational corporations as important to consumers, which confirms the importance of this strategy additionally. The second most important business strategy is the "education and engagement of consumers" with a mean of M = 1.18. By educating consumers, for example offering information about ingredients, production methods, transport and compensation for emissions, consumers can get a better overview of the total sustainability of a product. Furthermore, the engagement of consumers can be achieved when a company uses informative and attractive publicity. Oatly for example uses provocative, authentic and product-focused advertising, with the goal of attracting people who drink milk, to switch to their more sustainable, plant-based alternative (Fiedler, 2018). Arla uses advertising as well to highlight its organic farming and sustainable and ethical production methods. The consumer can easily find information on its website on organic farming, product information, transportation distances, and many more (Arla Foods, 2020). This enables the consumer to get a better understanding of the product and the use of sustainable methods and strategies. Woods and Thilmany (2008), support this argument and mention the value proposition created when "stories, values and human/environment interest details" are shared with consumers (p.6).

Finally, the third most important strategy is "developing products that last" with a mean of M = 1.11. In the context of dairy products, this means an extended expiration date or ability not to expire rapidly in room temperature. This strategy is rather self explanatory: by extending the storage life, the product can be used longer and fewer products need to be thrown away. Especially for dairy products, this strategy increases sustainability as fewer products are thrown away unused and fewer products need to be produced as existing products can be consumed longer. Today about 30% to 50% of the global food production is thrown away without consumption (Närvänen et al., 2020). This is not only a waste of natural and economical resources, but also an ethical failure, as there are still parts in the world, where people do not have sufficient access to nutrition (Närvänen et al., 2020). This increases the importance of the strategy of "developing products that last" in the dairy industry.

All three strategies have in common the idea that the consumer does not necessarily have to actively change habits or perform actions, but rather the companies offering the products need to be the active element in realizing the strategies. Especially the offering of quality local products and developing products that last are strategies that benefit the consumer immensely, but need to be implemented by the companies producing these products. The strategy of educating and engaging consumers can also be seen as an offering the company has to provide. Providing information about products or running advertisements and other events to engage consumers has to be actively implemented by the company. The authors therefore assume that the consumers' first priority for sustainable strategies is that the strategies are offered and implemented by the companies, not the consumers themselves. Convenience and

services offered are consequently the underlying motives for strategies based on the circular economy for consumers. Finally, an interesting aspect about these three strategies is that they are strategies that have already been adopted by both Oatly and Arla. The authors will discuss the potential implications of these observations in the concluding remarks for future research.

Further, a total of eight circular business strategies were identified as important. Hereby, it is difficult to draw conclusions as, while all means are between $0.5 < M < 1.00$, the means between the eight strategies differ significantly. An interesting observation is that the first three strategies, namely "Implementing choice architecture", "Changing conventional consumer perception" and "Choice editing", which are near to the mean of $M = 1$, concern the choice availability of the consumer. One can conclude that consumers find it important to have the possibility to choose sustainable options and are likely to purchase these products, even if they do not fit the conventional norm. Further, this finding leads to the assumption that sustainable products are not available in a sufficient quantity in most supermarkets and consumers would welcome a greater variety. Another interesting observation is that the strategies of "encouraging the substitution of animal products" and "conscious sales and marketing techniques" are at the lower end of the important strategies. This concurs with the above mentioned observation, that consumers prefer to have personal choice rather than being urged to choose a particular product. Additionally, "conscious sales and marketing techniques" can be perceived as "greenwashing" by consumers. Consumers who suspect false claims by companies, will perceive the advertisements and consequently also the brands in a negative way (Schmuck, Matthes and Naderer, 2018). It is however contrasting, that the strategy "educating and engaging" scores very highly, while the use of conscious marketing is perceived, only by a slight margin, as an important strategy.
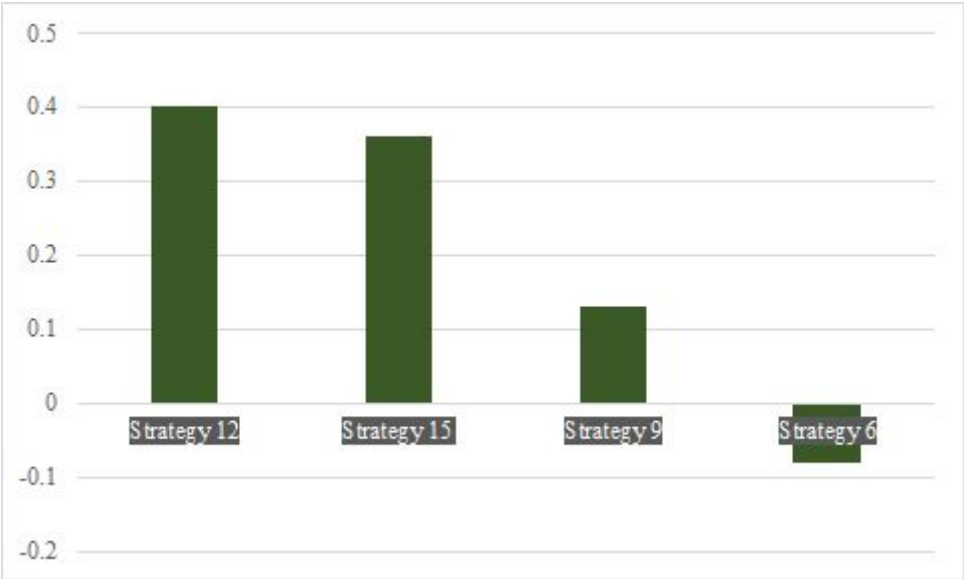

Fig. 4.1 Strategies with a mean < 0.50 - considered not important

The strategies in figure 4.1 are perceived as not important in regard to sustainability and sustainable consumption by young consumers. The underlying assumption here is that

convenience seems to be important for consumers, as all four strategies can be regarded as inconvenient in some sense. As established before, convenience is of high importance to consumers in regard to sustainability, wherefore it is not surprising that the strategy of "Selling inconvenience for a better price" scores a low mean and is regarded as not important. Also, the strategy of "Repurposing food" is unimportant for consumers. The authors suggest that this comes from the fact that it is a major change to conventional purchasing behavior and therefore might seem too inconvenient for a majority of consumers. The strategy of "Shortening the ingredient list", might be perceived by consumers as not providing a clear opportunity to increase sustainability but rather decreasing the value of a product. Finally, strategy six, is the only circular business strategy scoring a negative mean of $M = -0.08$. By nudging people into consuming less through smaller product sizes, consumers might feel deprived of their personal choice to consume the quantity desired. They might also think that it is a way for the company to increase their profit margins if they provide less for the same price. The sustainability resulting from consuming less thereby might be perceived as forced, rather than chosen and thus inconvenient and undesirable for consumers.

In research hypothesis RH1b, the importance of circular business strategies concerning the difference of the high and low sustainability group was analyzed. It was established that circular business strategies are more important to young consumers with a high sustainability consciousness, with the mean difference between the groups being positive for all strategies. It can be assumed that consumers, who have a high sustainability consciousness, put more emphasis on the sustainability of the products they buy. These consumers probably are better informed about sustainable and unsustainable farming practices, the environmental consequences of the food and dairy industry and the benefits of a sustainable consumption. Consumers with a low sustainability consciousness on the other hand, presumably are not as well informed or not interested in the above mentioned factors. For these consumers other factors like cost, taste, or personal preference might play a more important role. Therefore, it seems logical that circular business strategies, which increase the sustainability of a product, are more important for consumers with a high sustainability consciousness.

