

The influence of Green Nudges in a marketing strategy to reduce consumption of natural resources for packaging while maintaining or increasing profits

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Bachelor of Science HES in International Business Management**

by

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Disclaimer

This report is submitted as part of the final examination requirements of the Haute école de gestion de Genève, for the Bachelor of Science HES-SO in International Business Management. The use of any conclusions or recommendations made in or based upon this report, with no prejudice to their value, engages the responsibility neither of the author, nor the author's mentor, nor the jury members nor the HEG or any of its employees.

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Executive Summary

Environmental pollution became a serious problem and is impacting our planet today. According to the World Economic Forum, plastic “is one of the world’s leading drivers of climate change”. Literature states that cardboard boxes, such as *Tetra Pak*, require less natural resources than plastic bottles. Making a change and decreasing environmental pollution requires the active involvement of citizens, as stated by the UNCC. The purpose of this research study is to learn how green nudges can be involved in a marketing strategy to reduce the consumption of natural resources for packaging while maintaining or increasing profits.

By definition, green nudges are a concept of behavioural economics and not considered to be a marketing tool. However, green nudges can be included as an extension of marketing tools that support the corporate social sustainability (CSR) strategy and are feasibly implementable.

The survey results show that green nudges have an impact on consumers’ buying behaviour. Two tested green nudges did positively influence 80.1%-85.3% of the 231 participants. It further revealed that firms can increase sales prices by 15.6% without facing a decrease in demand, tested on a product of CHF 1.80 initially.

It is recommended for firms to sell more beverages in cardboard boxes such as *Tetra Pak*, instead of plastic bottles. Completely replacing the plastic packaging by *Tetra Pak*, could lead to a decrease in demand. Implementing green nudges and leading the change step-by-step reduces or avoids the risk of losing consumers. In more details, firms are recommended to implement green nudges that are transparent and do not include too much information, meaning that consumers do not need to actively think about their choice or behaviour.

A further, recommendation is to test the nudge in the form of an experiment before implementing it on a large scale. This allows adapting the nudge to social and/or regional circumstances, with regard to the reactions.

Although consumers would be willing to pay 15.6% more for a dairy drink in sustainable packaging, it is recommended not to exploit this willingness. Additional costs resulting from the new packaging material can be passed on, however, big differences in price should be verified.

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1. Introduction

The main purpose of this research paper is to assess if internationally active firms in the dairy industry can reduce their consumption of natural resources for packaging by applying green nudges, while maintaining or increasing profits.

In order to clearly outline the nudge theory, the definition of nudges by Thaler and Sunstein is provided. The two American academics proposed the nudge theory as a contribution to behavioural economics and Thaler won the Nobel economics prize in 2017 (Chu 2017). Therefore, this research paper is based on the definition of Thaler and Sunstein and reads as follows:

“A nudge, as we will use the term, is any aspect of the choice architecture that alters people’s behaviour in a predictable way without forbidding any options or significantly changing their economic incentives.”
(2009, p. 6)

While nudges aim to have an influence on people’s behaviour in general, green nudges specifically aim at promoting environmentally responsible behaviour (Evans et al. 2017, p. 69). As further explained in chapter 2, not all types of packaging material impact the environment to the same extent. By using more sustainable packaging, such as *Tetra Pak* cardboard boxes, the environmental footprint could be reduced (Moradi 2019).

In order to analyse various factors, from a holistic perspective, the research paper focuses on the single-case study of the dairy giant Emmi. Emmi is an internationally active company that is based in Switzerland (Emmi Group 2020b). In the scope of this research paper, it will be assessed how internationally active firms in the dairy industry, such as Emmi, can implement green nudges. How effective the measures are and how they can be integrated with the marketing strategy of Emmi.

1.1 Research questions and objectives

Derived from the goals mentioned beforehand, the following guiding research question can be concluded:

How can internationally active firms in the dairy drink industry use Green Nudges as a marketing strategy to reduce their consumption of natural resources for packaging while maintaining or increasing profits?

Moreover, the following research objectives facilitate the achievement of the research question mentioned above. They are split into a basic requirement for the study as well as into a qualitative and quantitative part, as followed:

Basic requirement: To study the theory of marketing strategy, Corporate Social Responsibility (CSR) and nudges and find out how green nudges are involved.

Qualitative part: To assess how green nudges can be implemented most effectively; and suggest two or more concrete examples on how and where Emmi would do best to implement a trial period in the form of an experiment.

Quantitative part: To examine the impact of green nudges placed in supermarkets and consciously and subconsciously promote dairy products which are sold in alternative packaging, such as *Tetra Pak* cardboard boxes, while offering the option of purchasing plastic-packaged items.

For clarification, further definitions and explanations of terms used in the research question and objectives are as followed:

Internationally active firms: firms that control or own the production of goods and services in one other country or various other countries than its home country (Rugman, Brewer 2001, p. 152).

Natural resources: are materials or substances that occur in nature without the interaction of humankind. Examples are minerals, forests, water, fertile land, oil and gas (Natural resource 2020 ; Natural Resources 2020).

Profits: more concretely, in order to look at the overall financial impact of the green nudges, the net profit is considered. The net profit is the remaining amount of the revenue after the deduction of all operating expenses, interest, taxes and preferred stock dividends (Net profit 2020).

Effective: successful or achieving the aimed results (Meaning of effective 2020). In the scope of this report, implementing green nudges effectively stands for implementing the green nudges in a successful way, meaning to influence consumers to buy products in more sustainable packaging.

Emmi: is an internationally active company in the dairy industry. In this report, the single-case study of Emmi represents the internationally active firms in the dairy drink industry. Further information about Emmi is stated in section 1.5 at the end of this chapter.

Tetra Pak cardboard boxes: *Tetra Pak* is “the world’s leading food packaging and processing company”, constantly seeking for breakthrough innovations. The cardboard boxes are “primarily paper-based and fully recyclable” (*Tetra Pak*). Throughout the report, they will be referred to as *Tetra Paks*.

Linked to the research question and objectives, two testable hypotheses have been defined which represent the expected outcomes of the research and are stated in the following section. The research question and objectives, as well as the hypotheses are visualized in figure 1.

1.2 Testable hypotheses

Rooted in the qualitative and quantitative part of the research as described in the previous chapter, two testable hypotheses have been defined for this research paper. The first hypothesis concerns the effectiveness of green nudges and their potential to influence consumers:

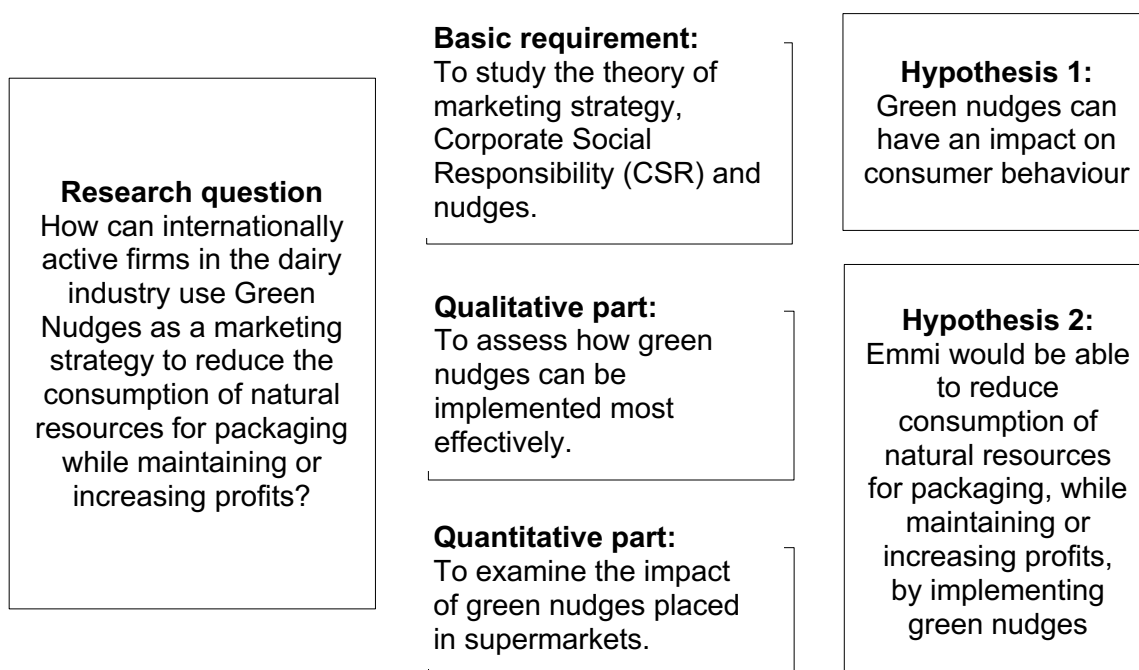
Hypothesis 1: Green nudges can have an impact on consumer behaviour.

In relation to the first hypothesis, the second hypothesis does not only include the potential impact of green nudges but also focuses on the effects for the company applying the nudges:

Hypothesis 2: Emmi would be able to reduce the consumption of natural resources for packaging, while maintaining or increasing profits, by implementing green nudges.

Relatedly, one particularly important fact to mention here is acting environmentally friendly gained importance during the last years. Therefore it will be analysed how effectively green nudges can support Emmi in their goal of reducing waste, as it will be described in the introduction of Emmi. However, only realistically implementable green nudges, which would allow Emmi to maintain or increase profits, will be analysed.

Figure 1 – Visualization of Research question and objectives



Source: Information of chapter 1.1 and 1.2 of this report

1.3 Structure of report

In the introduction chapter, basic knowledge about the report and its objectives are provided. Thereafter, the literature review summarizes scientific literature concerning climate change and how it did evolve during the last centuries. It is also thematized how packaging is involved and how green nudges can make a change against climate change. In the following chapter, the methodology states the used approaches to achieve the three research objectives. Information about data collection and its analyses are provided.

Thereafter, the report is organized and structured in three main parts that correspond to the research objectives, which are stated above. Firstly, the theory of marketing strategy and corporate social responsibility is defined and it is analysed, how green nudges are or could be involved.

Secondly, a single-case study about the Swiss dairy giant Emmi is used in order to better understand Emmi's sustainability goals and how those are linked with their marketing strategy. With the information gained about Emmi, it is studied and understood how green nudges can be implemented most effectively.

Thirdly, the impact of green nudges placed in grocery stores are tested through an online survey. The analysis of the results concludes if and how green nudges can influence the environmental footprint through packaging.

In the final section, conclusions are made based on the knowledge gained throughout the report. The research question is answered and recommendations are described. A visualization of the structure of the report can be found in appendix 1.

1.4 Theoretical concepts

The following theoretical concepts are applied in this research paper, further information about the individual concepts are given in chapter 2 or during in chapter 5.

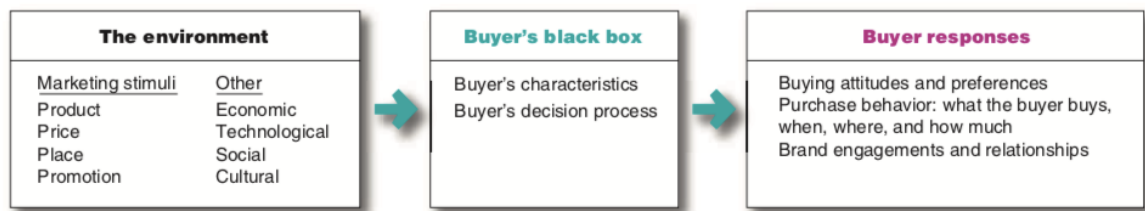
1.4.1 Nudges and Green Nudges

The concept of nudges has been defined by Thaler and Sunstein and is a well-known approach to alter citizens' behaviour. Nudges are considered as a concept of behavioural economics that influences people's behaviour without significantly changing the economic incentives. While nudges, in general, promote options that are supposed to deliver additional benefits, green nudges specifically aim to promote environmentally friendly behaviour. The concept of green nudges will be used in all three research objectives. The term will be used throughout the report based on the definition provided in the introduction of this report. Further information and examples are provided in the literature review.

1.4.2 Model of Buyer Behaviour

The Model of Buyer Behaviour describes the process of consumers making buying decisions before buying a certain good or service. The model focuses on the decision-making process that is influenced by the external environment and internal factors and results in the buyer responses. Especially the internal factors depend on the buyer's characteristics and thinking. For this report, the Model of Buyer Behaviour is used in connection with the first research objective concerning the potential involvement of Green Nudges in marketing and CSR strategies, in section 5.1.

Figure 2 – The model of buyer behaviour

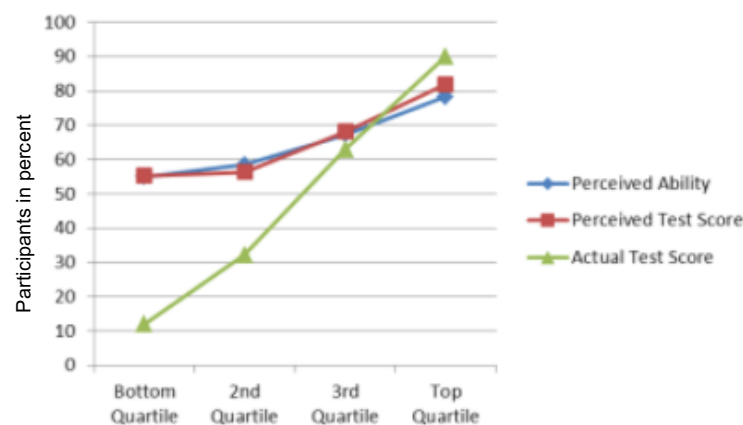


Source: Kotler, Armstrong (2016, p. 167)

1.4.3 Dunning-Kruger-Effect

Under the Dunning-Kruger Effect, psychologists have proven that people think being smarter than they actually are and are overestimating their abilities. Figure 3 below displays the perceived ability and the perceived test score compared to the actual test score (Novella et al., 2018, 45-49). As the Dunning-Kruger effect gives a certain insight into the thinking, estimation and self-awareness of people, the concept could be applied to analyse the results of the survey established for the third research objective, in section 5.3.

Figure 3 – Dunning-Kruger-Effect



Source: Novella et al. (2018, p. 46)

1.5 Emmi

In the scope of this research paper, the internationally active dairy giant Emmi represents the internationally active companies in the dairy industry, mentioned in the research question. Emmi's targets, CSR- and marketing strategy are analysed and allow to apply the theoretical knowledge gained through the research of the first research objective.

1.5.1 Brief introduction

Emmi's history dates back to 1907 when 62 dairy farming cooperatives founded the Central Switzerland Milk Association in Lucerne as a means to band together in order to achieve higher power on the market. Over the years, the milk association kept growing, producing a wide range of different dairy products and was able to start exporting and licensing to companies abroad. In 1993, the association decided to apply a division-based structure and formed today's Emmi corporation. Several years later, foreign production sites gained importance and transformed Emmi into an international corporate group (Emmi Group 2020b).

Figure 4 – Logo of Emmi Group



Source: Emmi Group (2020a)

1.5.2 Current figures and goals

The Emmi Group exports to 60 countries, however, business activities are mainly focused on the Swiss domestic market, western Europe and the American continent. Emmi recorded CHF 3,5 billion in sales in 2019, half of which has been generated in Switzerland. Looking at the net sales per product group, 30.5% come from dairy products and 31.3% from cheese (Emmi Group 2020c).

Sustainability belongs to the corporate philosophy of Emmi, therefore specific targets have been formulated in 2016. Those targets concern four different categories: greenhouse gases, sustainable milk, waste reduction and employee development (Emmi Group 2020d, p.18). Focusing on the target concerning waste reduction, Emmi's target is to reduce food waste and waste from the packaging by 20% by 2020. According to the published annual report 2019, a waste reduction of five per cent has been achieved so far (Emmi Group 2020d, p. 19). As stated by Urs Riedener, CEO of Emmi, Emmi decided to strengthen the sustainability strategy during the year 2020 (2020c).

1.5.3 Goals of Bachelor Project for Emmi

The purpose of this bachelor thesis with a case study about Emmi is to analyse if Emmi would be able to reduce the consumption of natural resources for packaging by applying the principle of green nudges in grocery stores. If the stated assumptions can be confirmed, this means that Emmi could focus on a new tool to achieve its sustainability goal concerning waste reduction, as mentioned above.

2. Literature review

In this chapter, it will be thematized what environmental pollution is, where it is coming from and how it is linked to the subject of this research paper. Various academic literature led to an adequate understanding of the matter.

2.1 Environmental pollution – definition and where it is coming from

Environmental pollution is defined as:

“The contamination of physical and biological components of the earth/atmosphere system to such an extent that normal environmental processes are adversely affected”.
(Manickam, Muralikrishna 2017, p.251)

Further it is described as “one of the most serious problems facing humanity and other life forms on our planet today” (Manickam, Muralikrishna 2017, p. 252).

The first industrial revolution started around 1750 in the United Kingdom and spread to other European countries such as Belgium, Switzerland, France and Germany before it began in the United States around 1789 (Stokes Brown 2018). It did not only impact the economy of those countries, but also the environment was affected (Working with our Environment 2015).

