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International Retail Management

Bachelor's thesis

Data Mining on the Brick-and-Mortar retailers

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ABSTRACT

It is now known that to be competitive, companies must focus on the consumer, understand their behavior and make them loyal. A very powerful tool to achieve this is data mining. According to the latest research, data mining helps us to better understand consumer purchasing behavior, uncover consumption patterns and trends, improve quality and customer service, and achieve better customer retention and satisfaction. One of the means to collect data is through loyalty programs, its information can be used to record purchase sequences, customer loyalty and purchase trends can be systematically analyzed.

In this research, we focus on consumer behavior by studying the theory of reasoned action and creating a survey. This theory states that consumers only take an action if their expectations are met and if the perceived norms and control over behavior are favorable. That is why this research focuses on consumer behavior and how it can be predicted, as well as on loyalty programs as a method of meeting consumer needs and as a means of collecting data.

The results of this thesis will help recommend to retailers how to predict and influence the decision-making process of customers, focused on the Millennials generation and how loyalty programs are used as a means of data collection.

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1. INTRODUCTION

“In the last two years alone, an astonishing 90% of the world’s data has been created.”¹

Through this research, we want to investigate the attitude of people towards the data collection methods in physical stores. To determine the attitude of consumers, it is necessary to focus on consumer behavior, and this is how this study was developed. Throughout this research, the determinants involved in the decision-making process have been explained, taking as a model the well-known theory of reasoned action by Martin Fishbein and Icek Ajzen. To complement this theory and adapt it to our subject of study, an approach was given to one of the data collection methods, loyalty programs, preferred among Millennials due to the rewards that it offers, among them are discounts, goods, services, customized offers and marketing efforts, or preferential treatment.²

The attitude of customers towards data delivery was also investigated, taking as a reference the scientific *article Personal data: how context shapes consumers’ data sharing with organizations from various sectors*, which states that most consumers want to share their data with organizations if the benefits and terms

¹ Bulao, 2020.

² cf. Meyer-Waarden, 2015, p. 2.

meet their needs.³

1.1. Aim of the thesis

This thesis aims to investigate the different data collection tools currently available to retailers and the extent to which they are being used. It also aims to investigate, by means of a questionnaire, consumer preference towards certain methods of data collection.

The focus will be on the German population. It is intended to see their attitude towards existing data collection methods, as well as what factors could contribute to a more rapid process of acceptance.

This research aims to answer the following questions:

- What is the attitude of people towards sharing data?
- Which factors influence the willingness of customers to provide their data?

The results of this research are intended to provide a clearer picture of how the consumer decision-making process works and which factors influence the willingness to share information.

³ cf. Roeber, et al., 2013, p. 95.

1.2. Structure of the thesis

We structure this research as follows:

First, we present an overview of related research, showing the objectives and structure of our thesis and define the terms relevant to our study.

Second, we present the theoretical framework of our research, which will be focused on consumer behavior Theory of reasoned action. We will analyze this theoretical framework and adapt it to current requirements, adding information about data mining, Millennials and loyalty programs.

Third, the empirical analysis will be developed through a questionnaire, later the results will be presented and analyzed.

and finally, the relevant recommendations will be made to close the gap resulting from the analysis of the results.

1.3. Definition of keywords

1.3.1. Terms in the title

Data Mining

In the knowledge discovery process, data mining is an essential step in which intelligent methods are applied to extract data patterns.

Although many people treat data mining as a synonym for another popular term, knowledge discovery from data (KDD), while others see data mining as a simple

essential step in the knowledge discovery process. This process is shown in figure 1. as a repeating sequence of the following steps:

1. Data cleansing (to remove noise and inconsistent data)
2. Data integration (where multiple data sources can be combined)
3. Data selection (where data relevant to the analysis task is retrieved from the database)
4. Data transformation (where data is transformed and consolidated into forms appropriate for mining by performing summary or aggregation operations)
5. Data mining (an essential process in which intelligent methods are applied to extract pattern data)
6. Pattern evaluation (to identify the truly interesting patterns that represent knowledge based on measures of interest)
7. Presentation of knowledge (where the techniques of visualization and representation of knowledge are used to present mine knowledge to users)