In order to conclude the findings in section 4.2.1, the authors have developed a framework. It shows the circular business strategies which are of importance to at least a certain type of young consumers. The framework classifies the strategies in an inner and outer circle. The inner circle contains all strategies, which have a mean of $M > 1$ and are therefore considered "very important", as well as where a difference between the groups was significant. These strategies therefore are of high importance for consumers, especially the ones with a high sustainability consciousness. The outer circle shows all strategies that score a mean of $M > 0.5$ and a significant difference between the sustainability consciousness groups. Practical implications that can be derived from this framework, will be discussed in section 5.3.
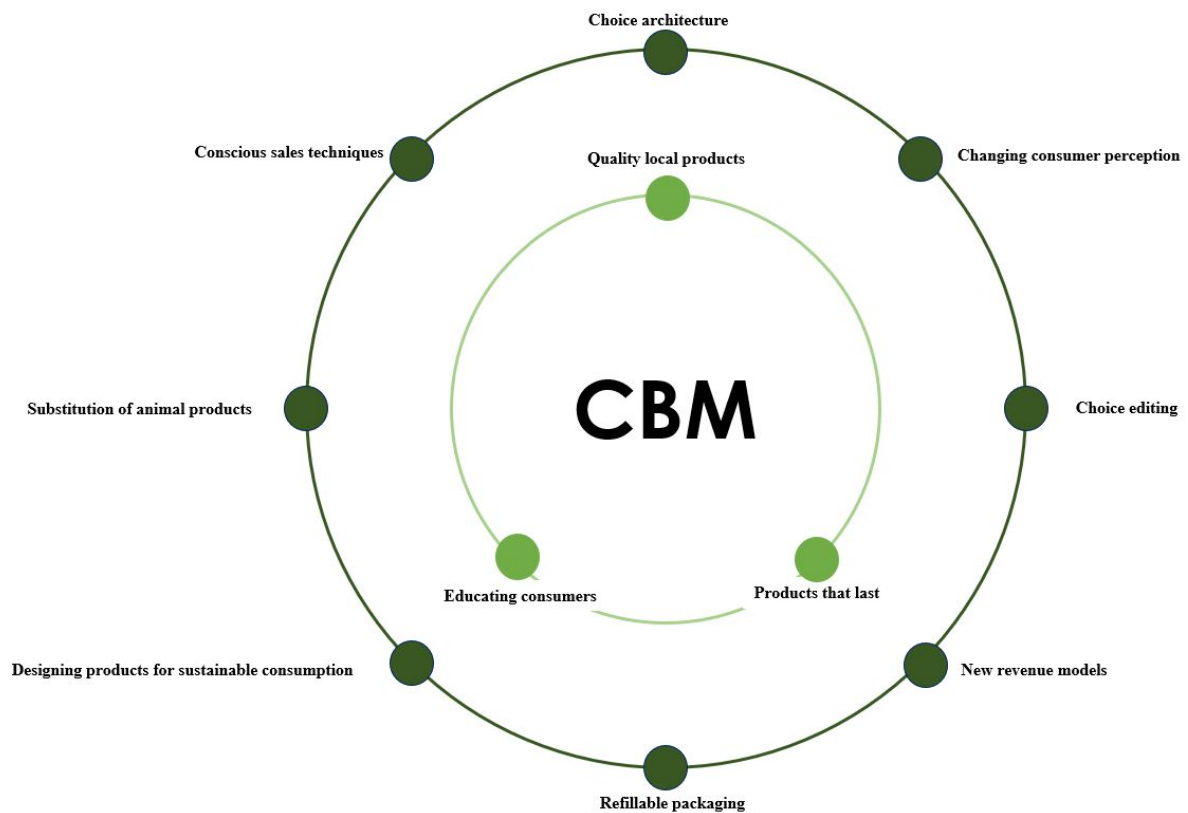
Fig. 4.2 A framework of CBSs in the dairy industry by importance for young consumers, which together create a company's CBM based on strategies identified by Bocken et al., 2020.

4.2.3 Analysis Research Question 2

RQ2: *How does the level of circularity of a firm's CBM in the dairy industry influence the young consumer's propensity to buy the firm's product.*

After having found out that circular business strategies in theory matter to young consumers, the researchers of this paper aim to put this into practice by testing whether a firm's effort in circular business models influences a consumer's purchase intention. This is done with the help of the three experimental stimuli which are the brands Coop, Arla, and Oatly. To quickly remind, these brands were categorized by their involvement in CBM and were ranked with a low, medium and high level of circularity:

- Low level of circularity: Coop
  (having implemented none of the mentioned 15 CB strategies)
- Medium level of circularity: Arla
  (having implemented five of the mentioned 15 CB strategies)

- High level of circularity: Oatly
(having implemented ten of the mentioned 15 CB strategies)

As established earlier, the underlying assumption of this paper's researchers is that the level of circularity of products in the dairy industry is influenced by the use of circular business strategies. This in turn affects the purchase intention of a consumer, which is why the following RH2 was established:

RH2a: Having a high level of circularity in a firm's CBM will have a positive impact on young consumers' intentions to buy the firm's product.

This said, with the help of the previous thorough literature review, the researchers assume that a consumer's purchase intention is positively influenced under the condition that a firm's engagement in the CE is perceived as high. The higher the level of circularity, the more likely the purchase of a product by a consumer will be. Derived from this, the following can be stated about three brands:

Coop:
Coop having not adopted a single circular business strategy but rather focusing on a low price sales strategy, the researchers assume that a consumer's purchase intention is not (or even negatively) influenced by the low level of circularity of its business model.

Arla:
Especially after having analyzed in RQ1 that not all of the 15 strategies matter to the consumers, it is proposed that young consumers would be positively influenced by Arla's commitment and implementation of five CB strategies and thus are more likely to purchase its product after gaining knowledge of this commitment. Thus, the firm's adoption of circular business strategies might already positively influence the consumer's purchase intention.

Oatly:
The same argument applies to Oatly, since the brand is highly involved in the circular economy, using ten of the identified fifteen circular business strategies. It can be derived that a consumer's purchase intention thus would be highly positively influenced by the exposure to information on Oatly's CBM.

When having had a look at the statistical testing, several one-way repeated measures ANOVA tests were conducted. In particular, the researchers investigated if a significant difference between a consumer's spontaneous purchasing decision (O1) and its purchase decision after having been exposed to the firm's circular business strategies (O2) was found. In order to be able to run the statistical tests, the null hypothesis, as well as the alternative hypothesis <u>are</u> formulated as follows:

H0a: There is no significant mean difference between the two purchase decisions (before and after exposure).

H1a: There is a significant mean difference between the two purchase decisions.

In addition to the examination of a change regarding the consumer purchase decision on each brand, the authors explored whether there would be differences between the high and low sustainability conscious groups. To test this the same one-way repeated measures ANOVA was run, this time including the comparison between the high and low group. A second research hypothesis was therefore raised:

RH2b: Having a high level of circularity in a firm's CBM will have an even more positive impact on young consumers' intentions to buy the firm's product, if the consumer has a high sustainability consciousness.