On the one hand, the industrial revolution enabled material prosperity. Powerful sources of energy and new technologies made it possible to produce machines and goods. Factories were built fast and allowed workers to find work in cities, companies to make a profit and society to increase their standards of living. Thus, the main advantages of the Industrial Revolution were productive capability, better mobility, convenience, cheap consumer goods and profits (Working with our Environment 2015).

On the other hand, the Industrial Revolution and increased production of goods, resulted in a massive increase in energy use through burning fossil fuels¹. However, the environments' capacities to absorb waste and pollution seemed limitless. At the time, the impact on the environment was expected to be short-lived, local and inevitable. Regulations on this matter were missing/vague and it was only dealt with the problems when there was “a clear and immediate threat to life and livelihoods” (Working with our Environment 2015).

¹ Definition of fossil fuels: “fuels, such as gas, coal, and oil, that were formed underground from plant and animal remains millions of years ago” (Meaning of Fossil Fuel 2020).

In 1966, Switzerland started legally protecting the environment through the Federal Act on the Protection of Nature and Cultural Heritage (CC 451 Federal Act). Seventeen years later, the Environmental Protection Act (EPA) came into force. The EPA intended to:

“protect people, animals and plants, their biological communities and habitats against harmful effects or nuisances and to preserve the natural foundations of life sustainably, in particular biological diversity and the fertility of the soil.”

(CC 451 Federal Act)

Conclusively, the Industrial Revolution and its resulting changes in production and standards of living have had a major impact on environment and caused pollution. Although it has been proven that already around 240 years ahead of the industrial revolution, humans started polluting the earth, those pre-industrial pollution records are rare and difficult to define and thus, not followed in this report (Gabrielli 2015).

2.2 Environmental pollution – how it evolved

As previously mentioned, Industrial Revolution increased production capabilities, which led to cheaper consumer goods and higher demand (Working with our Environment 2015). Three main ruptures in consumption can be defined since the Industrial Revolution (Flacher 2015, p. 5 - 8):

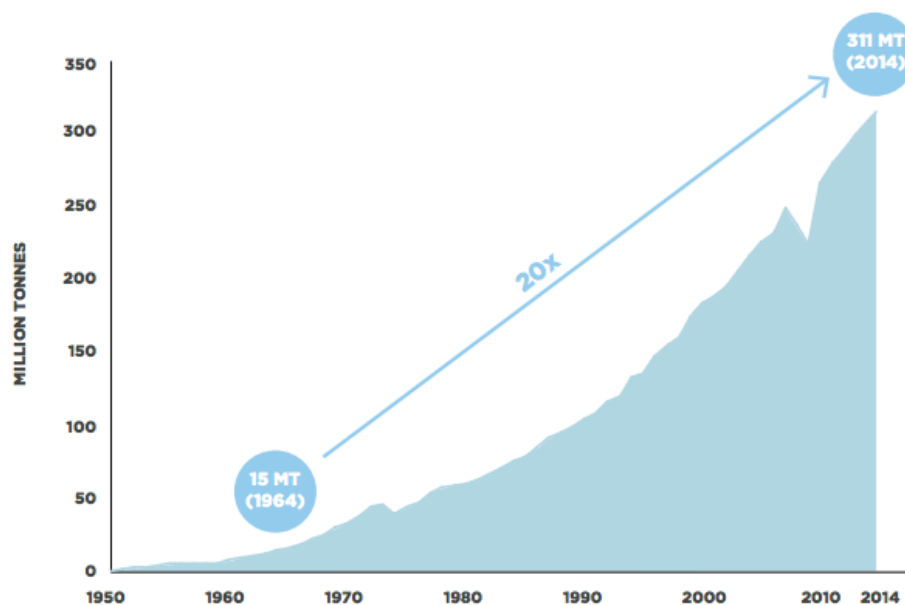
- The consumer revolution (1760 – 1790)
- The consumer goods revolution (1850 – 1950)
- The mass consumption revolution (1950 – 1980)

The consumer revolution describes changes in the nature of goods and the volume of sales. At that time, the demand changed from durable goods to a flow of purchase of less durable goods, which was promoting the industrial mass production. From 1850, the consumer goods revolution shows patterns of developed clothing consumption, largely replacing the second-hand market. Furthermore, it is characterized by better education and the development of leisure. Consumption habits have changed at the end of the crisis and consumers wanted higher living standards, or at least imitate high standards of consumption by buying middle-class goods, as they could not afford luxury goods. Then, the mass consumption revolution has further changed consumption habits and the ways of life. Especially the service sector, television and the electric household sector faced an increase in demand during this period (Flacher 2015, p. 5 - 8).

The industrialization and mass production had a knock-on effect on the usage of plastics. Thanks to its low cost, versatility and durability, plastics have brought massive benefits to the economy. Since 1964, plastics production has experienced exponential growth

(Figure 5), being twenty times higher and reaching 311 million tonnes in 2014 (The new plastics economy 2016, p. 10 - 11). Of this total volume, 26% of the plastics are used for packaging materials, which is the largest application. It is argued that plastic packaging can benefit the environment, as the fuel consumption of transportation is lower because of its lightweight and as it keeps food fresh longer, which leads to a reduction in food waste. However, the negative externalities resulting from plastic packaging outweigh those advantages (The new plastics economy 2016, p. 7).

Figure 5 – Growth in Global Plastics Production 1950 - 2014



Source: The new plastics economy (2016, p. 11)

2.3 Environmental pollution – where it is today

In 2018, 359 million tonnes of plastics have been produced globally and 61.8 million tonnes in Europe. Focusing on Europe, 39.9% of the 61.8 million tonnes have been used for packaging. This corresponds to 24.7 million tonnes, of which 1.9 million tonnes have been used for PET plastic bottles (Plastics – the Facts 2019, p. 15 - 20). Even though 82% of all PET bottles are recycled in Switzerland, the production, use and disposal of petrochemicals², thus plastics, negatively affect the environment through their final energy demand and direct CO₂ emissions (PET-Recycling 2019 ; The Future of

² Definition of petrochemicals: “Petrochemical products are chemicals derived from petroleum or natural gas. They are mainly used to manufacture plastics, medicines, cosmetics, furniture, appliances, electronics, solar power panels and wind turbines”. (Petrochemical)

Petrochemicals 2018, p. 4 - 5). Today, plastics is the most familiar of petrochemical products, and uses nearly 14% of all the world's oil and gas (Vidal 2020). Furthermore, petrochemicals are the fastest-growing source of oil consumption and until 2030, petrochemicals are expected to represent more than one-third of the growth in oil demand, which surmounts the expected oil demand of trucks, aviation or shipping (The Future of Petrochemicals 2018, p. 2).

Conclusively, research states that plastic is “one of the world's leading drivers of climate change” and the World Economic Forum (WEF) expects plastic production and use to grow 3.8% per year until 2030 and 3.5% per year from 2030 until 2050 (Vidal 2020 ; The new plastics economy 2016, p. 13).

The UNCC defines environmental pollution as a public problem which requires the active involvement of citizens to be solved. Already small changes in attitudes, lifestyles, behaviours and habits can oppose environmental pollution (Public Participation under Action for Climate Change 2019). For instance, selling more beverages in alternative packaging, such as *Tetra Pak* cardboard boxes, would be a change that matters (Moradi 2019). *Tetra Pak* cardboard boxes consist of 75% of renewable resources and have therefore a lower carbon footprint than plastic packages. Furthermore, *Tetra Pak* is fully recyclable. However, specific recycling plants are required which are not yet available at some markets (Jia, Wu, Gosling 2019). There are currently about a hundred collection points in Switzerland. A Swiss recycling organization states that 9 out of 10 consumers in Switzerland would be recycling the *Tetra Pak* cardboard boxes, as it has been found through a pilot test, which demonstrates the necessity of further collection points (Recyclage des briques à boisson Suisse 2020).

Changes are often forced through constraints, laws and other public policy-making by the government, however, those take time to implement and need to be monitored and controlled in order to be effective (Lindahl, Stikvoort 2015, p. 22). There is a way to complement those traditional policy making strategies in order to be more efficient in creating a greener world: green nudges (Lindahl, Stikvoort 2015, p. 13).

2.4 About (green) nudges

Green nudges are a promising alternative to public policy-making, in changing citizens' behaviour (Nicolao, Constantinos, Michele 2018, p. 814). As stated by Thaler and Sunstein, who popularized the concept of nudge, "Nudging is one of the most well-known approaches aiming to alter citizens' behaviours" (2009, p. 6). Further, nudging is defined as

"any aspects of the choice architecture that alters people's behaviour in a predictable way without forbidding any option or significantly changing their economic incentives".
(2009, p. 6).

Thus, per definition nudging is a concept of behavioural economics (Thaler, Sunstein 2009, p. 6). Additionally, green nudges especially tackle the behaviour concerning sustainability and pro-environmental choices (Evans et al. 2017, p. 69).

The main difference to common public policy-making strategies is that nudges do not forbid other options, but they consciously or subconsciously influence consumers to pick a certain option which is supposed to deliver additional benefits, for instance to the consumer's health or the environment, which is promoted with the so-called green nudges (Thaler, Sunstein 2009, p. 6).

2.4.1 Different types of nudges and examples

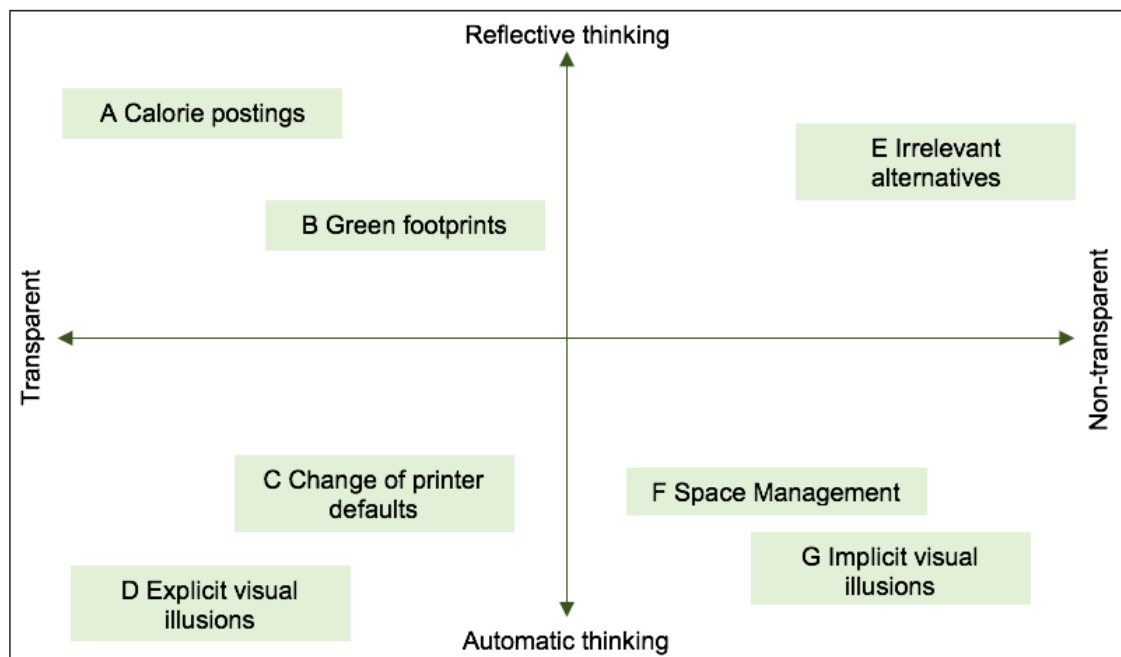
According to a study published in 2013, there are different types of nudges and those can be distinguished and explained with a matrix (Hansen, Jespersen 2013, p. 20). In their book, Thaler and Sunstein define two kinds of thinking:

- The automatic thinking is not usually perceived as thinking, it is uncontrolled, effortless, associative, fast, unconscious and skilled. For instance, speaking the native language is considered to be using the automatic thinking.
- The reflective thinking is more deliberate and conscious, it is controlled, effortful, deductive, slow, self-aware and rule-following. For instance, learning a new language uses the reflective thinking.

The following matrix in figure 6 compares on one axis the transparency of a nudge and on the second axis whether the nudge influences the automatic thinking or the reflective thinking. Furthermore, the matrix is explained, using the various examples of the different types of nudges. The illustrated matrix in figure 6 is a summary of the original matrix

which has been published by the behavioural scientists Hansen and Jespersen and can be found in appendix 2.

Figure 6 – Matrix about different types of nudges



Source: adapted from Hansen, Jespersen (2013, p. 20)

Explanation of the examples:

A Calorie postings: show the number of calories of food items or drinks. This is a transparent type of nudge, which should influence consumers' reflective thinking. Meaning that consumers need to actively think about the number, compare it with different products or calculate (Hansen, Jespersen 2013, p. 21).

B Green footprints: are commonly applied close to recycling stations or garbage bins, leading consumers to the garbage bins and therefore promoting correct disposal of waste (Figure 7). This is a transparent nudge, influencing reflective thinking and as it benefits the environment, it is a so-called green nudge (Hansen, Jespersen 2013, p. 18).

Figure 7 – Green footprints



Source: Green Nudge - Nudging Litter into the Bin (2012)

C Change of printer defaults: promotes to print double-sided. If the defaults are set accordingly, users do not need to think about

changing the settings every time when printing. Thus it uses automatic thinking and is a transparent type of a green nudge (Hansen, Jespersen 2013, p. 18).

D Explicit visual illusions: influence the automatic thinking and therefore ask for a reaction, at the same time it becomes clear that it has been an illusion, so it is a transparent nudge. An example is fake 3D speed bumps, which means that speed bumps are painted on streets, these cost much less than actual speed bumps. However, as experiments have shown, the printed speed bumps lose their effectiveness after some time (Hansen, Jespersen 2013, p. 15).

Figure 8 – Speed bumps



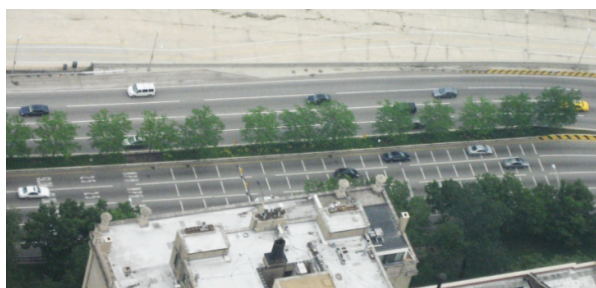
Source: Nudging Traffic Safety By Visual Illusions (2012)

E Irrelevant alternatives: concern the influence on decision-making processes of individuals. In this case, irrelevant alternatives are added to choice-sets. This type of nudge is non-transparent and needs the engagement of the reflective thinking (Hansen, Jespersen 2013, p. 22).

F Space management: can be explained with the example of the organization of cafeterias or buffets. Choice architects organize the context in which people make decisions. In other words, choice architects can influence what people eat, by arranging the food options at a buffet. Experiments have shown that people can be greatly influenced in their choice, by the order the food is placed. For instance, whether the fruits or the sweets are at eye level has an impact. This concerns the automatic thinking and is a non-transparent nudge (Thaler, Sunstein 2009, p. 3).

G Implicit visual illusions: as the explicit visual illusions, the implicit ones affect the automatic thinking, but they are not transparent, meaning that the people are not necessarily aware that there was an illusion. An example can be provided by the traffic control measures at the Chicago Lake shore drive, which has been known as a crash hot-spot.

Figure 9 – Lake shore drive



Source: Nudging Traffic Safety By Visual Illusions (2012)

After various other measures without success, the Chicago Department of Transportation painted a set of transverse optical bars on the road, with shrinking

clearances closer to the curve. This made drivers believe that they are driving faster than they actually are and therefore they automatically slowed down. These stripes have led to an improvement in behaviour and as they are not aware of the illusion, it does not lose its effect from habituation (Thaler, Sunstein 2009, p. 37 – 39).

2.4.2 Review of nudges

A widely discussed point of criticism is the question whether nudges are ethically justifiable or not; especially when it comes to the autonomy argument, views and opinions vary (Hansen, Jespersen 2013, p. 9). On the one hand, researchers claim that individuals face losses in their autonomy after being nudged, as the structure of preferences might have changed (Bovens 2009, p. 216). On the other hand, there are arguments that people put a lot of thought into the formation and adjustment of their motives (Buss, Westlund 2018). In other words, people act in accordance with their character and, therefore, remain acting autonomously. Thus nudges hardly ever compromise people's autonomy (Schubert 2017, p. 339).

Furthermore, as firms are responsive to consumer environmental preferences, the incentives of green nudges may foster greenwashing; what can be avoided if grocery shoppers have accurate information (Gingrich et al. 2019). As by definition:

“Greenwashing is the process of conveying a false impression or providing misleading information about how a company's products are more environmentally sound”.
(Kenton 2020)

Therefore, it is considered to deceive consumers by letting them believe that a certain product is more environmentally friendly than it actually is (Kenton 2020).

However, nudges have not yet been proven to be working and have even been accused to cause backfiring effects (Kosters, Van der Heijden 2015, p. 289). Several experiments have taken place, nevertheless, the documented results up to 2019 are not sufficient for providing a general answer about the effectiveness of nudges (Hummel, Maedche 2019, p. 56).