In order to do the statistical test, again a null and alternative hypothesis needs to be examined:

H0b: There is a significant difference between the purchase intentions of the two sustainability consciousness groups.

H1b: There is no significant difference between the purchase intentions of the two sustainability consciousness groups.

It is important to mention that each brand was analyzed separately. However, two different scenarios were found among the three brands which will be explained in the following.

Scenario 1: Negative treatment effects and significant results
The first scenario is summarized by the brand Coop as, for this brand, a negative tendency was found by comparing Observation1 (Mean(O1) = 3,50) to Observation2 (Mean(O2) = 2,03). Indeed, consumers were slightly more likely to purchase the respective product before being exposed to the fact that Coop would not follow any circular economy strategy.
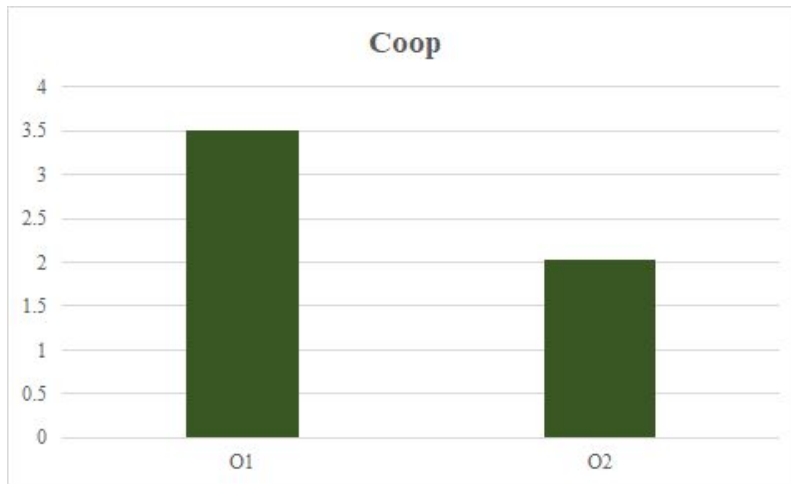
Fig. 4.3 Observation 1 and 2 for Coop

When having a closer look at the ANOVA, first of all, homogeneity of variance can be assumed with an associated probability of $p = 0.000$. This assumption is important as otherwise, a one-way ANOVA would not be an appropriate test. However, this is not the case with Coop, so it can be proceeded with.

First, the different multivariate tests already show that the means of the two measurement occasions clearly differ. Moreover, the test of within-subjects effects indicates that mean differences are highly significant with an associated probability of $p(60.074)=0.000$. Although significant results, with an effect size, being illustrated by partial Eta2, of $\eta p2 = 0.247$ and observed power 1.000, one can only assume a small influence. This is defined by Cohen's (1988) effect size conventions, where a level of below 0.5 needs to be considered small which indicates that the two observations have a large overlap of around 85%. However, an explanation for such a small effect size can be that consumers already ranked their purchase intention on a quite low level before being exposed to the firm's level of circularity. Indeed, with a mean of $M = 3.5$ for the first observation, the consumer's likelihood to purchase the respective product has already been very low compared to the other brands. More surprising is that consumers do even decrease their rating to a significant level again after being exposed to the non-existence of circular business strategies. This is also shown by the negative mean difference for the brand Coop. This said, compared to the first observation, consumers were inclined to rate their purchase intention even smaller after having been exposed to Coop's non-existing engagement in CBS. It can thus be concluded that the exposure to CBS had a negative influence on young consumer's purchase intention. Thus, H0a of equal mean differences between the two observations can be rejected for the brand Coop.
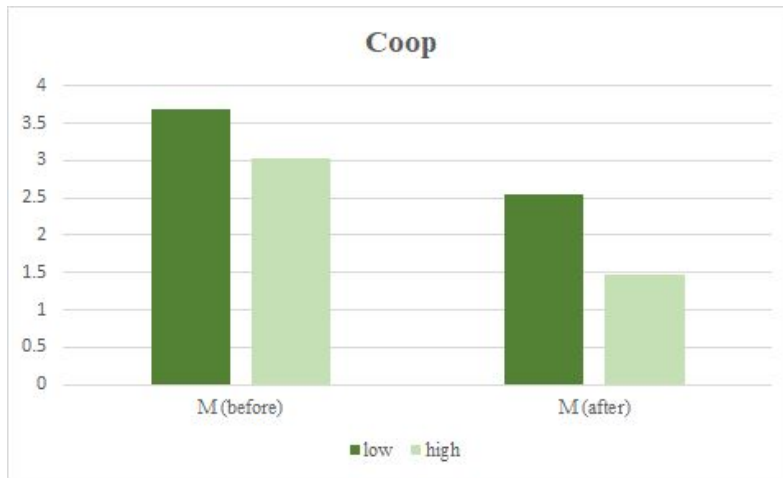
Fig.4.4 Observation 1 and 2 for Coop, split by sustainability consciousness groups

As for the comparison between the two sustainability consciousness groups, Figure 4.4 shows that the results between the two sustainability consciousness groups were significant as well. Before being exposed to the information on the use of circular business strategies the ANOVA test showed a F-change value of $F = 5.631$ and an associated probability of $p = 0.019$. After the exposure the F-change value was $F = 8.849$ and the associated probability was $p = 0.003$. The difference between the two groups can therefore be determined as significant. The mean difference between the high and the low group is negative before and after the treatment, indicating that the high sustainability conscious group was more unlikely to purchase the product from Coop in both instances. The above mentioned tendency that consumers are less likely to buy the Coop product after being exposed to the circular business strategy can therefore be confirmed and the difference between the two groups is significant.

Scenario 2: Positive treatment effects and significant results
The opposite tendency is found when having a more precise look at the brands Oatly and Arla. For both brands, the mean values for the first observation were smaller compared to the second observation, after having been exposed to the circular economy strategy. This leads to the assumption that the firm's engagement in circular business strategies might have a positive influence on a consumer's purchase intention.
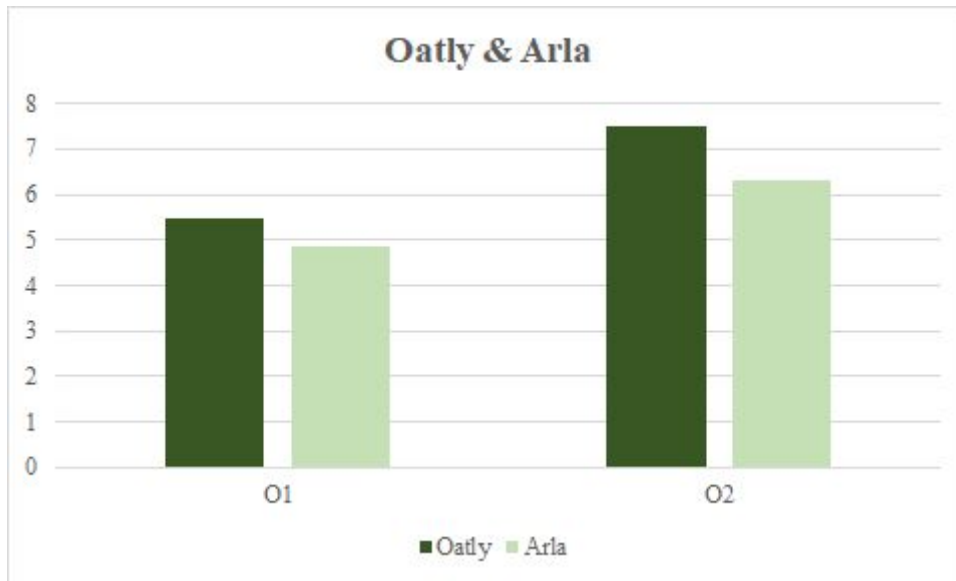
Fig. 4.5 Observation 1 and 2 for Oatly and Arla

In the following, the one-way repeated measures ANOVA helps to clarify whether significant differences can also be revealed by the means of statistical testing. It is important to mention that the Mauchly's test of sphericity, being part of the SPSS output, can be neglected in this case. As a rule, sphericity issues can only appear with more than two observations, which is not the case for this analysis. Attention needs to be drawn to the test of within-subjects effects where for all both brands, a significant F-change of 95.622 (Arla), 124.715 (Oatly) with a significance level of $p = 0.000$ can be found. Compared to Coop, Arla and Oatly do have significantly higher F-changes which also leads to greater effect sizes. As measured by partial Eta2, the effect size for the two brands is greater than $\eta p2 = 0.3$ (Arla: $\eta p2 = 0.405$, Oatly: $\eta p2 = 0.343$). The observed power is 1.000. According to Cohen's (1988) effect size conventions, a value greater than 0.3 needs to be considered a small effect size. Despite this effect size being considered small, it is still bigger than the effect size for Coop.

As a conclusion, the one-way repeated measures ANOVA showed that means in regard to a consumer's purchase intention were significantly different before and after the exposure to a firm's circular business strategies. Statistically spoken, the null hypothesis of equal mean differences can thus be rejected for Arla and Oatly as well, and it needs to be assumed that significant mean differences exist for all three brands. However, the difference for these two brands compared to Coop is that positive treatment effects can be found here. More precisely, the mean of observation 2 was greater than the mean of observation 1, which means that consumers raised their likelihood to purchase the respective product after having been exposed to the brands' circular business strategies.
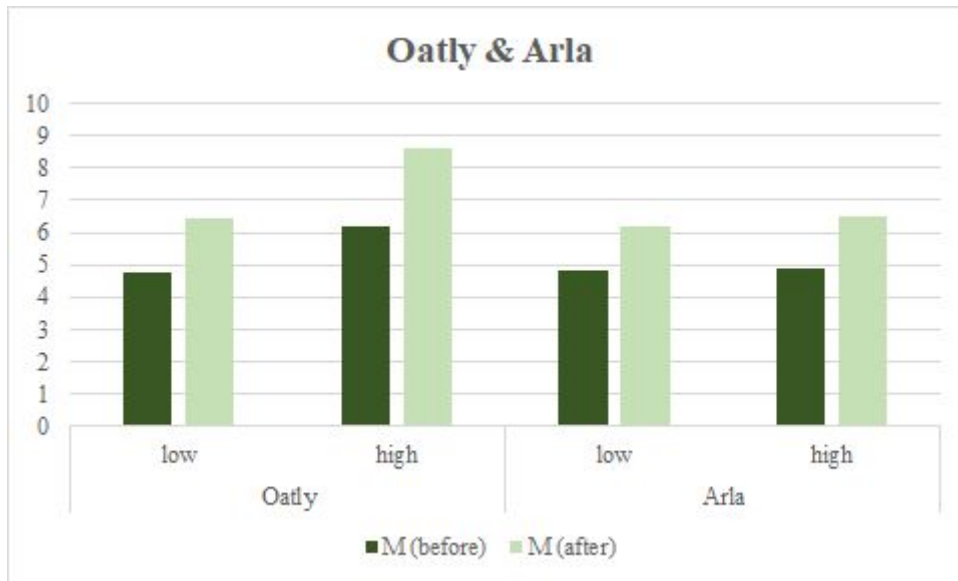
Fig. 4.6 Observation 1 and 2 for Oatly and Arla, split by sustainability consciousness groups

Figure 4.6 shows the mean comparison between the sustainability consciousness groups. Hereby, two different results for Arla and Oatly are found. While for both products the above mentioned tendency can be confirmed, meaning consumers are more likely to purchase the products after being exposed to the information on circular business strategies, the difference between the sustainability consciousness groups are significant for Oatly, but not significant for Arla. In the ANOVA test, Oatly has a F-change value of $F = 12.424$ and an associated probability of $p = 0.903$ before, and a F-change value of $F = 0.549$ and an associated probability of $p = 0.460$ after the exposure. This means the differences between the groups are significant, which can be observed with the mean differences of $MD = 1.44$ before and $MD = 2.18$ after the exposure. Arla on the other hand, has a very low F-change value of $F = 0.015$ with an associated probability of $p = 0.903$ before, and an F-change value of $F = 0.549$ with an associated probability of $p = 0.460$ after the exposure. Also the mean difference between the groups is with $MD = 0.05$ before and $MD = 0.32$ after exposure, which is extremely small and results in not significant differences between the groups.

Conclusion RH2a and RH2b

In the sections above, every brand was analysed separately and the researchers were able to reject the statistical hypothesis of equal means. In order to translate the statistical hypotheses into the second research hypothesis, it is however equally important to combine all three brands in one analysis. Therefore, a concluding one-way ANOVA was run with the treatment effects of all three brands (O2-O1). This was done to test whether significant differences between the brands, already shown by the established scenarios, can also be proven statistically. The output is summarized in the following table:

Product	Mean	N	Std Deviation	Std Error	F-Value	Sig
Arla	1.49	184	2.070	0.153	115.624	0.000
Oatly	2.05	184	2.495	0.184	115.624	0.000
Coop	-1.47	184	2.578	0.190	115.624	0.000

Table 4.3 One-way ANOVA with treatment effects for Arla, Oatly and Coop

When comparing the mean values, one can already affirm that Coop is the only brand having a negative mean and thus treatment effect. As a consequence, as already explained above, consumers ranked their purchase intention lower after having been exposed to circular business strategies. Of particular importance is however the ANOVA which was run. With an F-change of 115.624, the associated probability is p(115.624)=0.000 leading to highly significant results. SH0 assuming equal means between all three brands can therefore be rejected with high certainty. There are thus significant mean differences when comparing the treatment effects of each brand. However, only by having a look at the multiple comparisons post-hoc test, one can give further information on these differences. A post-hoc test makes pairwise comparisons with the condition that more than two options are tested, which is the case here with three brands. For the post-hoc test, H0a is once again defined by equal means, this time tested pairwise. As illustrated in the following table, different results can be derived from the post-hoc test:

Product	Comparing brand	MD	Sig
Arla	Oatly	-0.560	0.065
	Coop	2.967	0.000
Oatly	Arla	0.560	0.065
	Coop	3.527	0.000
Coop	Arla	-2.967	0.000
	Oatly	-3.527	0.000

Table 4.4 Post hoc pairwise comparison

With an associated probability of p=0.065 for the pairwise comparisons Arla-Oatly / Oatly-Arla, the statistical hypothesis of equal means needs to be accepted for these two brands. Thus, there are no significant mean differences between the treatment effect of Arla and Oatly. This is exactly what was also established by the researchers when categorizing both brands in the same scenario. In comparison to this, significant results were found for the pairwise comparisons Coop-Oatly / Oatly-Coop, Coop-Arla / Arla- Coop were found with an associated probability of p=0.000. Thus, significant differences between Coop and the two other brands were found. In the end, results are also summarized in the post-hoc homogeneous subset table. Here, Arla and Oatly were both classified in one and the same

category whereas Coop is placed in another subset as, for this brand, negative tendencies were found.