With my Bachelor project, I contribute to close the knowledge gap concerning the effectiveness of green nudges. Concretely, I will analyse how green nudges can help internationally active firms in the dairy industry to reduce the consumption of natural resources for packaging while maintaining or increasing profits.

3. Methodology

This chapter provides an outline of the research methodology used to approach the research objectives. The research approach describes which methods have been used in order to gain adequate information or data on the different research objectives. Further, the collection of relevant data and how this data has been analysed will be provided.

3.1 Research approach

Overall, a mixed method approach is executed in this study, which is a combination of quantitative and qualitative research. Quantitative research, on the one hand, discovers facts through measurements. It thus allows generalizing results from a sample to a population (Creswell 2012, p. 381). On the other hand, qualitative research concerns the understanding of human behaviour through observations and interviews (Miles, Huberman, Saldana 2014, p. 76 - 77). The main advantage of qualitative interviews is the possibility to capture in-depth knowledge and to adapt questions to the background of the interviewee (Qu, Dumay 2011, p. 244). This mixed method was the appropriate approach to address the mentioned research objectives, as they required different strategies and levels of insight (Creswell 2012, p. 535).

In more detail, the first research objective mainly demanded desk research and information of academic literature in order to have a thorough understanding and knowledge about the concepts required. Regarding the second research objective, to further understand the potential of green nudges and applying the concept, accurate information about Emmi was essential. This information could partially be found on Emmi's website and a deeper insight could be gained through qualitative interviews with a representative communication allrounder of Emmi. Further fieldwork was required to achieve the third research objective concerning the impact of green nudges. The necessary data could be obtained through quantitative research, more concretely, an online-survey has been conducted.

3.1.1 Selection of the Emmi case study

Two most relevant parameters to select the case study of Emmi was that Emmi is an internationally active firm and operating in the dairy drink industry. Emmi is the market leader of the dairy drinking industry in Switzerland, exporting products to 60 countries, and has production facilities in seven countries. Furthermore, Emmi has a clear distinction regarding responsibilities and created three main regions: Switzerland,

The influence of Green Nudges in a marketing strategy to reduce consumption of natural resources for packaging while maintaining or increasing profits

Europe and America (Emmi Group 2020e). Therefore, it fulfils the definition of an internationally active firm, as defined in section 1.1.

3.2 Data collection

This section provides further detail about the data collection methods of the three individual research objectives. The combination of data collection comes with a further advantage:

“The combination of data collection can result in the different findings that can complement each other, and provide a fuller, broader and deeper understanding of the different strategic factors which have influence on the operations management success”. (Abro, Khurshid, Aamir 2015, p. 105)

3.2.1 Secondary data collection

The first research objective concerning the current involvement of green nudges in the marketing strategy, required desk research, which meant sourcing, evaluating and analysing existing theoretical information (Kabir 2016, p. 205-206). Reviewing existing data can be time and cost-saving but it also has limitations, as it may include incomplete or out of date information (Prachi 2020).

The information to understand the concept of CSR comes from the Federal Department State Secretariat for Economic Affairs and is thus considered to be a reliable source. Scientific literature about marketing strategies was found in the marketing book of Kotler and Armstrong. Particular information about nudges and green nudges could be found in the book about nudges, written by Thaler and Sunstein who are the founders of the concept, and in the various scientific literature about nudges.

For the second research objective, information gained from Emmi's website was taken into consideration. This information was assumed to be reliable and served as a basis to learn about Emmi as an organization and its concrete sustainability targets and activities. As described in the following section, the preparation for the interview with Emmi was based on these findings.

3.2.2 Qualitative primary data collection

To gain primary data about the marketing strategies of Emmi, qualitative research was conducted. An interview plan has been sent to Emmi, which was based on the findings from Emmi's website. The interview plan has been written in German, as this is the language that is spoken in Lucerne, Switzerland, where the headquarter of Emmi is

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located. According to researchers, data gained in the mother tongue of the interviewee is the most concrete and best data (Cortazzi, Pilcher, Jin 2011, p. 528).

The communication allrounder at Emmi consulted representatives of the marketing and of the sustainability department and answered the questions in writing. Because of the written form of the interview, a structured interview has been executed. This means that the questions allow only a limited number of responses, which is described as a disadvantage. On the positive side, standardized interviews reduce the influence of the interviewer's bias, which leads to a higher probability to receive accurate answers (Qu, Dumay 2011, p. 244).

The interview started with general questions about the meaning of sustainability for Emmi. These included questions about the internal organization regarding sustainability, current actions and future plans to foster sustainability. Further, questions about Emmi's marketing strategy were asked and to what extent sustainability was included in the marketing strategy. With regards to Emmi's sustainability target concerning waste, questions about packaging were asked. Afterwards, the definition of green nudges was provided and questions concerning the past, current and potential use of green nudges were asked. The interview plan can be found in appendix 3.

The gained information helped in designing two concrete examples of realistic implementable green nudges. Those prototypes were presented to the sustainability project manager of Emmi. In the form of a second structured interview, written feedback concerning the estimated impact, feasibility and cost of the green nudges was provided. The interview plan can be found in appendix 4.

3.2.3 Quantitative primary data collection

Finally, quantitative research was conducted for the third research objective. Through an online survey, it has been assessed how grocery shoppers react to green nudges that subconsciously or consciously promote a non-plastic packaged item. The online survey consisted of eight questions, excluding language preferences and personal information, out of which seven questions were multiple-choice questions, allowing one answer. Participants had the choice between the English version and the German version of the survey. Cortazzi, Pilcher and Jin claim that data that is gathered in the mother tongue of the participants is the most valuable data (2011, p. 528). German has been selected, as it is the mother tongue of the majority of the Swiss population, especially in the

surroundings of the author. English covered all other languages spoken in Switzerland. The translation tool DeepL has been used for the translation.

The survey was conducted online through the tool “Google forms”, which is a free survey tool provided by Google, and within five days, 231 individuals participated in the survey. No specific sample parameters were defined, meaning that the random sampling method was applied (Types of sampling methods, 2020). This was the appropriate method for this research to ensure that each member of the population had an equal chance of being selected because each member of the population can be considered as a grocery shopper. The random sample was found in the social media networks “LinkedIn” and “Facebook” of the author.

In more detail, the survey started without any explanation about green nudges or environmental impact of packaging but by asking participants about how regularly they would consume bottled beverages. In a next step, two types of the same product, one packaged in PET and the other one in *Tetra Pak* were presented and participants were asked to choose one of them and then shortly explain the reason for their choice. In the next step, participants were asked which type of packaging they assume to be more environmentally friendly. Afterwards, participants were informed that *Tetra Pak* was more sustainable than PET and then they were asked a second time to choose between the two same products. This showed the impact of informing consumers about the environmental impact. To measure whether green nudges have an influence on grocery shoppers in Switzerland or not, pictures of the previously designed prototypes of green nudges were included in the survey. Two types of green nudges were used in the survey, one impacting the automatic thinking, trying to subconsciously influence participants and one impacting the reflective thinking, trying to consciously influence participants. In order to find out how the producer's profit can be affected, a question was asked to know more about the participants' willingness to pay for sustainable packaging. This question was linked to the question about participants' regularity of consuming bottled beverages because it is important to know which consumers would be willing to pay what price. The entire survey including the pictures can be found in appendix 5.

3.3 Data analysis:

The procedure of data analysis is split into the qualitative and quantitative analysis process.

3.3.1 Secondary data analysis

The theoretical information has been analysed through summarizing essential terms and comparing how green nudges are involved in various concepts. According to the definitions, green nudges are not involved in CSR and marketing strategies. Further desk research allows one to compare and analyse how green nudges are currently applied as a concept.

3.3.2 Qualitative primary data analysis

To analyse the interviews with Emmi, the steps as defined by Creswell were executed: After the data collection, the data needs to be prepared for analysis. This includes transcribing the interviews (Creswell 2012, p. 244). As the interview took place in a written format, this step was not necessary. However, the transcript of the interview needed to be translated into English, which is the language of this research paper. The free machine translation service “DeepL” has been used for this.

In order to get a general sense of the material, it has been read through the obtained data. In the next step, the data is coded. This differentiates between coding the text for themes and for descriptions that will be used in the research report. The coding process supports in segmenting the information and collapsing the codes into themes (Creswell 2012, p. 245). A visualization of the analysis process can be found in appendix 6.

3.3.3 Quantitative primary data analysis

As a first step, the data needs to be prepared and organized (Creswell 2012, p. 175). The tool used for the online survey allows one to download all answers into an Excel file for the analysis. There, the German and the English version of the survey were fused together and translated to English, using DeepL translations. Then, the gathered data was checked for missing or incomplete data, all 231 data sets were complete (Creswell 2012, p. 181). Furthermore, no values that were outside the calculated range, so-called outliers, had to be removed.

The participants were distinguished between under and over 35-year-olds, as this is assumed to be a meaningful age to divide up generations. Before analysing, some

results, for instance, the regularity of consuming bottled beverages, were scored to numbers, in order to be more meaningful. During the analysis, various graphs and tables were established in Excel with the collected data in order to find connections and dependencies between the answers. In the presentation of the results in chapter 4.3, detailed information about each statistical test has been provided. Moreover, the results were interpreted and discussed in chapter 5.3. This also includes estimations on why the results occurred (Creswell 2012, p. 199).

3.4 Research credibility:

To ensure a credible report, consulted sources must be reliable and valid. Reliability concerns the trustworthiness of a source and validity ensures that the source is appropriate for this report (Heale, Twycross 2015). This can only be guaranteed if the sources are checked carefully before being taken into consideration. A great tool for this was background checks of the author.

3.5 Ethical considerations

The research of this study will be executed in compliance with sophisticated ethical standards. All information displayed is neither plagiarized nor falsified. Moreover, the aim of the research is to be free of bias, focusing on the results instead of personal assumptions (Yin 2014, p. 76). A special emphasis is given to the protection of human subjects, no harm should be imposed (Qu, Dumay 2011, p. 252). Additionally, the survey participants and the interviewees are informed about the aim of the research. Their privacy and anonymity are assured.

4. Findings

In the findings chapter, the results of the desk research and fieldwork concerning the three research objectives will be presented. First, the basic requirements will be tackled by providing theoretical information from the scientific literature about CSR, marketing strategy and how green nudges are involved. Secondly, for the qualitative part, the findings from the single-case study with Emmi will be given. Finally, for the quantitative part, the results of the online survey concerning the impact of green nudges will be indicated.

4.1 Green Nudges in the context of CSR and marketing strategy

In this section, concrete and fundamental knowledge about CSR, and marketing strategy is provided, coming from the scientific literature. This knowledge covers the first research objective and is a basic requirement in order to understand how green nudges can be involved in a holistic CSR and marketing strategy.

4.1.1 Corporate social responsibility strategy

According to the Swiss Confederation, CSR means that “Companies are responsible for the effects of their activities on society and the environment”. CSR is understood to be the companies’ contribution to sustainable development and covers various different aspects, such as working conditions, human rights, anti-corruption measures, fair competition, consumer interests, taxes, transparency and the environment. All those different aspects need to be taken into account on a corporate level of a company (SECO).

Generally, CSR needs to comply with laws and social partnerships (SECO). During recent years, CSR gained on importance, therefore new tools have been developed and existing ones were updated or enhanced (SECO). Some of the most important international CSR standards are the following ones:

- OECD Guidelines for Multinational Enterprises
- UN Global Compact
- UN Guiding Principles on Business and Human Rights
- ISO 26000 – Social Responsibility

- Global Reporting Initiative

All of these mentioned standards are recommendations, code of conducts or guiding principles and are not legally binding. However, the OECD Guidelines for Multinational Enterprises target the OECD member states³ and approximately twelve other countries. All these countries need to promote the implementation of the guidelines and therefore establish a so-called “National Contact Point” (OECD).

Besides, companies implementing CSR strategy means not only focusing on the business and consumers’ needs, but also on stakeholder interest, for example, employees, local communities and NGOs⁴. The society’s expectations towards a company need to be considered as well and those may go beyond legal obligations (SECO).

4.1.2 Marketing strategy

By definition, a marketing strategy is:

“The marketing logic by which the company hopes to create customer value and achieve profitable customer relationships.” (Kotler, Armstrong 2016, p. 74)

Thus, customer value and profitable customer relationships are at the core of the marketing strategy.

Companies decide about which market segment or segments they target. In more detail, this means that companies divide the market into specific groups of buyers who differ in their characteristics, behaviours or needs and select the market segment or segments which are most promising for the company to serve. As a further part of the marketing strategy, the companies decide what value the company aims to deliver to the target customers. This includes the positioning of their products in the minds of target customers and the differentiation of the products for each target market segment (Kotler, Armstrong 2016, p. 74 - 75).

After those decisions have been made, the overall marketing strategy is determined and is considered to be the base for the company’s marketing mix, which is a set of tactical

³ OECD stands for Organisation for Economic Cooperation and Development; currently the organisation consists of 36 member states, amongst them are Switzerland, Australia, France, Germany, Italy, Spain, United Kingdom and the United States. (List of OECD Member countries)

⁴ NGO definition: “A non-governmental organization (NGO) is a non-profit, citizen-based group that functions independently of government. (Folger 2020)

marketing tools that allows the company to produce the aimed response of their target market as decided in the marketing strategy⁵.

4.1.3 Towards a holistic CSR and marketing strategy

While the CSR strategy is defined on corporate level, the marketing strategy aims to support the defined corporate strategy on brand level. However, the CSR and the marketing concepts are highly integrated concepts and therefore, studies have shown that marketing should play a leading role in the analysis of CSR (Sanclemente-Téllez 2017, p. 21).

Responsible marketers do not only discover what consumers want and offer respective products or services that create value for the consumers, but they also need to consider the sustainability of their actions in the longer run (Kotler, Armstrong 2016, p. 108). Kotler and Armstrong describe four different types of marketing concepts:

- Marketing concept: meets the current needs of customers and the current needs of companies. This can sometimes mean compromising the future of both (2016, p. 627).
- Strategic planning concept: meets the current needs of consumers and companies while developing a strategy which meets the company's long-run requirements for survival and growth, taking into consideration changing marketing opportunities (2016, p. 84).
- Societal marketing concept: meets the current company's requirements and does not only meet the current needs of customers but also the long-run interests of consumers and society (2016, p. 35).
- Sustainable marketing concept: socially and environmentally responsible marketing which meets the current needs of consumers and companies in a way that preserves or enhances the future generations to meet their needs (2016, p. 627).

⁵ The marketing mix is also known as "The Four Ps" and consists of product, price, place and promotion (Kotler, Armstrong 2016, p. 74)

4.1.4 Green nudges within the context of marketing and CSR strategy

As defined in section 2.4, green nudges influence people's behaviour through choice architecture which is, by definition, a concept of behavioural economics (Thaler, Sunstein 2009, p. 6). However, nudges have been used to improve market research and influence behaviour of consumers in stores and online. In stores, nudges could decrease the selective attention of consumers and online shoppers are more likely to speak about purchases (Conick 2018).

Research officers claim that all marketers should understand nudges and behavioural economics and further, be able to say that these ideas are somehow involved in the principle of their marketing program (Conick 2018). Sustainable marketing and nudges are effective tools to ease consumers' choices, which has a positive impact on the environment and society (Filimonau et al. 2018, p. 167).

Also in the promotion of CSR, behavioural sciences such as nudges decrease intervention and thus, decrease steering consumer choice towards socially responsible behaviour (Bergkamp 2019).

4.2 Potential of green nudges to be effectively applied at Emmi

This section covers the qualitative part about the single-case study of the dairy giant Emmi, which has been presented in the introduction chapter. Not only will information be provided about Emmi's current marketing strategy concerning its sustainability goals, but with the collected information, two prototypes of implementable green nudges were designed and the received feedback from Emmi will be stated.

4.2.1 Current situation regarding sustainability at Emmi

According to the information provided by Emmi's communication all-rounder, already in the mid-1990s Emmi formulated an environmental policy and committed itself to resource-saving corporate management and environmentally conscious actions. Emmi is reporting in conformity with the GRI reporting standards⁶.

Meanwhile, sustainability has become an increasingly important subject and is embedded in the day-to-day business. At Emmi, sustainability is considered as a strategic issue and is approached with a clear focus. Therefore, specific sustainability

⁶ GRI reporting standards are "the first global standards for sustainability reporting" and "represent the global best practice for reporting on a range of economic, environmental and social impacts (GRI Standards)."

issues where Emmi has a relevant influence, have been identified together with various stakeholder groups (Emmi 2020f).

As stated in the presentation of Emmi, one of its main targets is to reduce food waste and waste from packaging by 20% by the end of 2020. Based on the Emmi Sustainability Report 5, a waste reduction of five percent has been achieved until the end of 2019 (2020d, p.19) . As claimed by Urs Riedener, CEO of Emmi, Emmi decided to strengthen their sustainability strategy during the year 2020.