Product	N	Subset for alpha = 0.05	
		1	2
Arla	184		1.49
Oatly	184		2.05
Coop	184	-1.47	

Table 4.5 Post hoc homogenous subset table

To conclude research hypothesis 2a: the hypothesis aims at testing whether a high level of circularity in a firm's CBM has a positive impact on young consumers' purchase intention. As illustrated in two different tests, Arla's as well as Oatly's high level of circularity can be seen as beneficial in regard to consumer intention to purchase products from the respective brands. In contrast, even though respondents' intentions to purchase Coop's milk was already low in the first observation, they decreased their ranking even more after having been exposed to the firm's low level of circularity. The negative treatment effect thus strongly supports the established research hypothesis by proving that young consumers' purchase intention is negatively influenced by a low level of circularity. To sum up, the research hypothesis can be accepted with high certainty. It can thus be concluded that a firm's level of circularity has an impact on young consumers' purchase intention. More precisely, the assumed positive effect for firms with a high level of circularity was proven. In addition to that, it was found that firms with a low level of circularity do even suffer from negative effects as the likelihood to purchase a product decreases.

To conclude research hypothesis 2b: when evaluating RH2b, differences in the purchase intentions between the high and low sustainability consciousness groups can be seen for the products Coop and Oatly. For both products the null hypothesis H0b, stating no differences between the groups purchase intentions, can be rejected. The results for Arla showed no significant difference between the high and the low group's purchase intention. The null hypothesis H0b must therefore be accepted for Arla. For this test this means that overall the null hypothesis can be partially rejected and the research hypothesis RH2b can be partially accepted. Additional test results show that the high sustainability consciousness group scores lower means for the Coop product and higher means for Oatly and Arla. As Coop is regarded as having a low level of circularity using none of the identified circular business strategies and Arla and Coop are considered having a medium and higher level of circularity using five and ten of the circular business strategies, RH2b can be accepted. The authors therefore conclude that having a high level of circularity has an even bigger impact on consumers with a high sustainability consciousness and overall RH2b can be accepted.

4.2.4 Discussion Research Question 2

Research question 2 deals with the purchase intentions of young consumers for the three experimental products. RH2a, which examined purchase intentions of young consumers, showed that Coop not engaging in circular business strategies had a negative impact on young consumers' purchase intention for the brand's product. RH2b showed that this is especially true for young consumers with a high sustainability consciousness. Arla, and more significantly Oatly, show the opposite results. The high level of circularity through the use of circular business strategies positively correlates with consumer's purchase intentions for the product. This is generally true for consumers and significantly important for consumers with a high sustainability consciousness. These findings imply that using CBS and thereby having a CBM with a high level of circularity is beneficial for brands in the dairy industry. By having a CBM with a high level of circularity, more young customers will intend to purchase the respective products. Previously it was mentioned that young consumers are especially reactive in regard to sustainability, and research questions 1 established that circular business strategies are of importance. Arla and Oatly therefore attract an important group of consumers and create a competitive advantage against dairy brands with low levels of circularity like Coop. Coop on the other hand fails to attract young consumers by not implementing a CBM. A second implication of the findings in 4.2.3 could be, that when brands in the dairy industry use CBSs and thereby achieve a higher level of circularity, this has to be clearly communicated to the consumers. As the level of circularity of a brand positively influences the purchase intention, the consumer needs to be made aware of the CBSs used by the company. Through the use of CBM and clear communication towards the customers, brands in the dairy industry can positively influence the purchasing decision of young consumers for their respective products.

4.3 Chapter Summary

This chapter started with the pre-analysis, where invalid data from the survey was removed from the data set. The relevant data was then prepared by creating the sustainability consciousness groups. Then the treatment effect of the purchase intention of consumers before and after being exposed to the information on CBSs used by the three companies was created. Lastly, further reliability tests for the data were conducted.

As mentioned in section 2.4 several research and statistical hypotheses were developed in order to answer the research questions. Table 4.6 summarizes the findings for all research questions and research hypotheses. The findings of RQ1 show that circular business strategies are important to young consumers, especially if the young consumer has a high sustainability

consciousness. The respective importance given to individual strategies, which are discussed in more detail in section 4.2.2., lead to the creation of a framework which includes the CBSs considered important by young consumers. For RQ2 the findings show that the level of circularity of a firm's CBM in the dairy industry has a positive influence on the propensity of young consumers to purchase the firm's product. In order to sell their product, dairy companies should therefore have a clear CBM and communicate it towards customers.

Research Question	Research Hypothesis	Result
RQ1: How important are circular business strategies in the dairy industry to young consumers in regard to their sustainability?		Circular business strategies are important to young consumers, especially to young consumers with a high sustainability consciousness.
	RH1a: Young consumers consider the circular business strategies, and in turn CBMs, to be of importance in regard to sustainability.	(Partially) accepted
	RH1b: Circular business strategies are more important to young consumers with a high sustainability consciousness, than consumers with low sustainability consciousness.	Accepted
RQ2: How does the level of circularity of a firm's CBM in the dairy industry influence the young consumer's propensity to buy the firms's product.		The level of circularity of a firm's CBM in the dairy industry has a posititve influence on the propensity of young consumers to buy the firm's product.
	RH2a: Having a high level of circularity in a firm's CBM will have a positive impact on young consumer's intentions to buy the firm's product.	Accepted
	RH2b: Having a high level of circularity in a firm's CBM will have an even more positive impact on young consumers' intentions to buy the firm's product, if the consumer has a high sustainability consciousness.	Accepted

Table 4.6 Summary of results of research questions and research hypotheses

5 Conclusion

5.1 Research Aims

The aim of this paper was twofold. By conducting the first study, the authors wanted to understand how important the CBSs that can be found in a CBM are to young consumers in regard to their view on sustainability. As shown in sections 4.2.1 and 4.2.2 it can be confirmed that circular business strategies play an important role for young consumers. The first study also had an explorative nature, through which the authors wanted to see which specific strategies young consumers thought were the most and the least important regarding their view on sustainability. Evidence shows that these consumers consider CBSs to be of varying importance depending on the strategies. From these observations, an integrated framework was built (Fig. 4.2) where the three most important strategies were placed at the core of the CBM and the eight next most important strategies were placed around the core. Through the second study, the aim of this paper was to understand better how the level of circularity of a firm in the dairy industry could influence young consumer propensity to buy the firm's product. The authors wanted to observe that young consumers, on average, tend to have a higher purchase intention for products from firms with a high level of circularity. This assumption was confirmed, as stated in section 4.2.4

The researchers also wanted to find out whether there is a significant difference in the importance given to the circular business strategies between the 'low sustainability consciousness' group and the 'high sustainability consciousness' group. Here significant differences between the two groups were found, with a higher importance for the strategies for consumers with a 'high sustainability consciousness'. In addition, the authors also wanted to understand whether or not the level of circularity of a firm's CBM in the dairy industry could influence young consumers differently depending on the 'low sustainability consciousness' and the 'high sustainability consciousness' of the young consumer. Significant differences were found between the groups, which were further elaborated upon in section 4.2.4. This not only confirms the claim that young consumers can differ regarding their sustainability consciousness (Kanchanapibul et al., 2014), it also shows that this level of consciousness affects how importantly these young consumers consider CBSs and levels of circularity of business models in the dairy industry to be.

5.2 Research Objectives

By using De Angelis's (2018) general conceptualization of the CBM and by adapting it to the dairy industry using examples of the business strategies formulated by Bocken et al. (2020), the authors believe this study has brought more visibility to the possibilities of implementation of CE practices to the dairy industry. The results of the survey show that young consumers seem to view such practices favorably as they generally consider circular business strategies to be of importance. This study has thus provided some evidence that CBSs can belong in the business model of firms in the dairy industry, provided that they are properly implemented.

Secondly, the objective of this study was also to contribute to research on the CE by focusing on an aspect of the subject that has not yet been studied much, and that was pointed out by De Angelis (2018), which is the level of circularity of CBMs. This study has provided a first step in understanding the importance of studying the level of circularity of a CBM. The results of the survey show that there is a direct correlation between the level of circularity of a firm's CBM and how well the consumers view this firm and intend to buy its products. Thus, the perceived level of circularity of a firm's CBM (i.e. the number of circular business strategies used by the firm) seems to serve as an indicator of the level of engagement of the firm in the CE. In the case of the young consumers, who tend to be more concerned with sustainability, the higher the level of circularity of the firm's CBM, the more likely they are to buy its product.

Finally and on a larger scale, this study contributes to research on the CE by focusing on the consumer's viewpoint, an aspect of the subject that has not been studied enough according to Kirchherr et al. (2017). Much of the results from the paper highlight the significance of including the consumer's point of view when studying implementations of the CE in the industry. For instance, the results of the survey highlight the importance that young consumers give to circular business strategies and how high levels of circularity in a firm's business model can influence their intention to buy a product. Not only do these findings seem to confirm the literature that said that this age group tends to be concerned with issues relating to sustainability (Allen and Spialek, 2018; Kautish and Sharma, 2019, Kanchanapibul et al., 2014), they also entail some practical implications that managers in the dairy industry should consider.

5.3 Practical Implications

The level of circularity of a firm's CBM is something managers of companies in the dairy industry should pay close attention to. Depending on what overall strategy a company is going for, including CBSs into the business model and picking the right level of circularity is essential. If a company's aim is to differentiate itself by acting as an environmentally friendly company and attract consumers that are concerned with sustainability, a high level of circularity is probably the best, as indicated in this study with how positively consumers view Oatly. Nevertheless, if a firm uses a low cost strategy (e.g. Coop), then implementing circular business strategies in its business model is perhaps not as imperative, as they require commitment and costly investments.

However, as mentioned in the literature review on the role the CBM can play as a license to operate (2.3.3), general concern for the environment is on the rise and young consumers with an ecological awareness are taking an increased share of the milk consumer base. For instance, results from the survey showed that young consumers were less likely to buy Coop's products once they noticed the lack of sustainability in its business model. Therefore, firm's with a low level of circularity (e.g. Coop) should still consider adopting more sustainable business practices and implement certain circular business strategies, even if it has a low cost strategy, to comply with the evolving social norms and beliefs.

Arla understands this, which is why it has been making the efforts of implementing certain circular business strategies for the production of its organic milk. However, this study also shows that, while young consumers viewed Arla more positively after new information on its level of circularity, the results were not as significant as for Oatly. Therefore, a concern that Arla needs to take into consideration is to avoid finding itself stuck in the middle in the future. As the consumer base in the dairy industry becomes more demanding regarding sustainability, Arla might also have to increase its commitment in implementing sustainable business strategies and increase the level of circularity of its CBM. Thus, regardless of the strategy adopted, firms in the dairy industry should consider higher levels of circularity in their CBMs in order to maintain a competitive advantage or at least seek social legitimacy.

While it is argued in this paper that firms should adopt multiple circular business strategies in order to obtain a high level of circularity, the difficulty of implementing and coordinating such business strategies is also acknowledged. In fact, according to Bocken et al. (2020), implementing these strategies "will require creativity, innovation, and dedication" (p.15). For these reasons, Bocken et al. (2020) argue that only adopting one or a few of these business strategies to start with is advisable. The authors agree with this advice as, for a firm to grow sustainably, its strategy still needs to be viable and its set objectives need to be attainable. These additional challenges and potential difficulties should not, however, deter firms from

making the effort of implementing some of those circular business strategies, for all the reasons mentioned previously. The framework (Fig. 4.2) presented in 4.2.2 can thus help companies to identify which CBSs are valued by consumers. It can offer a first step for these companies on which strategies to implement, in order to reach a positive perception by consumers. For example, the three strategies that are most important to young consumers, which are at the core of the framework, could be the first basic strategies that a firm should consider adopting to start a CBM in the dairy industry, as they have been identified as most important to the consumers. Without having such a strong commitment as for example Oatly, companies can use the framework as a potential guideline, to focus on the most important CBSs first while still achieving the best perception by consumers.

5.4 Limitations and Future Research

This study and its results are limited in some respects, but also open up possibilities for future research. Firstly, the author's perception of the CBM in the dairy industry ignores some aspects. It is acknowledged that the way the level of circularity of the business model is ranked, which is by examining the extent to which the firm uses CBSs, is somewhat limited. The authors also acknowledge that the fifteen business strategies stated are far from the only existing strategies that fit the CE. There are many possibilities to implement business strategies based on the circular economy in the dairy industry. The authors however decided to focus on the strategies identified by Bocken et al. (2020), in order to limit the scope of the study and due to the relevance of the strategies for the dairy industry. Moreover, the authors do not believe these limitations to negatively impact the study, as its purpose is to understand further consumer propensity to buy a product depending on the extent to which the product's firm uses such strategies. Also, the authors believe the way the three firms (i.e. low, medium, high level of circularity) are ranked in this study to be clear enough for the survey participants to respond with no ambiguity and ensure relevant results from the questionnaire.

Moreover, this study is also limited by the fact that it does not take into account many factors that a consumer considers when buying a product (e.g. taste, price, health, etc). The authors are aware that the level of circularity of a firm's business model is not the only factor that will influence a consumer's purchasing decisions. Nevertheless, by using a repeated measure design for this study, the only information that is introduced between the two measures are the business strategies used by the firms. This provides the authors with the indication of how the level of circularity of a firm's CBM influences the consumer's propensity to buy the firm's product. The authors consider the design suited and the results valid, as there is only a short time period between the pre and post test so that the change in the participant's opinion is only affected by the additional information provided and not by any other element that could influence the participant.