The fact that Emmi is internationally active, makes it difficult to have a standard waste management process throughout the company. Swiss sites have been using a professional ISO 14001-certified⁷ waste management system and perform detailed waste monitoring, while many foreign companies lack the appropriate data and control mechanism therefor. However, since 2017 all Emmi Group Companies were required to keep detailed records of their waste volumes. Globally, Emmi's motto for waste management is to "avoid, reduce, recycle" (Emmi 2020f).

Based on the interview, Emmi is convinced that there is a need to constantly improve sustainability so that the company can survive and develop in the long term. This is especially important with regard to Emmi's core business milk, to which numerous sustainability issues are linked. Fostering sustainability is a means for Emmi to reduce risks, as well as costs, and sustainability is not integrated into the marketing strategy of Emmi. Furthermore, the demand for sustainably and locally produced products has risen amongst consumers and the general market (appendix 7).

Recently, Emmi came out with a new vegan product, the "Emmi Caffè Drink Almond Macchiato", which is the first vegan product of its popular "Emmi Caffè Latte" product line. According to Emmi, the vegan dairy products display an attractive niche market, as consumers seek for variety and milk alternatives. Currently, such products are often imported from abroad, such as Alnatura⁸ products from Germany.

Emmi offers countermeasure with added value from Switzerland, Swiss raw materials and positive advertising. Comparing figure 10 and figure 11 it sticks out that a new, green logo of Emmi is on the new vegan product. Upon request, Emmi uses this logo to clearly differentiate the vegan product from the Caffè Latte product range. As stated in the first

⁷ ISO is an "International Organization for Standardization", the ISO 14000 standards support companies in managing their environmental responsibilities (ISO 14000 family).

⁸ Alnatura distributes and produces Bioproducts in Germany. The Swiss supermarket, Migros is one of their trade partners and sells the Bioproducts in Switzerland (Alnatura).

interview (appendix 7), the chances that Emmi would generally adapt the green logo version on all its products for marketing reasons is rather small.

Figure 10 – Emmi Caffè Drink Almond Macchiato



Source: Emmi Caffè Drink Almond Macchiato (2020)

Figure 11 – Emmi Caffè Latte product line



Source: Emmi Caffè Latte (2017)

4.2.1.1 Packaging material of Emmi's products

The packaging of Emmi's products has several functionalities. First, and most important for Emmi, is the protection of the product. Additionally, the packaging needs to be easy to fill, stackable, sturdy, leak-proof, convenient, inexpensive and on top of this environmentally friendly and attractive to the eye (Emmi 2020f).

Based on the interview with the representative of Emmi, the marketing department decides about packaging materials for the products, in close coordination with packaging development. Research about Emmi's products has shown that some similar products were packaged in different materials. Emmi claims that depending on the positioning of the product and the target group, packaging material would differ.

A possible change of material for a certain product and its implementation depends on various factors such as the type of material and the available machinery. Age, flexibility and conversion possibilities need to be taken into consideration.

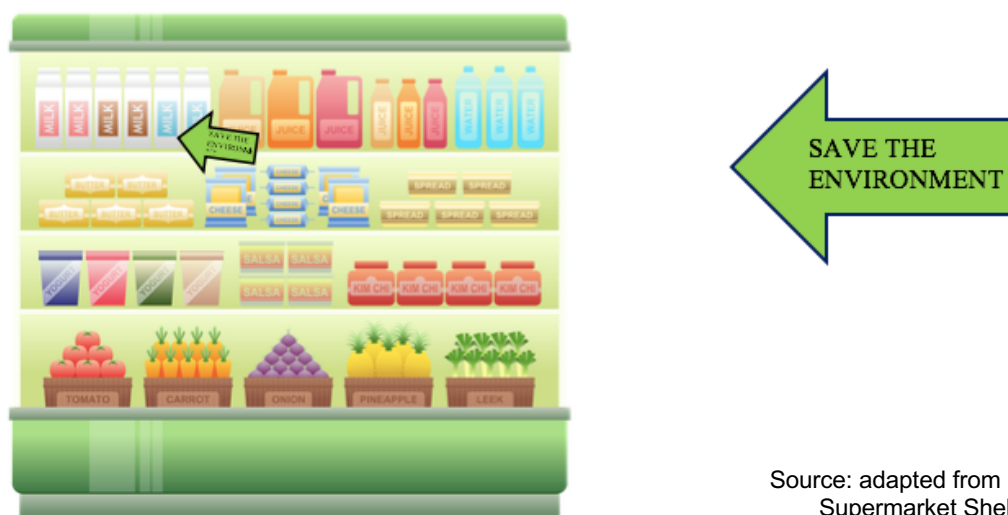
4.2.2 Prototype of implementable green nudges

Two prototypes of implementable green nudges have been designed⁹. Referring to the theoretical knowledge about green nudges in section 2.4.1, both nudges are transparent, but differ in their influence on automatic or reflective thinking.

The first prototype is a green banner pointing on a certain product on the shelf, figure 12. This is a transparent nudge which influences the automatic thinking. Consumer reactions that were measured through a survey, will be stated in 4.3.

The sustainability project manager of Emmi expects this green nudge (figure 12) to be too “bold and simple”. According to her, the green nudge is not trustworthy as there are not enough information provided. This could lead to confusion of the consumers. However, the implementation of this nudge is expected to be feasible, the most important point is to ensure that the green nudge corresponds to the labels and information on the packaging of the product. Once the green nudge is designed, the costs for the implementation are estimated to be small. A concrete estimation regarding the overall costs of implementation could not be made, however the first green nudge is feasible and leading to small costs. The transcript of the second interview can be found in appendix 8.

Figure 12 – First prototype of green nudge

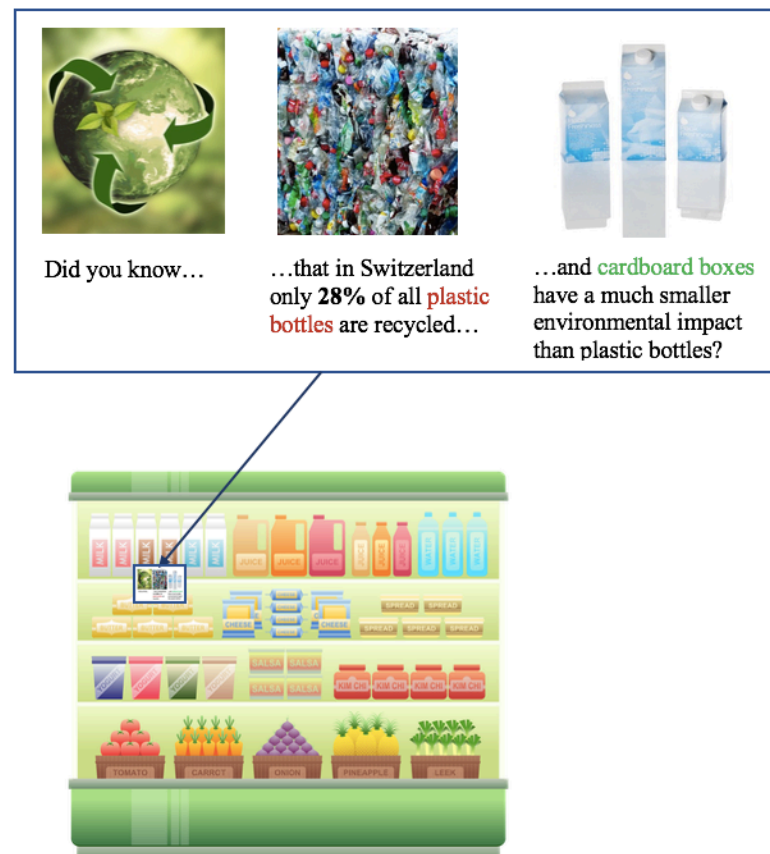


Source: adapted from Pixabay
Supermarket Shelf Chiller

⁹ Both green nudges were designed in the course of this thesis. The sources for the used pictures are stated in the bibliography.

Figure 13 shows the second prototype of green nudge; a picture on the shelf or on a cardboard box which contains information about the environmental impact of different packaging options. This nudge is transparent and influences the reflective thinking. The 28% stated in the prototype is fictional in order to fully pressure test the green nudge theory, which is the purpose of this research paper.

Figure 13 – Second prototype of green nudge



Sources: adapted from Pixabay Supermarket Shelf Chiller; *Tetra Pak* packages; Pixabay Nature, Earth, Sustainability, Leaf; Pixabay Plastic Bottles

According to Emmi, the information about the environmental impact is displayed in a too “simplistic way”. According to the sustainability project manager of Emmi, it requires a lot of effort to illustrate complex topics in easily understandable ways. As the space available is limited, editorial and graphical expenses are relatively high, this needs to be taken into consideration. Therefore, even though the green nudge remains feasible, there is a certain complexity. This will also reflect in the costs to implement the green nudge, which is estimated to be “medium”. Again, no in-depth information about the estimation of the costs could be provided.

4.3 Impact of green nudges

As stated in section 2.4.2, green nudges have not yet been proven to be effectively working. In this section, an online survey has been conducted in order to find out about the impact of the two designed nudges previously described (section 4.2.2). The results contribute to closing the knowledge gap regarding the impact of green nudges. In accordance to see a difference between generations, the results distinguish between under and over 35-year-old's. All the questions and their respective results are stated in this chapter, the complete survey is provided in appendix 5.

To start with, **231** individuals participated in the online survey, **116** of which were **under or 35 years old** which represents 50.2% and **115** of which were **over 35 years old**, representing 49.8%. Regarding the gender, 63.6% were female, 33.8% male and 2.6% preferred not to say. Concerning the occupation, 79.2% stated to be working in any form, working full-time, part-time or being self-employed. In total, 6.1% were unemployed, 13.9% studying and 0.9% retired.

4.3.1 Results concerning environmental awareness

Questions one to four were asked without particular information about the environmental impact of packaging or green nudges in order to receive instinctive answers without stimulating reflective thinking. The first question was about the regularity of the participants drinking bottled beverages. Looking at the overall results, 31.6% drink bottled beverages more than once or once per day, 6.5% every other day and 32.5% once or twice per week. 29.4% of the 231 participants stated to drink bottled beverages once per month or less. Generally, the participants over 35 years old drink more bottled beverages, 38.3% of which drink them once per day or more, whereas 25% of the under 35-year-olds drink them once per day or more.

In the second question, participants were asked to assume that they wanted to buy a dairy drink and were shown two pictures of the same drink but in different packaging. Option "A" was packaged in PET and option "B" in *Tetra Pak* and participants had to choose one of them. Overall, 53.3% of the 231 participants picked option "A" and 46.7% picked option "B". This breaks down into 47.4% of the 116 participants under 35-year-olds and 59.1% of the 115 participants over 35-year-olds picking option "A", the PET plastic bottle.

The next question was linked to the second question and asked the participants to roughly explain why they took this option. In both age segments, with 54.5% out of 123,

the main reason for picking option “A” has been because the plastic bottle can be closed again. This argument was followed by the look and style of the plastic bottle, the better drinking experience and easier handling by 34.1% of the 123 participants and 11.4% of which claimed to take option “A” because they recycle PET bottles. For option “B”, with 57.4% of 108, the majority of both age segments stated to have taken the *Tetra Pak* because it was more environmentally friendly. Thereafter, 18.5% of 108 found the packaging more practical or had a better drinking experience and 16.7% of 108 argued because of the habit and childhood memories linked to the *Tetra Pak*. Also, 7.4% which corresponds to eight people, seven of them under 35 years old, assumed the *Tetra Pak* option to be cheaper.

In order to better understand the general knowledge regarding the environmental impact of packaging, participants were asked which type of packaging they assume to be more environmentally friendly. With 19.1%, roughly one fifth thought that it was PET, 68.4% were right to assume *Tetra Pak* and 12.1% claimed not to know it but that it would influence them. One person, out of the 231 participants mentioned not to know it and not to be influenced. Comparing the age segments, the younger segment was slightly better informed with 72.4% of them picking *Tetra Pak* versus 64.4% of the older age segment.

As the following step, participants were informed that *Tetra Pak* was more sustainable than PET. Then they were shown the same examples of the dairy drink in two different types of packaging and were asked to pick one of the two options, as in question two. However, the reply options changed to ensure participants awareness about their choice:

- A, because it is more practical
- B, because it is more environmentally friendly
- I would just pick the cheaper option
- Other

The results showed that 65.8% would pick option “B” and 24.7% option “A”, with a slight difference of 1% between the two age segments, slightly more participants of the younger age segments took option “B”. Generally, 6.5% of 231 would take the cheaper option and 3% stated that their choice depends on the actual situation.

4.3.2 Results concerning green nudges

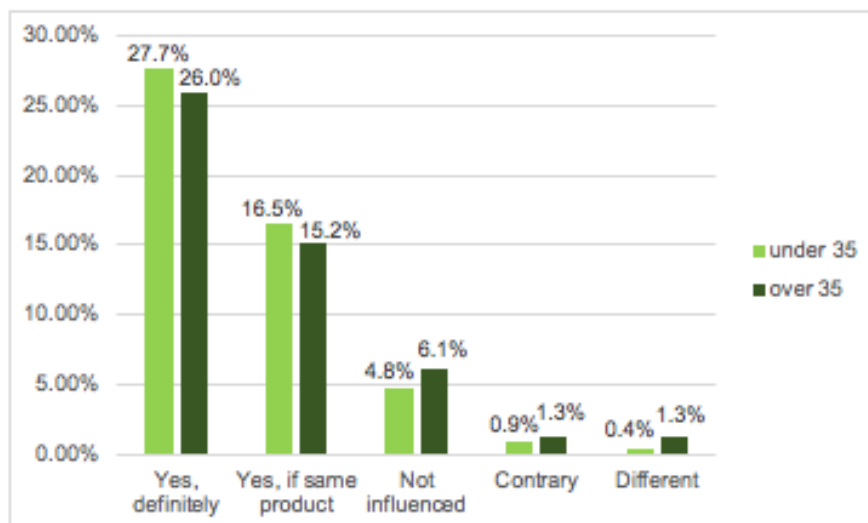
Meanwhile, participants were informed that *Tetra Pak* packaging was more sustainable than PET, however no information about green nudges has been provided at that point.

In the following question, the impact of a green nudge influencing automatic thinking was measured. More concretely, figure 12 in chapter 4.2.2, was shown to the participants and those were then asked whether the green banner would influence them to pick a more environmentally friendly product. The following answer options were provided:

- Yes, definitely. I would even consider picking up a product from a different brand.
- Yes, as long as I can buy the exact same product (like in the example of the Comella Chocolate Drink).
- It would not influence me.
- It would make me choose a completely different product, without special banner.
- Other

Overall, 53.7% of 231 participants would even consider picking up a product from a different brand and 31.6% of which would buy a more sustainable product as long as it is the exact same product. In total, 10.8% of 231 participants were not influenced and 2.2% out of the 231 participants would pick a completely different product without a special banner. For the remaining 1.7%, other answers were that participants trust themselves more than obvious marketing tools, that the decision was dependent on the budget and that it would lead them to take a closer look at the product before deciding. Further details about the differences between the two age segments are displayed in the graph in figure 14.

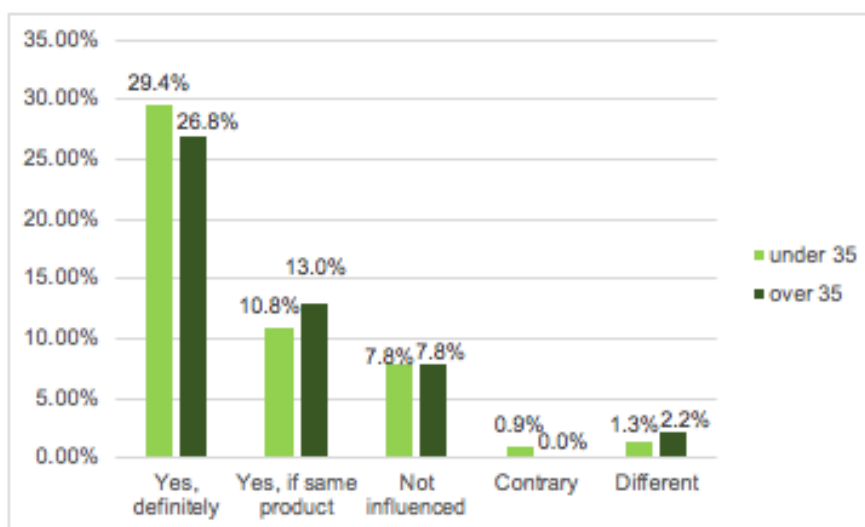
Figure 14 – Influence of first green nudge



Source: Derived from data set

In the next question, the impact of a green nudge influencing the reflective thinking was tested. Therefore, figure 13 of chapter 4.2.2 was shown to participants and those had the same answer possibilities as stated above. Here, 56.3% of 231 participants were definitely influenced whereas 23.8% would only be influenced if they can buy the exact same product. Further, 15.6% of the 231 participants claimed not to be influenced and 0.9% would pick up a contrary product without informative picture. 3.4% of 231 answered differently, amongst those it is depending on the situation or the budget, some would give it a closer look and for some it was too much information, which would negatively influence their shopping experience. More concrete information about the differences between the two age segments are displayed in the graph in figure 15 below.

Figure 15 – Influence of second green nudge



Source: Derived from data set

In order to know the net impact¹⁰ of the green nudges and to track the consumer behaviour, the links between the most important measurements has been established. Table 1 below shows the consumer reactions before and after having been informed that *Tetra Pak* was more sustainable than PET. As a reminder, in the first decision, 123 of 231 participants (53.3%) took the PET option, 42.3% of them then changed their mind and took the *Tetra Pak* after having learned that it was more sustainable.

Looking at the 108 participants (46.8%) who initially picked the *Tetra Pak* option, 92.6% of the 108 stayed with *Tetra Pak* in the second decision, whereas 4.6% would take the cheaper option, 0.9% would change to PET and for 1.9% it depends on the situation.

¹⁰ The net impact concerns the effectiveness of a party or a variable. (Net impact)

Table 1 – Net impact of information

Choice in first decision	Choice in second decision	Number of participants	In percentage
PET	<i>Tetra Pak</i>	52	42.3%
PET	PET	56	45.5%
PET	Cheaper option	10	8.1%
PET	Depending on situation	5	4.1%
<i>Tetra Pak</i>	<i>Tetra Pak</i>	100	92.6%
<i>Tetra Pak</i>	PET	1	0.9%
<i>Tetra Pak</i>	Cheaper option	5	4.6%
<i>Tetra Pak</i>	Depending on situation	2	1.9%

Source: Derived from data set

In the following table 2, the consumers' reaction on the first type of green nudge is displayed, compared to their choice in the first decision. In total, 81.3% out of the 123 participants that have chosen PET in the first decision were either fully or partially influenced. Regarding the participants who chose *Tetra Pak* in the first decision, 89.8% out of 108 were either fully or partially influenced.

Table 2 – Net impact of the first green nudge

Choice in first decision	Influence of first nudge	Number of participants	In percentage
PET	Fully influenced	54	43.9%
PET	Partially influenced	46	37.4%
PET	Not influenced	19	15.5%
PET	Contrary	3	2.4%
PET	Different (have a look)	1	0.8%
<i>Tetra Pak</i>	Fully influenced	71	65.7%
<i>Tetra Pak</i>	Partially influenced	26	24.1%
<i>Tetra Pak</i>	Not influenced	2	1.9%
<i>Tetra Pak</i>	Contrary	8	7.4%
<i>Tetra Pak</i>	Different (have a look)	1	0.9%

Source: Derived from data set

In table 3 the results show that 78.9% of 123 participants who initially chose PET were partially or fully influenced by the second green nudge. From the participants initially having chosen the *Tetra Pak* option, 82.4% of 108 were partially or fully influenced.

Table 3 – Net impact of the second green nudge

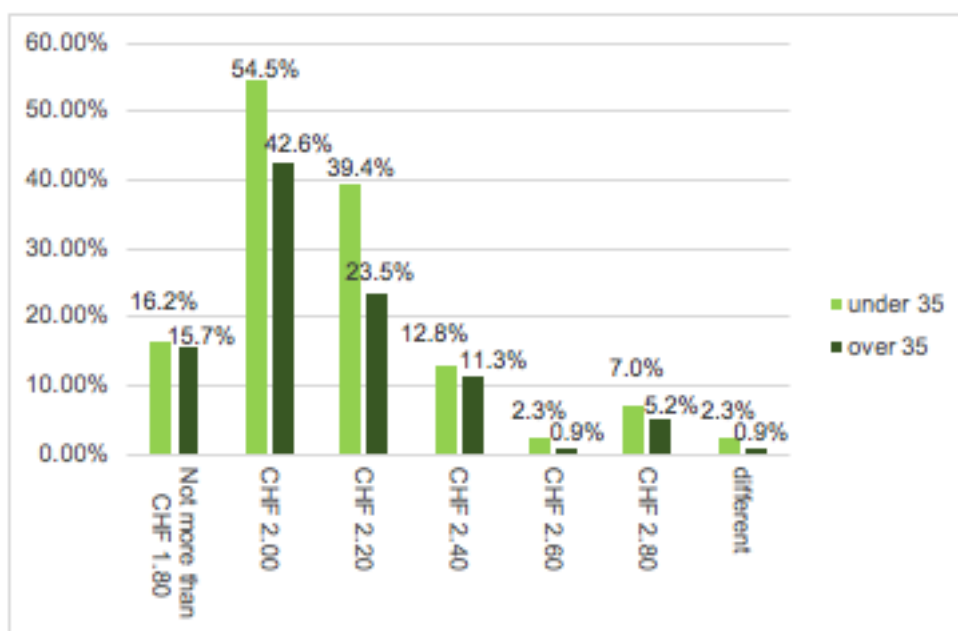
Choice in first decision	Influence of second nudge	Number of participants	In percentage
PET	Fully influenced	62	50.4%
PET	Partially influenced	35	28.5%
PET	Not influenced	22	17.9%
PET	Contrary	3	2.4%
PET	Different (have a look)	1	0.8%
<i>Tetra Pak</i>	Fully influenced	70	64.8%
<i>Tetra Pak</i>	Partially influenced	19	17.6%
<i>Tetra Pak</i>	Not influenced	14	13.0%
<i>Tetra Pak</i>	Contrary	1	0.9%
<i>Tetra Pak</i>	Different	4	3.7%

Source: Derived from data set

4.3.3 Results concerning willingness to pay

After having tested the impact of the green nudges, the willingness to pay was measured. Participants were asked to imagine that a beverage costs Swiss Francs (CHF) 1.80 and how much they would be willing to pay if it comes in sustainable packaging. Answer possibilities ranged from “not more than CHF 1.80” up to “CHF 2.80” in steps of CHF 0.20. In general, the results showed that 19.9% of 231 participants were not willing to pay more than CHF 1.80 and 41.6% would pay CHF 2.00. Further, 26.4% of the participants would be willing to pay CHF 2.20, 10.4% of 231 participants CHF 2.40 and 6.5% were willing to pay more than that. In total, 1.3% picked a different answer and stated that it depends on the product, others claimed that they would only be willing to pay more for sustainable packaging if it can be proven that there is extra cost for the producer, otherwise the company would try making profits by exploiting people that care about sustainability. Further details are visualized in the graph in figure 16.

Figure 16 – Willingness to pay



Source: Derived from data set

5. Discussion

In this chapter, the previously stated results and the knowledge gained from the literature will be compared and discussed. The goal of this chapter is to achieve the three previously mentioned research objectives, which allows coming to a conclusion and being able to answer the research question in the following chapter.

5.1 Green nudges in the context of marketing and CSR strategy

In this section, the information gained from the academic literature stated in section 4.1 will be analysed and compared with the previously gained knowledge from the literature review. This will allow a better understanding of the concept of green nudges.

The literature about nudges and green nudges showed that by definition nudges are not considered as a part of marketing concepts. However, nudges can be an effective tool and used in marketing to influence consumer behaviour. Especially in the context of a holistic CSR and marketing strategy, green nudges could be applied as a tool of the sustainable marketing strategy which does not only meet current needs of consumers and the company but also preserves or enhances the future generations to meet their needs.

Looking at the model of buyer behaviour, it has been defined that consumers are influenced by various factors as in figure 2. This includes not only marketing stimuli but also other factors such as cultural, social, technological and economic factors. As by Kotler and Armstrong, the input influencing the buyer's decision process has been well researched and also the output, the buyer responses have been measured. However, in between is the buyer's decision process which is, to date, not fully understood. Therefore, it is called the "Buyer's black box" (Kotler, Armstrong 2016, p. 167).

As nudges aim to influence the buyer's decision making process, they can contribute to closing the knowledge gap of the buyer's decision process. For instance, looking at the given example in section 2.4.1, shows that choice architects can influence consumer behaviour through space management in cafeterias. Thaler and Sunstein describe this nudge as a successful experiment that took place at various school cafeterias. By rearranging the cafeteria, the consumption of certain food items has been increased or decreased by 25%, depending on their location (Thaler, Sunstein 2009, p. 1). Thus it can be argued that nudges help to understand "The Buyer's black box", especially nudges influencing automatic thinking.

The influence of Green Nudges in a marketing strategy to reduce consumption of natural resources for packaging while maintaining or increasing profits

5.1.1 Summary of important findings

The CSR strategy covers various different aspects that contribute to a sustainable development and is the responsibility at the corporate level of a company. The marketing strategy, however, applies at the brand level of a company and aims to support the CSR strategy. By definition, nudges are a concept of behavioural economics. Nevertheless, nudges and/or green nudges can be included as an extension of marketing tools that support the CSR strategy.

5.2 Potential of green nudges to be effectively applied at Emmi

This chapter focuses on the case study of Emmi. Information gained through desk research and the interviews are analysed and compared to previously gained knowledge about the potential of green nudges.

5.2.1 Current situation regarding sustainability at Emmi

To start with, the desk research as well as the interview showed that sustainability plays an important role for Emmi. Even though sustainability is not considered to be a part of Emmi's marketing strategy, they react to the increasing demand for sustainably and locally produced products. One example for this is the new vegan Caffè Drink (figure 10).

Currently, Emmi uses different packaging material, depending on the positioning of the product and the target group. However, no indication about the sustainability of the types of packaging is provided in stores at first sight. In order to differentiate from competition, green nudges can attract consumers' attention and thus increase the market share and profit. Generally it is recommended to try green nudges on a small population before a general implementation. Furthermore, nudges might need to be adapted to regional and/or social circumstances (OECD 2017, p. 387).

According to Emmi, the different packaging materials are used to differentiate their products and changing the packaging material is a long process. However, implementing green nudges can be effective, faster and cheaper. This could be confirmed during the second interview (appendix 8) with Emmi, where the feasibility of the designed green nudges has been evaluated.

5.2.2 Prototype of implementable green nudges

As described in section 4.2.2, both prototypes were critically reviewed by the sustainability project manager of Emmi. Generally, the first nudge was expected not to

contain enough information to influence consumers' buying behaviour. Although the second nudge contained more information, it was displayed in a too simplistic way. As mentioned in the results, it has been claimed that the effort for editing and the graphics should not be underestimated. Delivering a message on a limited space, with a limited number of words or graphs requires a lot of thought and various perspectives need to be considered. Furthermore, the green nudges need to correspond to the remaining labels that are printed on the packaging of the products. Therefore, close collaboration with the marketing department is a necessity.

Considering these critical points, the green nudges are feasible and realistic implementable. The costs of implementation were estimated from small to medium. As the second nudge requires more effort in its design, its costs were superior than those of the first nudge. Especially as the design of green nudges is a complex process, testing them on a small scale before implementing them on a broad scale advisable. This allows making modifications depending on the feedback resulting from the trial period.

5.2.3 Summary of important findings

Sustainability is very important for Emmi and the dairy giant aims at constantly decreasing their environmental impact. Especially the target regarding reduced food waste and waste through packaging leaves room for new ideas in order to achieve the defined target until the end of 2020. So far, Emmi has never implemented nudges or green nudges of any kind. The designed nudges were sent to Emmi and received critical feedback. Overall it can be stated that the implementation of green nudges is feasible and the costs are estimated to be small to medium. However, the design of the green nudges requires a lot of effort and thought.

5.3 Impact of green nudges

In this section, the results of the survey which are stated in chapter 4.3, will be analysed and discussed. This allows to understand the meaning of the results and to evaluate the impact of green nudges placed in supermarkets and consciously or subconsciously promoting dairy products which are sold in alternative packaging, such as *Tetra Pak* cardboard boxes.

5.3.1 Analysis concerning environmental awareness

The analysis is based on the results stated in section 4.3.1. Results concerning the regularity of consuming bottled beverages were linked to the willingness to pay and is thus analysed in section 5.3.3 below.

As stated in the results, in the first decision participants were asked to choose between PET or *Tetra Pak* packaging for the same product. Interestingly, the drivers for the decision differ between the two options. Firstly, the motives for the participants choosing the PET option are analysed. As the majority justified their choice with the resealable lid of the bottle, it became clear that convenience and comfort were the most important drivers in the participants' decision making process. Further, 11.4% of the 123 participants that chose PET claimed that their key driver was that they recycle PET, meaning that they are bringing the empty bottles back to the stores or to collection points. This shows that they used their reflective thinking but not all participants are informed about environmental impacts of plastic bottles.

Secondly, the drivers for the participants choosing the *Tetra Pak* option are analysed. Here, 57.4% out of 108 participants chose the *Tetra Pak* option because it is more environmentally friendly, this shows that they used their reflective thinking when picking the *Tetra Pak* option and considered the environmental impact of their decision. Other reasons were a better drinking experience or *Tetra Pak* being more practical than plastic bottles. This most probably influenced the reflective thinking of consumers, remembering and thinking about comparisons. Other motives were the habit and childhood memories, which subconsciously influenced participants to pick the *Tetra Pak* option.

Comparing these drivers, shows that participants choosing the PET option had very similar motives like the participants choosing the *Tetra Pak* option, however their meaning and weight shifted. While those choosing PET mainly did this because of practicality and the look of the bottle, for those choosing the *Tetra Pak* the environmental impact of the product was more important than the comfort, the drinking experience or the look of the packaging.

As previously mentioned in the literature review, *Tetra Pak* packaging is more environmentally sustainable than PET. However, participants of the survey did not receive this information yet, but they were asked about their opinion concerning the sustainability of the two different packaging options. The results showed that 68.4% thought that *Tetra Pak* was more sustainable than PET. However, in the first decision, only 46.7% chose the *Tetra Pak*. This either shows that during the decision process of

the first decision, some participants did not use the reflective thinking while the question about their knowledge actively promoted the use of the reflective thinking. Or that some participants still prefer the PET option, knowing that it was less environmentally sustainable.

After that, the impact of informing participants about sustainability was measured and analysed. As previously mentioned, in the first decision, 46.7% of 231 chose the *Tetra Pak*. After having been informed, 65.8% of 231 participants picked the *Tetra Pak*. This showed that information, and thus promoting reflective thinking, had an influence on 19.1% of the 231 participants. For other participants it depends on the situation or the price. Of course, being sustainable and choosing an environmentally friendly option can be connected with higher costs and thus requires a certain financial solvency.

Overall it can be stated that the majority of the participants cares about their environmental footprint and would change their behaviour if using their reflective thinking instead of the automatic thinking during the decision making process.

5.3.2 Analysis concerning the green nudges

In order to know more about the impact of green nudges, the respective results from the survey are analysed in this section. As previously explained, two types of nudges were tested through the survey. Firstly, the impact of the green nudge impacting the automatic thinking is analysed (figure 12). The analysis was done with the overall impact of green nudges to analyse all the data in its entirety, including the participants that chose *Tetra Pak* in the first decision because not all of them did this environmentally conscious.

As shown in figure 14 above, 85.3% of the 231 participants were positively influenced, this breaks down into 53.7% of 231 being strongly influenced and 31.6% being partially influenced. Strongly influenced in this “section” means that the green nudge would influence the participants to choose a product from a different brand, in order to decrease their environmental impact. Partially influenced means that the participants would be willing to choose a different product, but only if it is the exact same product from the same brand. However, 10.8% of 231 claimed not to be influenced by the green nudge. Participants who picked a different answer, would take a closer look, it would depend on the budget or they do not trust this “obvious marketing tool”. Thus, it caught their attention but those participants seemed to be suspicious of the green nudge and would not be influenced with using automatic thinking, they would take a closer look and use reflective thinking. In total, 2.2% of 231 claimed that a special banner would make them choose a

completely different product. The reasons therefore are expected to be similar as those of the critical participants.

Secondly, the impact of the green nudge influencing the reflective thinking is analysed (figure 13). This green nudge positively influenced 80.1% of the 231 participants, in more detail, 56.3% would be strongly influenced and 23.8% partially influenced. Even though there was an increase of 2.6% out of 231 for participants being strongly influenced, overall 5.2% less were influenced compared with the first green nudge. Thus, the nudge influencing the automatic thinking was slightly more successful than the nudge influencing the reflective thinking.