Additionally, there are limitations in the methodology of this study. While the repeated measure design is the most suited for this study, Malhotra (2010) raises several disadvantages

for this design. The main concern is the validity of the results, as there is no control group to compare the tested sample against. Thus, by testing the dependent variable (i.e in this case the likelihood of purchasing the three products before and after the treatment of informing on business strategies used for each product), the participant might not be able to give an unbiased answer to the same question for the second time (Malhotra, 2010). In fact, some respondents may understand halfway through the survey that they need to act favorably for the firm with highest level of circularity (i.e. Oatly) and in disfavor of the firm with the lowest level of circularity (i.e. Coop). Thus, their responses for how likely they will purchase each product may be amplified and exaggerated in comparison to their real purchasing decisions. To reduce the risk of bias as much as possible, each firm is described in the most objective manner (i.e. only stating the business strategies they use) and they are not presented by order of level of circularity (i.e. Arla is presented first, then Oatly, then Coop). Despite the fact that the results of this survey cannot be irrefutable proof that a firm's level of circularity significantly affects the consumers' actual purchasing decisions, they provide us with evidence of the young consumers' ecological awareness and how favourably they look upon firms with a high level of circularity.

Furthermore, the scope of the survey is limited geographically and demographically as this study focuses solely on students at LUSEM. The results can therefore not be generalized to all young people and are only representative of the young people studying at LUSEM. Nevertheless, because the formulated hypotheses are founded on enough theoretical ground, the authors are confident that age plays a significant role in how students at LUSEM view sustainability. In fact, the authors are confident that it is because the students at LUSEM are young people that they believe CBSs to be of importance and are more prone to buy a firm's product if its business model has a high level of circularity. Therefore, the authors believe that these findings can have a wider applicability than the population from which the sample was selected. Future research could consist of conducting a similar study targeting young people from different geographical locations, different backgrounds, and different levels of education to obtain a clearer understanding of whether our findings are consistent for different groups of young people.

In addition, the socio-demographic variables were not independently studied in this paper. In fact, while this research solely focused on the differences between the 'high and low sustainability consciousness' of young consumers, it ignores the potential effects of the socio-demographic traits of consumers. Nevertheless, some socio-demographic differences between the 'high and low sustainability consciousness' groups were identified in the preparation of data section (4.1.2). Among those differences was gender, as it was noted that 55% of women are in the 'high sustainability consciousness' group (against 42% of men). The results seem to support evidence from Allen and Spialek (2018) that women tend to be more concerned with sustainability and hold a more positive attitude towards buying environmentally friendly products than men. Likewise, Kanchanapibul et al. (2014) also mentioned that "mid-to-high income and urban women tended to be one sector of green

consumers" (p.529). Some additional differences in age groups could potentially have been found in the sustainability consciousness groups if the sample group for this study did not only include young students. In fact, the literature review mentioned how young people were also more conscious towards sustainability than older generations. Thus, it is clear that the sustainability consciousness of consumers is highly dependent on socio-demographic traits. Thus, future research could focus on the differences in these socio-demographic variables (e.g. gender, age, level of education and income) and how they might affect the importance that consumers give to CBSs and their intention to purchase a product depending on the level of circularity of a business model.

Moreover, while it was specified in this paper that a CBM can include a combination of circular business strategies, the different possible combinations that a firm can implement have not been explored in this paper. Nevertheless, an interesting observation about the framework (Fig. 4.2.) that was briefly mentioned in the analysis is that the three strategies at the core of the CBM have already been adopted by both Oatly and Arla. Thus, it could be interesting to further explore if there is a link between the importance that consumers give to certain strategies and the fact that firms have adopted the very same strategies. More generally, future research could therefore use the framework to study the potential combinations of circular business strategies that best fit a firm's CBM.

Finally, while different levels of circularity were determined depending on the number of circular business strategies used, future research could include a more elaborate evaluation of a CBM's level of circularity and thus enable a more precise analysis of the subject. While different levels of circularity of the business models of three companies in the dairy industry were analyzed, future research could also imply studying levels of circularity of business models for other companies in the dairy industry and in other industries. It could be interesting to see whether the consumers' propensity to buy a product depending on a firm's level of circularity show similar results across more firms in the dairy industry and in another industry.

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Appendix A

Sufficiency Business Strategies in the Food Industry—The Case of Oatly
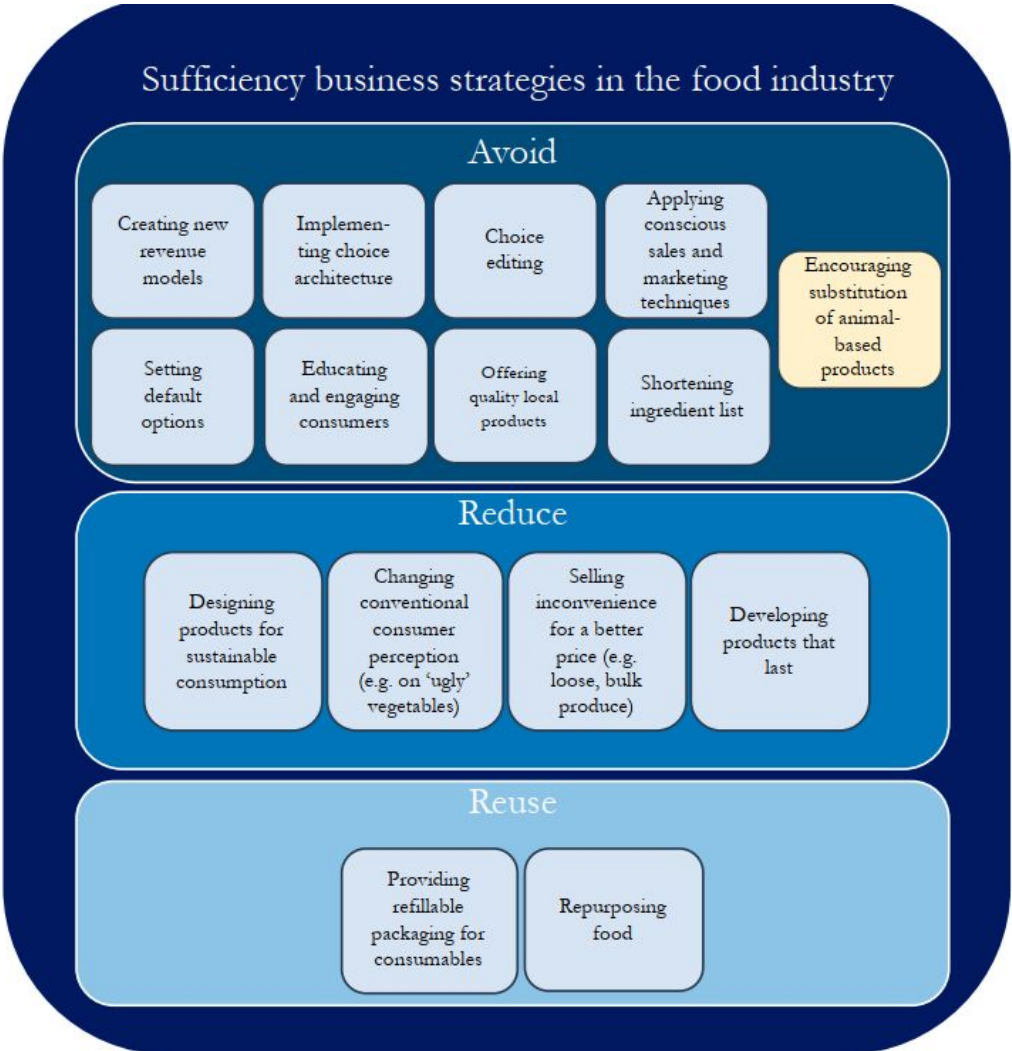Nancy Bocken, Lisa Smeke Morales & Matthias Lehner (2020)

Figure 2. Final conceptual framework for sufficiency in the food industry developed in this study.