As in the first nudge, in “other” some participants claimed that their choice would depend on the situation, their budget or that they would have a closer look. However, some participants claimed that the second nudge did provide too many information which they did not appreciate, this can be explained by the Dunning-Kruger Effect:

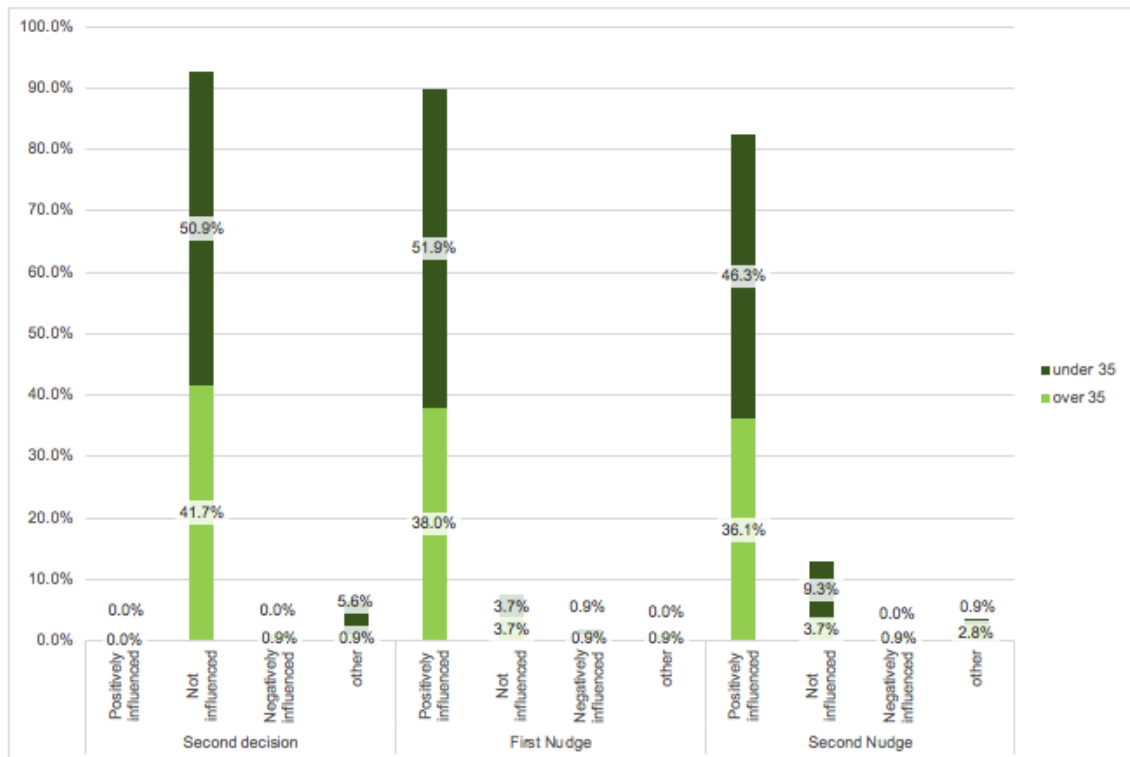
*“The Dunning-Kruger effect describes the inability to evaluate one’s own competency, leading to a general tendency to overestimate one’s abilities.”
(Novella et al. 2018, p.45)*

In other words, psychologists have proven that people think to be smarter than they actually are, and most of them would not be disoriented, perplexed or cautious because of that but feel confident. Applying the Dunning-Kruger effect to the reflective nudge, shows that participants did not like to be taught about the sustainability of packaging while grocery shopping, because they assumed to know the given information already. Furthermore, the described effect can be applied to the results described in the previous section, regarding the question which packaging option was more sustainable. While 19.1% were wrong picking the PET, only 12.5% admitted not to know.

Additionally it has been analysed how the different participants were influenced, distinguishing between those who did choose PET in the first decision and those who did choose *Tetra Pak* in the first decision. The two graphs 17 and 18 below give a clearer picture of the results. First, looking at the participants who initially chose *Tetra Pak*. In their case, not being influenced in the second decision is positive regarding sustainability. It can be stated that the younger generation was more influenced than the older one.

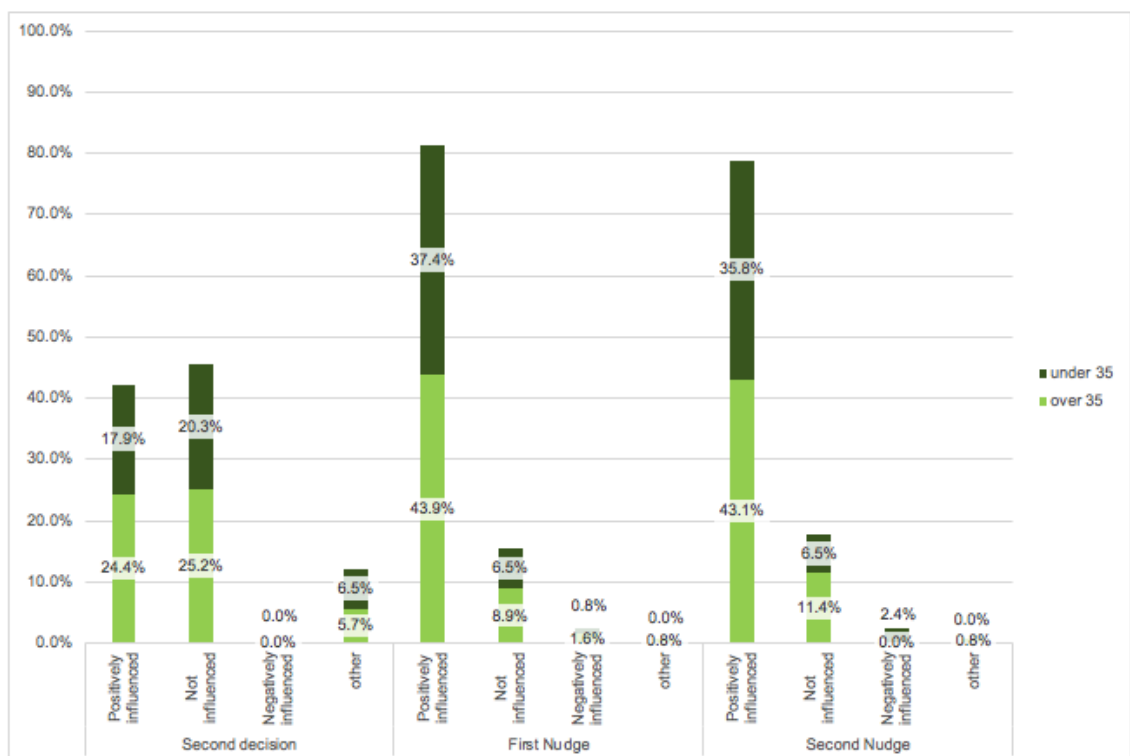
Second, focusing on the 123 out of 231 participants who initially chose the PET option. Even though the information given that *Tetra Pak* was more sustainable than PET did influence almost half of the participants (42.3%), it is not the majority. Overall, the nudges display a high success rate, influencing the vast majority of participants.

Figure 17 – Influence on the 108 participants choosing *Tetra Pak* in first decision



Source: Derived from data set

Figure 18 – Influence on the 123 participants choosing PET in first decision



Source: Derived from data set

The influence of Green Nudges in a marketing strategy to reduce consumption of natural resources for packaging while maintaining or increasing profits

During the analysis, figure 19 has been established, showing the correlation between the regularity of which participants drink bottled beverages and the impact of the first and second nudge. The correlation between the impact of the first and the second nudge is 0.572, meaning that there is a certain relationship. A correlation of 1 would mean that there is a perfect relationship between the two variables (Hayes 2020).

Furthermore, it shows that the correlation is slightly negative for both green nudges (-0.202 and -0.210). A slightly negative correlation means that there is a small relationship between the variables, they are slightly moving in opposite directions (Hayes 2020). In other words, the more regular consumers of bottled beverages are influenced to the same degree as the other consumers, this is important to confirm that the impact of green nudges can make a change in grand style.

Figure 19 – Correlation between regularity and impact

	<i>Regularity</i>	<i>Impact First Nudge</i>	<i>Impact Second Nudge</i>
Regularity	1		
Impact First Nudge	-0.202	1	
Second Nudge	-0.210	0.572	1

Source: Derived from data set

5.3.3 Analysis concerning willingness to pay and financial impacts

As previously mentioned, in the first question participants were asked how regularly they consumed bottled beverages. It is important to know which consumers would be willing to pay for more environmentally sustainable consumption, in order for the producer to estimate the impact in demand of a possible price increase.

The analysis of the willingness to pay showed that 19.9% of 231 would not be willing to pay more for more sustainable packaging. However, 41.6% would pay CHF 2.00 which represents a price increase of CHF 0.20 or 11.1%. As shown in figure 16 in section 4.3.3 other participants would be willing to pay more than this. However, some critically mentioned that their willingness presupposes that the price increase is documented with additional costs for the producer. This shows that participants are willing to pay more in order to protect the environment and support producing companies with the additional cost. But their sustainable awareness should not be exploited to increase companies' profits.

More interesting is to know the potential price increase without resulting in a decrease in demand. Therefore the weighted average of the willingness to pay has been calculated per category of consumption regularity. In order to do this, the different answer options

regarding regularity were coded as a multiplier, taking into consideration a month of 30 days. In this context, consumers who drink bottled beverages more regularly are considered as more loyal and thus have a higher weight in the calculation of the weighted average.

Looking at the table 4 below, shows that in general, less frequent consumers would be willing to pay a higher price for sustainable packaging than the more frequent consumers of bottled beverages. Thus, increasing the prices by CHF 0.39 for instance risks to decrease the demand. Therefore, the multipliers were used in order to calculate the overall weighted average price increase. This led to a an end result of **CHF 0.28 price increase** without provoking a decrease in demand, the detailed calculation can be found in appendix 9. Considering that the initial product did cost CHF 1.80, this means a potential price increase of 15.6%.

Table 4 – Calculation of weighted average price increase

Asked question: How regularly do you drink bottled beverages?			Weighted average price increase per section
Answer options	Multiplier	Calculation behind multiplier	
More than once per day	60	Two per day, 2 x 30	CHF 0.256
Once per day	30	One per day, 1 x 30	CHF 0.262
Every other day	15	Every second day, 30 : 2	CHF 0.333
Once or twice per week	6.4	Average of 1.5 x 4.62 weeks per month	CHF 0.395
Once per month or less	1	Taking into consideration once per month	CHF 0.375

Source: Derived from data set

5.3.4 Summary of important findings

According to the results of the survey, roughly one third of the 231 participants claimed to consume bottled beverages more than once or once per day. Without any further information, 53.3% of 231 participants picked the PET option when having the choice

between the same product in PET or *Tetra Pak* packaging. More than half of them justified their choice with the fact that the PET bottle can be closed again.

When asked concretely about the environmental impact of the two packaging options, 68.4% of 231 knew that *Tetra Pak* was more environmentally friendly than PET. Informing the participants about the sustainability of the two packaging materials, resulted in 65.8% of 231 picking the *Tetra Pak* option. Compared to the first question, this result shows that 19.1% of 231 changed their mind. The green nudges could further increase this change. Looking at the results, shows that the first nudge strongly or partially influenced 85.3% of 231, whereas the second nudge strongly or partially influenced 80.1% of the 231 participants.

5.4 Discussion about literature review

Plastics negatively affect the environment through their final energy demand and direct CO² emissions. It has been published that plastics is “one of the world’s leading drivers of climate change”. According to the UNCC, the environmental pollution requires the involvement of all citizens, also small changes in lifestyles and behaviours can make a difference (Public Participation under Action for Climate Change 2019).

Green nudges are an opportunity to influence consumers to buy bottled beverages in cardboard boxes instead of plastic bottles, which would oppose the environmental pollution. However, nudges have not yet been proven to be working. The research executed for this paper contributes in closing this knowledge gap, it can be stated that green nudges that promote dairy drinks in sustainable packaging could influence the participants.

Furthermore, in section 2.4.2 green nudges are accused to cause backfiring effects. The results of the survey showed that some individuals can be negatively affected by green nudges. However, this has been limited to a minority of 2.2% of 231 participants in the first nudge and 0.9% in the second nudge (section 4.3.2).

5.5 Recommendations

In general, firms that are active in the dairy drinking industry are recommended to sell more beverages in cardboard boxes such as *Tetra Pak*, instead of plastic bottles. This allows them to reduce their consumption of natural resources for packaging. Especially those firms that already offer the same products in different types of materials, green nudges are realistically implementable. The green nudges aim to influence the

consumers to buy the product with the *Tetra Pak* packaging instead of the plastic packaging.

It might be considered as an option to completely replace the packaging materials of the product. However, completely changing the packaging of the product comes with the risk of losing consumers that are not willing to change. This is based on the Kübler-Ross curve (Appendix 10), which states that people tend to be in a shock and denial phase when something changes (Kübler-Ross 1969). By leading the change step-by-step and with the implementation of green nudges, the risk of losing consumers can be reduced or avoided.

According to the results of the survey, the firms are recommended to implement transparent nudges that affect the automatic thinking. Meaning that the consumers do not need to actively think about their choice or behaviour. This is because the survey showed that consumers do not like being taught and receiving too much information while doing grocery shopping. However, as by the interview with the dairy giant Emmi, the sustainability project manager claims that information on the nudge is important, especially to increase credibility and avoid confusion. This would turn the green nudge into a nudge that aims at influencing the reflective thinking. This example of contradictory results highlight the fact that it is recommended to test the designed nudge on a small scale before implementing it on large scale. The testing area can be defined geographically, for example testing the nudge solely in several supermarkets within one city. This experiment allows to analyse the reactions and, if needed to adapt the nudges. Referring to the Harvard Business review, experiments should be kept simple. Meaning that they should be “easy to execute using existing resources and staff”, this allows to save resources for follow-up tests (Simester, Anderson 2011).

From the survey it can be concluded that consumers would be willing to pay roughly 15.6% more for their dairy drink. However, it is recommended not to exploit this willingness for significantly increasing the profit by charging more for the product itself. Additional costs resulting from the change in packaging material can be passed on, big differences in price should be verified. Overall, the firm would be able to maintain their profits, while being more sustainable. Taking into consideration the positive brand image of the firm because of becoming more sustainable, it can be argued that the demand for the product will rise and therefore the firm will be able to increase their profits.

5.5.1 Recommendations for Emmi

In this section, the general recommendations are applied to the case study of Emmi. To start with, a green nudge should be implemented on products that already exists in two different types of packaging, like the Comella chocolate drink that has been used in the survey (appendix 5). Comella is a brand that belongs to the Emmi corporation.

To ensure that the green nudge coheres with the labels that are on the product and takes both perspectives into consideration, the design requires the collaboration of the sustainability and the marketing department. It is recommended to implement a nudge without much information, influencing the automatic thinking. The green nudge can be printed on the packaging of the product itself, and/or on the cardboard box in the shelf which includes the single packages. In order to measure the pure effect of the green nudge, the product in both packaging should be sold at the same price.

Implementing the green nudge in four stores in and around a central station of a city, allows to test the green nudge. A green nudge in a rural area might need a different design. After a few weeks, the impact of the green nudge can be analysed. Potential differences between the four stores need to be analysed. Depending of the outcome of the experiment, the green nudge needs to be adapted and tested in an additional experiment.

In a further step, the Emmi Caffè Latte product range can be targeted (pictures shown in figures 10 and 11). All the products of the range are sold in plastic cups. Even though these cups have a lid, they cannot be closed again after being opened, which eliminates the main reason to choose the product in plastic packaging¹¹.

For an experiment, the product needs to be sold in *Tetra Pak*. In order to keep the cost and effort as low as possible, the same or a similar form and shape of the Emmi Energy drink can be used. As previously described, the green nudge can be printed on the newly designed packaging. Selling both products at the same time, gives the consumers an alternative. In the long-term it can be expected that the demand for *Tetra Pak* rises and might completely replace the plastic cup.

¹¹ The results of the survey showed that 54.5% out of 123 participants that chose the PET option in the first decision claimed that the reason for their choice was that the plastic bottle can be closed again.

6. Conclusion

This chapter is presented in two sections. In the first section, the outcome of the research objectives is described. The goal is to interpret the findings, which will allow to answer the main research question in the second and final section of this chapter. Furthermore, this chapter comes back to the two testable hypotheses, stated in section 1.2.

6.1 Outcome of the research objectives

The first research objective which covered the basic requirements for this research paper, showed that green nudges are by definition not involved in the CSR or marketing strategy. However, marketers see the potential in green nudges to influence consumer behaviour and thus use it as an extension to their marketing tools. Therefore, it can be stated that green nudges are an undefined part of sustainable marketing strategies.

Regarding the second research objective, it became clear that designing green nudges requires the collaboration of the marketing department. This is to ensure that the information transmitted by the green nudge works together with the labels of the specific products that are promoted by the nudge. Furthermore, concrete analysis about the content is required in order to make best use of the limited space that is provided for the nudge. Once the design is completed, the implementation of the green nudges has been estimated to be feasible and to be at low cost.

After having analysed the results of the survey in connection with the third research objective, it can be stated that green nudges do have an impact on consumers. While both types of nudges did make an impact, the green nudge affecting the automatic thinking was overall slightly more successful.

6.2 How internationally active firms in the dairy industry can use Green Nudges as a marketing strategy to reduce the consumption of natural resources for packaging while maintaining or increasing profits

As the research question contains various parts, these are answered separately. To start with, green nudges would not be considered as a marketing strategy itself. According to the definition, green nudges are a concept of behavioural economics but the research showed that it can be used as an extension tool to reinforce the marketing strategy by nudging the consumers in a certain direction.

Secondly, in order to have an impact on the consumption of natural resources for packaging, the green nudges need to promote the products in more sustainable packaging. As described in section 2.3, plastic packaging has a meaningful impact on the environment and plastic in general requires nearly 14% of all the world's oil and gas, which is a natural resource. Thus, by promoting products in cardboard boxes, such as *Tetra Pak*, green nudges can have an impact on the consumption of natural resources, provided that they are effective.