Appendix B

Survey Questions

Circular Economy Business Models in the Dairy Industry

Thank you for agreeing to participate in this survey, which is part of our bachelor thesis in International Business at Lund University.

The purpose of this survey is to explore the role and relevance of business models based on the circular economy in the dairy industry to consumers.

The survey has a little bit to read, but not too many questions, so it will take approximately 7 minutes to complete. Please be ensured that all your answers are anonymous and will be used strictly for academic purposes only.

Thank you for taking the time to participate in this survey!

* Required

Please select your gender: *

○ Female

○ Male

○ Prefer not to say

○ Other: _____

Please select your age category: *

◯ Under 18 years

◯ 18 - 25 years

◯ 26 - 34 years

◯ Above 34 years

What is your current main-occupation? *

◯ Pupil

◯ Student

◯ Unemployed

◯ Employed

◯ Self-employed

◯ Other: _____

If you are a student, are you studying a Bachelor's program at Lund University School of Economics and Management? *

○ Yes

○ No

○ I am not a student

In which country do you currently live? *

Choose ▼

Untitled Section

Here are three products:

Arla Organic Milk

Oatly Oat Drink

Coop Skimmed Milk

Please indicate if you know the brands: *

	Yes	No
Arla Foods	○	○
Oatly AB	○	○
Coop	○	○

How likely are you to purchase the respective product? Please indicate on a scale from 0 -10.
*

	0 - Never	1	2	3	4	5 - Fairly possible	6	7	8
Arla Organic Milk	○	○	○	○	○	○	○	○	○
Oatly's Oat Drink	○	○	○	○	○	○	○	○	○
Coop Skimmed Milk	○	○	○	○	○	○	○	○	○

Please indicate to which extent you agree / disagree with the following statements. *

	Never	Rarely	Sometimes	Often	Always
I regularly buy products that are labeled as fair-trade.	○	○	○	○	○
When shopping, I regularly and deliberately check products for environmentally harmful ingredients.	○	○	○	○	○
When shopping, I deliberately look for a certified organic label.	○	○	○	○	○
When shopping, I deliberately check for a product with recyclable packaging.	○	○	○	○	○
I choose to buy sustainable products even if they are more expensive than other products.	○	○	○	○	○
When I consider buying a product, I check to see if it is against animal testing.	○	○	○	○	○

Consider a company in the food industry that declares itself sustainable. How important do you consider the following circular economy strategies in regard to sustainability? *

	Not important	Less important	Neutral	Important	Very important
Creating new revenue models: (i.e. identifying new revenue models that have a lower environmental footprint)	◯	◯	◯	◯	◯
Implementing choice architecture: (i.e. seeking to make it easy for consumers to shift to better alternative)	◯	◯	◯	◯	◯
Choice editing: (i.e. eliminating unsustainable products to provide 'better' products instead)	◯	◯	◯	◯	◯
Encouraging substitution of animal-based products	◯	◯	◯	◯	◯

Applying conscious sales and marketing techniques: (i.e. satisfying 'needs' rather than promoting 'wants')	○	○	○	○	○
Setting default options: (i.e. nudge people to consume less amounts through smaller standard sizes)	○	○	○	○	○
Educating and engaging consumers	○	○	○	○	○
Offering quality local products	○	○	○	○	○
Shortening the ingredient list: (i.e. reducing the amount of ingredients consumed per product)	○	○	○	○	○
Designing products for sustainable consumption: (i.e. anti-littering labels in packing)	○	○	○	○	○

Changing conventional consumer perception: (i.e. 'ugly' vegetables can still be eaten)	○	○	○	○	○
Selling inconvenience for a better price: (i.e. offer products cheaper for consumers who accept less services)	○	○	○	○	○
Developing products that last	○	○	○	○	○
Providing refillable packaging for consumables	○	○	○	○	○
Repurposing food: (i.e. apps that generate value from what would have been waste)	○	○	○	○	○

Information on Circular Economy Business Models used for each three products

1. Oatly AB: Oatly is a Swedish company, which uses a patented enzyme technology to create drinks and other products from oats. Oatly encourages and implements sustainability throughout its production, packaging, transport and sales chain and has a high transparency about its ecological footprint. From the previously mentioned circular economy business models, Oatly uses ten:

- Encouraging substitution of animal-based products
- Creating new revenue models
- Offering quality local products
- Applying conscious sales and marketing techniques
- Educating and engaging consumers
- Implementing choice architecture
- Shortening ingredient list
- Designing products for sustainable consumption
- Developing products that last
- Repurposing food

2. Arla Foods: Arla is an international company based in Denmark offering a wide range of dairy products. The company strongly emphasizes the importance of animal welfare as well as sustainable farming and is the largest manufacturer of organic dairy products in the world. Besides sustainable measures like using natural fertilizers, prohibiting hormones and antibiotics, promoting wildlife friendly farming and eco-cycle bottles made from 50% recycled material, Arla uses five of the previously mentioned circular economy business models:

- Implementing choice architecture
- Setting default options
- Developing products that last
- Educating and engaging consumers
- Offering quality local products

3. Co-op: Coop (in some countries Co-op) is a consumer co-operative, which runs several businesses in several industries among others food retail (supermarkets) as well as pharmacy, insurance, real estate, legal services and funeral care. While Coop engages in some equality and health initiatives, its dairy products are not based on any of the previously mentioned circular economy business models, but instead focus on a low price strategy.

Here are the three products again:

| Arla Organic Milk | Oatly Oat Drink | Coop Skimmed Milk |

How likely are you to purchase the respective product? Please indicate on a scale from 0 - 10.
*

	0 - Never	1	2	3	4	5 - Fairly possible	6	7	8
Arla Organic Milk	○	○	○	○	○	○	○	○	○
Oatly's Oat Drink	○	○	○	○	○	○	○	○	○
Coop Skimmed Milk	○	○	○	○	○	○	○	○	○

Appendix C

SPSS: Test Results

Test:	Cronbach's Alpha	N of Items
Social Consciousness	0.832	6
15 CBS	0.849	15

Test	N	Percentiles	Result
Sustainability Factor	184	25	-5.0000
		50	0.0000
		75	4.0000

Mean comparison between Groups before and after information on strategies

Brand	Sustainability Consciousness	M (before)	M (after)
Oatly	low	4.76	6.45
	high	6.2	8.63
Arla	low	4.83	6.17
	high	4.88	6.49

Brand	Sustainability Consciousness	M (before)	M (after)
Coop	low	3.69	2.55
	high	3.02	1.48