In order to promote products in *Tetra Pak*, green nudges can either aim at influencing the automatic thinking or the reflective thinking. While the automatic thinking is not perceived as thinking, the reflective thinking is controlled and self-aware. Nudges that influence the automatic thinking do not promote a lot of information regarding the impacts of the consumer's choice, whereas nudges that influence the reflective thinking provide information about the subject and therefore make the consumers think and be aware about their decision. As previously described, designing a green nudge includes various departments, such as the sustainability department, the marketing department, editors and designers. Thus, the design means an investment for the firm. However, the implementation itself is feasible at low cost. A reason for this is that there are different ways on how to implement the green nudge. One possible, and probably the cheapest solution is to include the nudge in the printings of the cardboard which is stowed in the shelves of supermarkets or on the product packaging itself. This version requires adapting the printing settings, which is implementable at low cost, once the nudge has been designed.

As by the results of the survey, the green nudges could influence 85.3% and 80.1% of the 231 participants. Between 63% and 70% of which were strongly influenced, meaning that they would chose a product from a completely different brand. Although, there was not a big difference in the results between the two types of nudges, the nudge affecting the automatic thinking was slightly more successful. It turned out that grocery shoppers do not like too much information. However, these results are in contradiction with the opinion of the sustainability manager of Emmi, who gave critical feedback regarding the nudges. It has been claimed that without an appropriate amount of information, the nudges can lead to confusion of the consumers.

Looking back to the first hypothesis that has been stated in section 1.2: Green nudges can have an impact on consumer behaviour. Overall, this hypothesis can be confirmed. However, a minority of the participants argued that they would not trust such "obvious marketing tools" and it would influence them in choosing a completely different product.

These are negative side effects of the green nudges that need to be taken into consideration. Other side effects, like the consumer's confusion, as argued by Emmi, could not be confirmed by the results of the survey.

Concerning the financial impact of green nudges, calculations showed that firms can increase the prices by 15.6% (on a product of CHF 1.80) for sustainable packaging without facing a decrease in demand. This means that the firm can pass on additional costs for the packaging. However, unexplained increases in price should be avoided. The costs to implement nudges are highly dependent on the type of nudge and the complexity of its design. Despite of the lack of concrete numbers, Emmi estimates the implementation of green nudges as feasible and resulting in low to medium cost, depending on the type of nudge.

As stated in section 1.2, the second hypotheses has been formulated as follows: Emmi would be able to reduce the consumption of natural resources for packaging, while maintaining or increasing profits, by implementing green nudges. Summarizing, the implementation of the green nudge should not negatively affect the profit of Emmi. As the results of the nudges were promising, it can even be argued that the demand for the more sustainably packaged products will increase which, as a consequence, will increase Emmi's profit. However, because of the lack of concrete numbers, the hypothesis cannot be confirmed. In order to fully answer the hypothesis, an experiment that implements green nudges on a small scale, would be necessary.

To summarize, green nudges offer various possibilities and have great potential to have an impact on the environmental pollution. Internationally active firms in the dairy drink industry should try implementing simple experiments with existing resources. Some examples of such experiments have been described in more detail in section 5.5.1.

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Appendix 1 – Structure of the report

Introduction

Topic, Research question with explanations, three research objectives that will help answering the research question, presentation of hypotheses and the case study

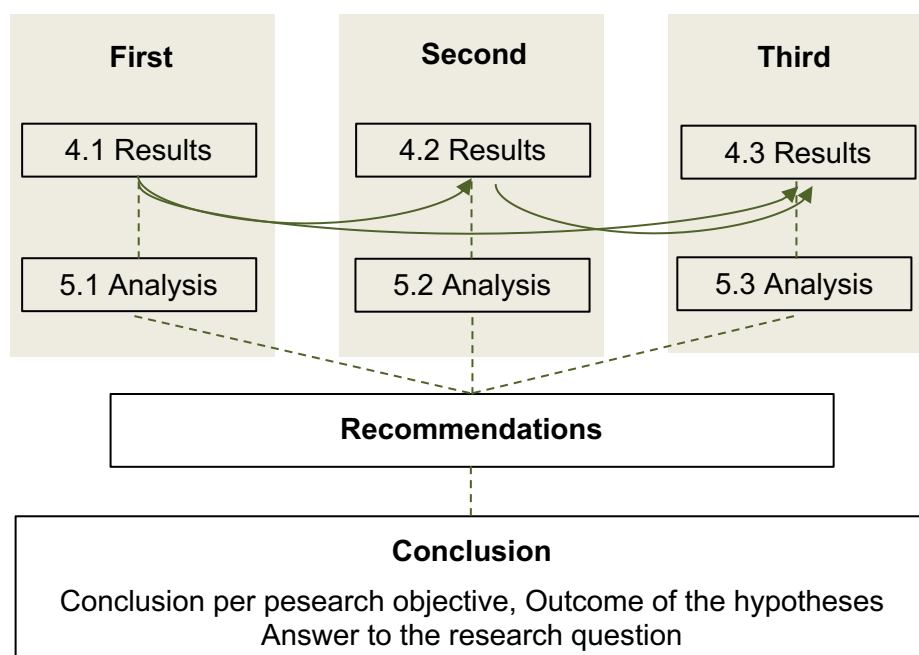
Literature Review

Where environmental pollution is coming from, how it evolved and where it is today
Connection with the topic

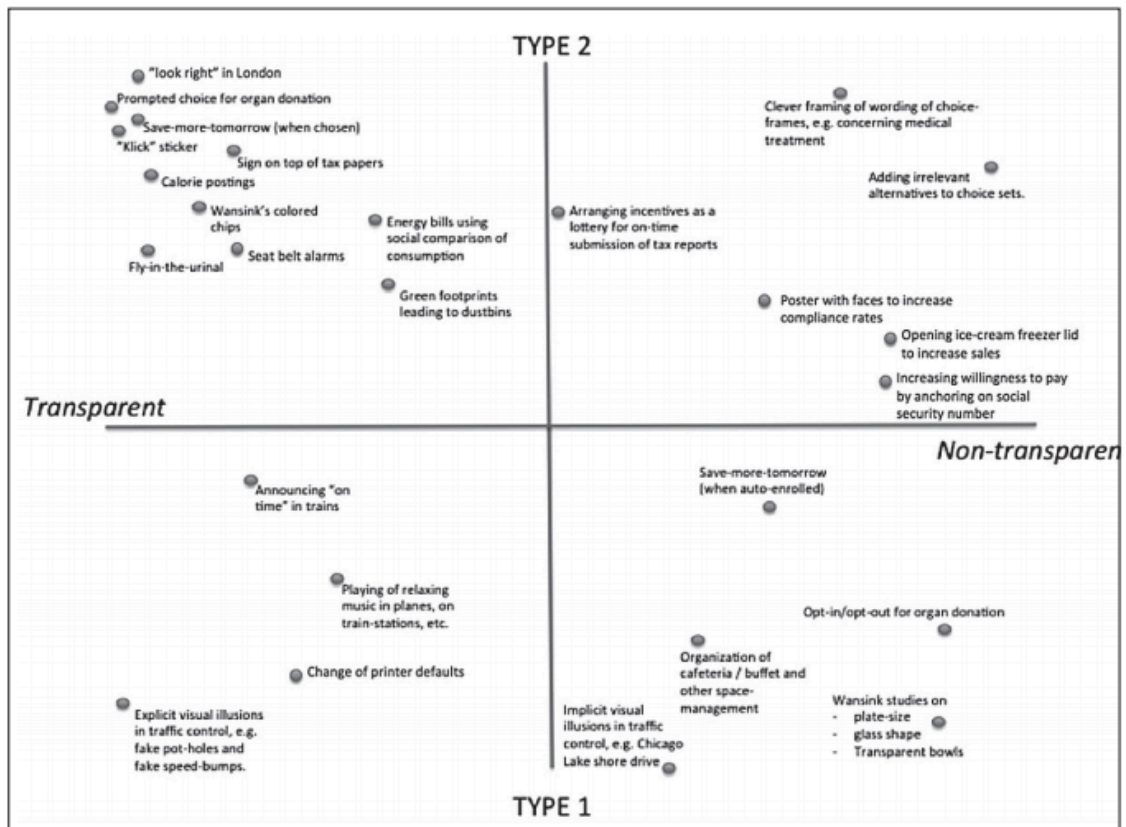
Methodology

Methods of data collection and analysis

Research Objectives:



Appendix 2 – Original matrix about the different types of nudges



Source: Hansen, Jespersen (2013, p. 20)

Appendix 3 – Interview Plan – Emmi – First Interview

Presentation of myself and broad explanation about the topic:

I am a part-time student in International Business Management at the Haute Ecole de Gestion in Geneva, currently in the last year of my studies and working on my bachelor thesis. Sustainability is a very interesting topic to me that gains more and more importance in all sectors. For my bachelor thesis I focus on green nudges and how those can be used by companies in order to become more sustainable, while maintaining or increasing their profits. The aim of this interview is to receive a better insight into the measures taken by Emmi in order to foster sustainability and the links with the marketing strategy of Emmi.

Questions about the interviewee:

- 1) What is your position at Emmi?
- 2) Since when are you in this position?
- 3) What is your professional background?

General questions about Emmi's marketing strategy and sustainability:

- 4) *How important is sustainability to Emmi?*
- 5) How did the importance of sustainability change during the last years?
- 6) What are the current actions in order to foster sustainability?
- 7) What are the future plans in order to foster sustainability?
- 8) Who is in charge of Emmi's sustainability?
If sustainability is considered as an individual department: How developed is the cross-functional co-operation between the sustainability department and the marketing department?
- 9) Who is responsible for the sustainability communication in Emmi?
- 10) How much influence does the marketing/brand team have on what they can do?
- 11) To what extent is sustainability a part of Emmi's marketing strategy?
- 12) What is the main focus of Emmi's marketing strategy?
- 13) What are the main reasons why Emmi decided to come out with the new vegan product "Emmi Caffè Drink Almond Macchiato"?
(Comment for me: is it only to satisfy the market demand for vegan products, as stated on the website, or is it a mean to become more sustainable in the sense of avoiding regular milk?)
- 14) *In reference to pictures 1 and 2: The green design of the packaging with a green Emmi logo stands out in comparison with the other packages of the Emmi Latte line. What is the meaning of the new, green Emmi logo on the new vegan product?*
- 15) How high is the likelihood that Emmi generally changes its logo for marketing reasons?

Questions about packaging in general:

Emmi focuses on four specific areas in order to become more sustainable:

*lower CO2 emissions / sustainable Swiss milk / supported employees / **less waste***

More concretely, focussing on the goal of reducing waste, Emmi wants to reduce waste from packaging and also food itself.

- 16) Who/which department decides about the chosen material for a specific product?
- 17) How complicated is the process of changing the packaging material for a specific product?
- 18) Does Emmi use different packaging material in order to differentiate their product lines? (*Pictures 3-6 show that different products are packaged in similar ways but with different material*)
- 19) In order to respond to consumer needs, what is Emmi's strategy about using environmental-friendly material for packaging?
- 20) What studies, if any, has Emmi conducted in recent years about consumer needs concerning sustainable packaging? - What was the outcome and have actions been taken, based on that outcome?

Definition of nudges and green nudges:

"A nudge, as the term will be used, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler, Sunstein 2009, p. 6). More concretely, a green nudge aims at promoting environmentally responsible behavior.

Specific questions about green nudges:

- 21) What did you personally know about green nudges before?
- 22) Are you currently using or have you ever used green nudges as a part of Emmi's marketing strategy?
 - if yes: for which product / in which form and design / still in use or if not: why / what were the costs and results
 - if no: has it ever been considered to use green nudges – what was the reason not to implement them?
- 23) Are you currently using or have you ever used any other type of nudges as a part of Emmi's marketing strategy?
- 24) How free is Emmi as the producer in negotiations with retailers concerning shelf positioning and labels in or on the shelves?
- 25) *In case the interviewee did not know about green nudges and they have never been implemented with Emmi:* Now that you have learned about green nudges, what do you think about the potential of implementing Green Nudges with Emmi?

Thank you very much for our conversation. Now that I got a better insight and know more about Emmi, I am planning to create a few prototypes of green nudges. Would you be willing to have a look at them at a later stage and give me your opinion?

Pictures 1 - 6



Picture 1



Picture 2



**Emmi
Buttermilch
Erdbeere 500ml**

Picture 3



**Emmi Jogurt
Drink Bifidus
Erdbeere 500ml**

Picture 4



**Emmi ENERGY
MILK Choco
330ml**

Picture 5

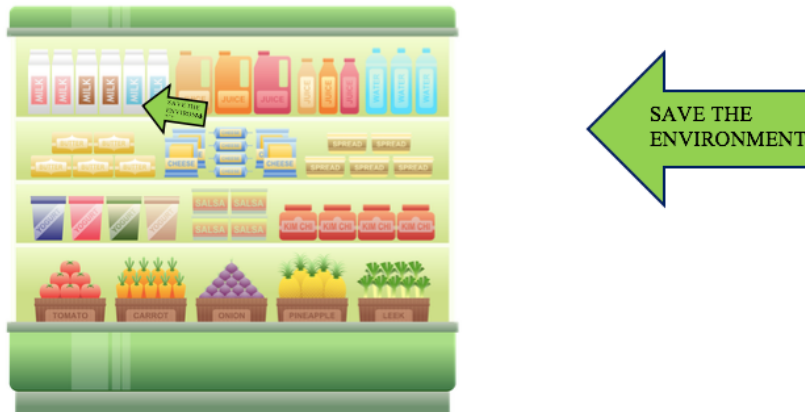


**Emmi ENERGY
MILK High
Protein Choco
330ml**

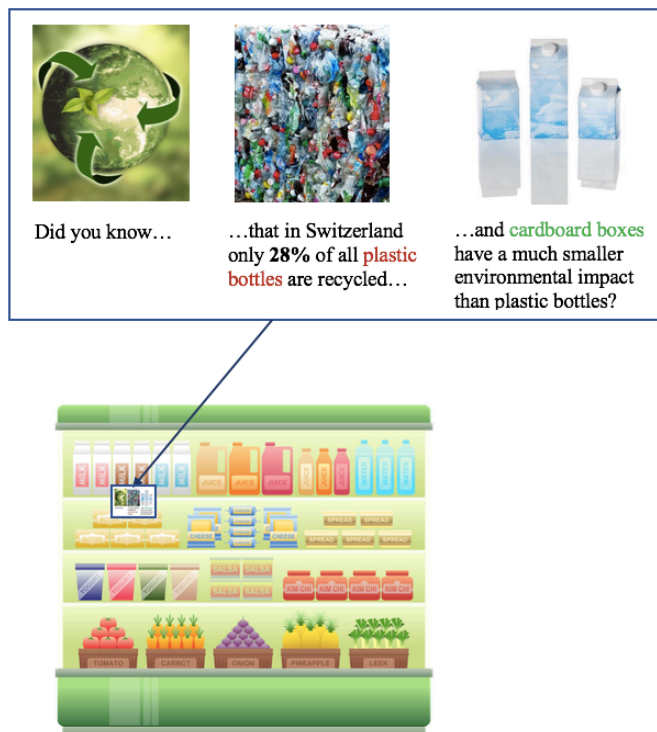
Picture 6

Appendix 4 – Interview Plan – Emmi – Second Interview

A) Green Nudge which subconsciously influences consumers



B) Green nudge which consciously influences consumers



- What is your first impression of the Green Nudges (A and B) in terms of its influence on consumers?
- How do you assess the feasibility of this Green Nudges (A and B)?
- How do you estimate the financial expenditure of this Green Nudges (A and B)? Assuming the nudges are already designed and "only" need to be used.

Appendix 5 – Online survey

Survey green nudges / Umfrage Green Nudges

* Erforderlich

Would you like to answer the questions in English or German? / Möchten Sie die Fragen in Englisch oder Deutsch beantworten? *

☐ English

☐ Deutsch

Weiter

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Google Formulare

Survey green nudges / Umfrage Green Nudges

* Erforderlich

English

Dear all,

Thank you in advance for taking the time to answer this survey, it will take no longer than five minutes. Please answer the questions as under "normal conditions", disregarding the Corona Virus.

The goal of this survey is to examine the impact of green nudges placed in supermarkets, understand the buying behaviour of consumers and how natural resources for packaging can be reduced while maintaining or increasing profits.

An explanation of green nudges will follow in the end of this survey. All answers are confidential.

How regularly do you drink bottled beverages? *

- ☐ More than once per day
- ☐ Once per day
- ☐ Every other day
- ☐ Once or twice per week
- ☐ Once per month or less

Assume you want to buy a Comella Chocolate Drink. The pictures beneath show the same products and they are standing next to each other on the shelf. Which one would you pick? *

A



B



☐ A

☐ B

In 1 - 2 words, why did you choose this option? *

Meine Antwort _____

According to your opinion, which packaging alternative is more environmentally friendly? *

☐ Plastic bottles (e.g. PET)

☐ Cardboard Boxes (e.g. TetraPak)

☐ I have never thought about this and it does not influence me.

☐ I have never thought about this, but it would change my buying behaviour.

If you were informed that in fact, TetraPak cardboard boxes are more sustainable than PET plastic bottles. Now when you know about this, which product would you pick? *

A

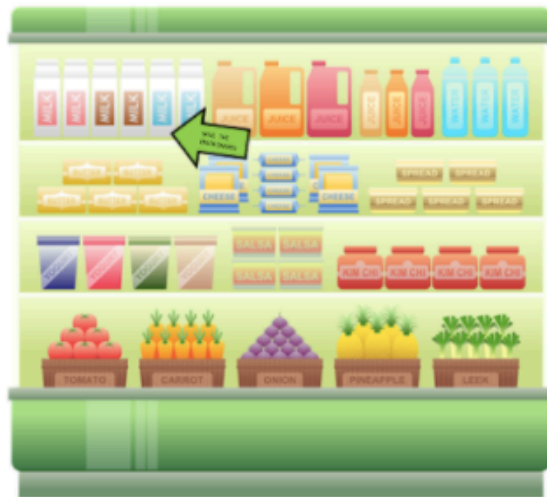


B



- ☐ A, because it is more practical
- ☐ B, because it is more environmentally friendly
- ☐ I would just pick the cheaper option
- ☐ Sonstiges: _____

Would a banner pointing on the shelf influence you to pick a more environmentally friendly product? *



- ☐ Yes, definitely. I would even consider to pick up a product from a different brand.
- ☐ Yes, as long as I can buy the exact same product (like in the example of the Comella Chocolate Drink)
- ☐ It would not influence me.
- ☐ It would make me choose a completely different product, without a special banner.
- ☐ Sonstiges: _____

Would a picture on the shelf with information about environmental impact, influence you to pick a more environmentally friendly product? *



Did you know...



...that in Switzerland only **28%** of all **plastic bottles** are recycled...



...and **cardboard boxes** have a much smaller environmental impact than plastic bottles?



- ☐ Yes, definitely. I would even consider to pick a product from a different brand.
- ☐ Yes, as long as I can buy the exact same product (like in the example of Comella Chocolate drink)
- ☐ It would not influence me
- ☐ It would make me choose a completely different product, without an informative picture
- ☐ Sonstiges: _____

Imagine a beverage costs CHF 1.80. How much would you be willing to pay if it comes in sustainable packaging? *

- ☐ Not more than CHF 1.80
- ☐ CHF 2.00
- ☐ CHF 2.20
- ☐ CHF 2.40
- ☐ CHF 2.60
- ☐ CHF 2.80
- ☐ Sonstiges: _____

How old are you? *

- ☐ < 18
- ☐ 18 - 25
- ☐ 26 - 35
- ☐ 36 - 45
- ☐ 46 - 55
- ☐ 56 - 65
- ☐ > 65

What is your gender? *

- ☐ Female
- ☐ Male
- ☐ I prefer not to say

What is your current state of occupation? *

☐ Employed

☐ Unemployed

☐ Student

☐ Sonstiges: _____

Thank you very much for your participation

If you have been influenced by the banner or the picture in the shelf, you have been nudged.

By definition, a nudge is "...any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives." More concretely, green nudges aim at promoting environmentally responsible behaviour. In other words, green nudges influence you to a more environmentally friendly and sustainable choice, while you still have the other option available.

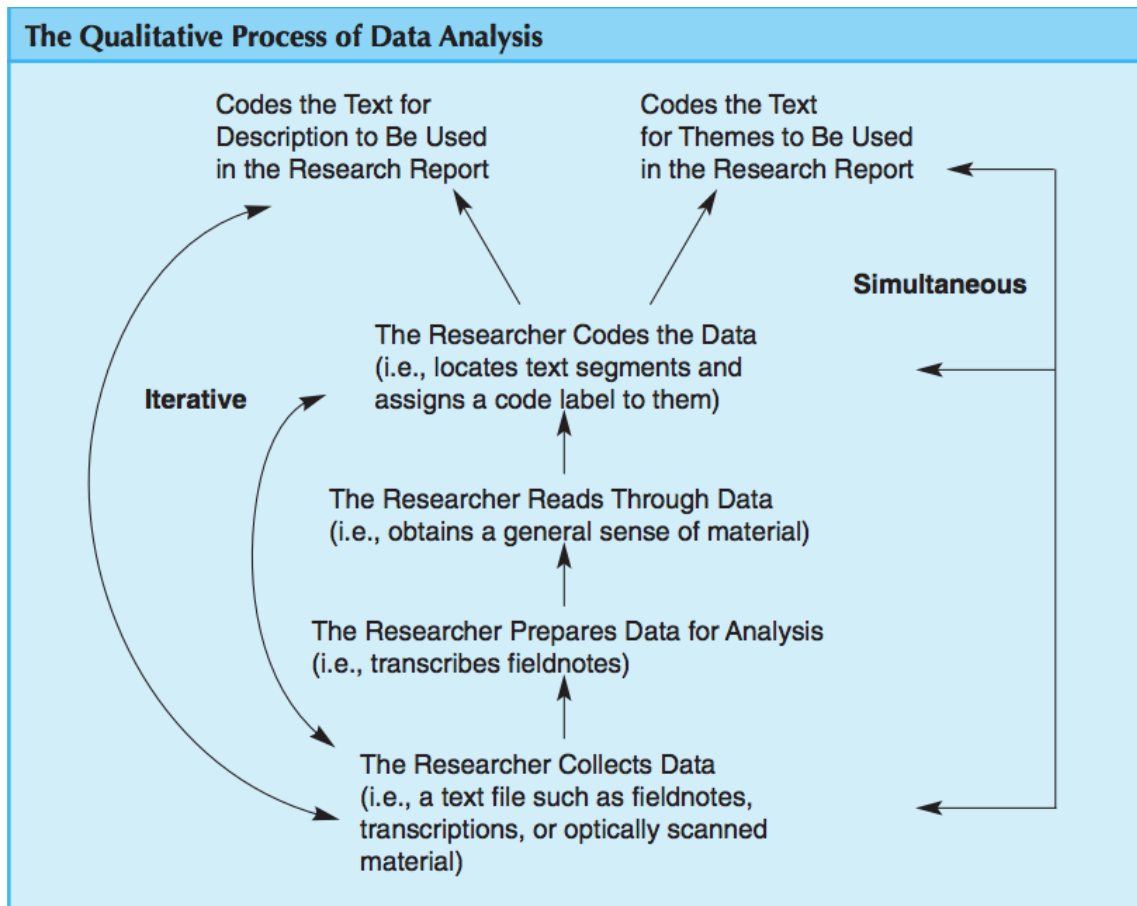
I am happy to give you more information about green nudges and/or my bachelor thesis, just send me an email to nadja-jennifer.muller@etu.hesge.ch and I will get in touch with you.

Kind regards
Nadja Müller

Zurück

Senden

Appendix 6 – Analysis process



Source: Creswell (2012, p. 245)

Appendix 7 – Shortened version of transcript – Emmi – First interview

Introduction, after the presentation of interviewer:

- Interviewer: The aim of this interview is to receive a better insight into the measures taken by Emmi in order to foster sustainability and the links with the marketing strategy of Emmi.
- Would you like to sign a confidentiality agreement?
- Interviewee: This is not necessary.
- Interviewer: What is your position at Emmi?
- Interviewee: Communication-allrounder. Various people have been consulted in order to answer the questions.

General questions about Emmi's marketing strategy and sustainability:

- Interviewer: How important is sustainability to Emmi?
- Interviewee: Sustainability is a key priority for Emmi and is increasingly embedded in its day-to-day business. As a strategic issue, Emmi is addressing sustainability globally and investing significant financial and human resources.
- Interviewer: How did the importance of sustainability change during the last years?
- Interviewee: In principle, the subject is becoming increasingly important, but Emmi committed itself to resource-saving corporate management and environmentally conscious action as early as the mid-1990s when it formulated its environmental policy.
- Interviewer: What are the current actions in order to foster sustainability?
- Interviewee: As in all its business activities, Emmi also approaches sustainability with a clear focus and implementation orientation: Together with the various stakeholder groups, the main sustainability issues on which Emmi has a relevant influence and where real progress can be made have been identified.
- Interviewer: What are the future plans to foster sustainability?
- Interviewee: During a conference in March, future plans will be announced.
- Interviewer: Who is in charge of Emmi's sustainability?
- Interviewee: Emmi has a sustainability department.
- Interviewer: How developed is the cross-functional co-operation between the sustainability department and the marketing department?
- Interviewee: The motivation for sustainability comes from the conviction that we need to move consistently and steadily towards sustainability - especially with regard to our core business milk, to which numerous sustainability issues are linked - so that the company can survive and develop in the long term. This also enables us to minimize risks and reduce costs. It is not a PR measure. It also meets a need of our

consumers: The demand for regional and sustainable products is growing.

Interviewer: What are the main reasons why Emmi decided to come out with the new vegan product “Emmi Caffè Drink Almond Macchiato”?

Interviewee: Consumers are looking for variety. The search for milk alternatives is increasing. Imports are already a reality - we offer countermeasures with added value from Switzerland, Swiss raw materials and positive advertising.

Interviewer: *(In reference to pictures 1 and 2)* The green design of the packaging with a green Emmi logo stands out in comparison with the other packages of the Emmi Latte line. What is the meaning of the new, green Emmi logo on the new vegan product?

Interviewee: The green logo is the clear differentiation for our vegan products, yet it fits the rest of our range.

Interviewer: How high is the likelihood that Emmi generally changes its logo for marketing reasons?

Interviewee: Rather small.

Questions about packaging in general:

Interviewer: Who/which department decides about the chosen material for a specific product?

Interviewee: Marketing, in close coordination with packaging development.

Interviewer: How complicated is the process of changing the packaging material for a specific product?

Interviewee: This depends on the material and the machinery (old, flexible, rebuilding possibilities)

Interviewer: Does Emmi use different packaging material in order to differentiate their product lines? *(Pictures 3-6 show that different products are packaged in similar ways but with different material)*

Interviewee: Yes, different materials are used depending on the positioning and target group of the brand.

Interviewer: In order to respond to consumer needs, what is Emmi's strategy about using environmental-friendly material for packaging?

Interviewee: Reduction of packaging material as far as possible without endangering shelf life or product quality, multipacks with as little (additional) packaging material as possible

Definition of nudges/green nudges and specific questions about green nudges

Interviewer: Are you currently using or have you used nudges/green nudges?

Interviewee: No

Appendix 8 – Shortened version of transcript – Emmi – Second interview

A) Green Nudge which subconsciously influences consumers

- Interviewer: What is your first impression of the Green Nudge in terms of its influence on consumers?
- Interviewee: Too bold. As a consumer, I would ask myself: "How can I save the environment with milk?". I do not find it credible if no further information is given.
- Interviewer: How do you assess the feasibility of this Green Nudge?
- Interviewee: Feasible. It is important to coordinate with other labels and information on the packaging and collaborate with the marketing department.
- Interviewer: How do you estimate the financial expenditure of this Green Nudge? Assuming the nudges are already designed and "only" need to be used.
- Interviewee: Low.

B) Green Nudge which consciously influences consumers

- Interviewer: What is your first impression of the Green Nudge in terms of its influence on consumers?
- Interviewee: Too simplified. The facts are not correct, is this an example?
- Interviewer: How do you assess the feasibility of this Green Nudge?
- Interviewee: Feasible but with high editorial and graphical effort. Depending on how much text and information can fit on the space, it is very complex to present a lot of information in a simple way.
- Interviewer: How do you estimate the financial expenditure of this Green Nudge? Assuming the nudges are already designed and "only" need to be used.
- Interviewee: Medium.

Appendix 9 – Calculations for possible price increase

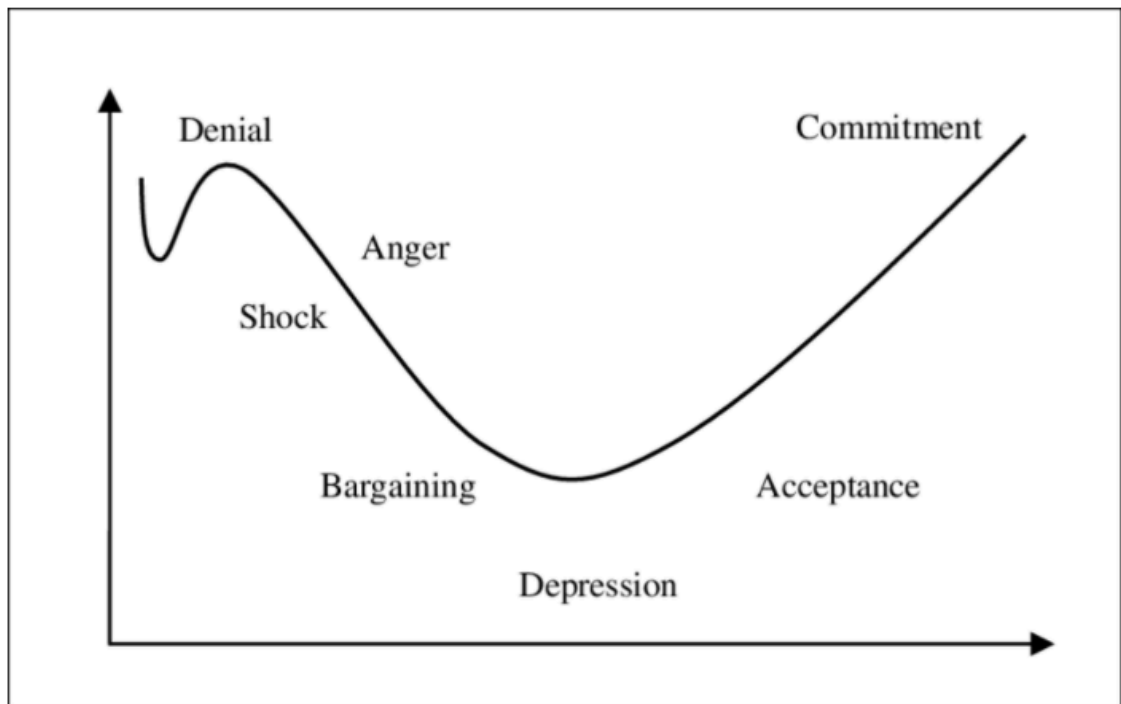
Possible price increase without a decrease in demand

Regularity	Total	Willingness to pay	Price increase	Participants	Sum	Weighted Average	Multiplier	Weighted average (total of all results, divided by 112.4 which is the total of the multipliers)
More than once a day	34	Not more than CHF 1.80	CHF 0.00	11	CHF 0.00	CHF 0.259	60	
		CHF 2.00	CHF 0.20	9	CHF 1.80			
		CHF 2.20	CHF 0.40	9	CHF 3.60			
		CHF 2.40	CHF 0.60	4	CHF 2.40			
		CHF 2.60	CHF 0.80	0	CHF 0.00			
		CHF 2.80	CHF 1.00	1	CHF 1.00			
		Different answer		0				
Once a day	39	Not more than CHF 1.80	CHF 0.00	4	CHF 0.00	CHF 0.262	30	
		CHF 2.00	CHF 0.20	23	CHF 4.60			
		CHF 2.20	CHF 0.40	10	CHF 4.00			
		CHF 2.40	CHF 0.60	1	CHF 0.60			
		CHF 2.60	CHF 0.80	0	CHF 0.00			
		CHF 2.80	CHF 1.00	1	CHF 1.00			
		Different answer						
Every other day	15	Not more than CHF 1.80	CHF 0.00	2	CHF 0.00	CHF 0.333	15	CHF 0.28
		CHF 2.00	CHF 0.20	6	CHF 1.20			
		CHF 2.20	CHF 0.40	5	CHF 2.00			
		CHF 2.40	CHF 0.60	0	CHF 0.00			
		CHF 2.60	CHF 0.80	1	CHF 0.80			
		CHF 2.80	CHF 1.00	1	CHF 1.00			
		Different answer						
Once or twice per week	75	Not more than CHF 1.80	CHF 0.00	7	CHF 0.00	CHF 0.395	6.4	
		CHF 2.00	CHF 0.20	29	CHF 5.80			
		CHF 2.20	CHF 0.40	25	CHF 10.00			
		CHF 2.40	CHF 0.60	9	CHF 5.40			
		CHF 2.60	CHF 0.80	1	CHF 0.80			
		CHF 2.80	CHF 1.00	1	CHF 1.00			
		Different answer *	CHF 2.20	3	CHF 6.60			
Once per month or less	68	Not more than CHF 1.80	CHF 0.00	6	CHF 0.00	CHF 0.375	1	
		CHF 2.00	CHF 0.20	29	CHF 5.80			
		CHF 2.20	CHF 0.40	12	CHF 4.80			
		CHF 2.40	CHF 0.60	10	CHF 6.00			
		CHF 2.60	CHF 0.80	1	CHF 0.80			
		CHF 2.80	CHF 1.00	7	CHF 7.00			
		Different answer **	N/A	3	N/A			

* On average, the three answers equaled to CHF 2.20

** The three answers were not measurable in numbers and the three participants were not considered in the calculation of the weighted average

Appendix 10 – Kübler-Ross Change Curve



Source: Kübler-Ross (1969)