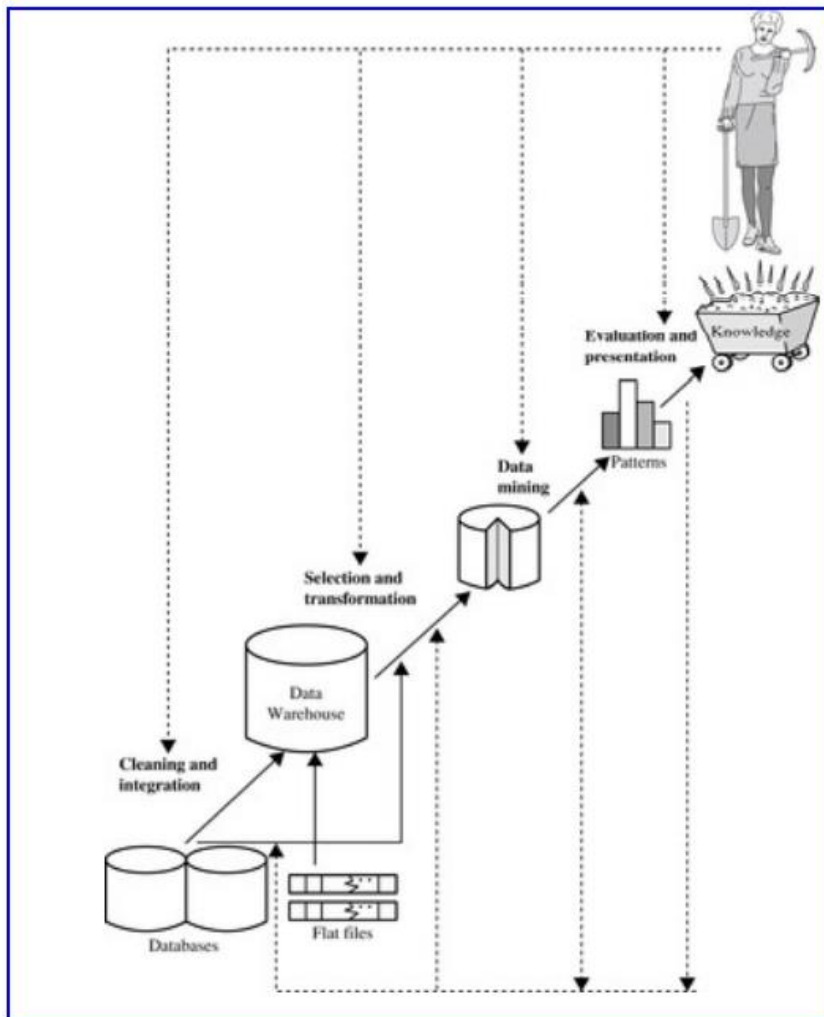


Figure 1. Data mining as a step in the process of knowledge discovery. (Source: Han, et al., 2011.)

Steps 1 through 4 are different forms of data preprocessing, where the data is prepared for mining. The data mining stage can interact with the user or with a knowledge base. Interesting patterns are presented to the user and can be stored as new insights in the knowledge base.

In industry, in the media and research, the term data mining is often used to refer to the entire knowledge discovery process. Therefore, we take a broad view of data mining functionality: Data mining is the process of discovering interesting patterns and insights from large amounts of data. Data sources can include databases, data warehouses, the Web, other information repositories, or data that is fed into the system dynamically.⁴

Data Mining for Retail Industry

For data mining, the retail industry is a suitable area, due to the enormous amount of data collected on sales, customer purchase history, goods transportation, consumption and services. Its use is growing even more rapidly due to the ease, availability and popularity of business done through web or e-commerce.

Retail data provide a rich source for data mining, which can help identify customer buying behaviors, discover customer shopping patterns and trends, improve the quality of customer service, achieve better customer retention and satisfaction, enhance goods consumption ratios, design more effective goods transportation and distribution policies, and reduce the cost of business.⁵

Here are some of the examples of data mining in the retail industry:

- a) *Design and construction of data warehouses*: The levels of detail of the data to be included can vary substantially due to the broad spectrum that

⁴ cf. Han, et al., 2011, pp. 16-18.

⁵ cf. Han, et al., 2011, pp. 16-18.

this industry covers. The results of preliminary data extraction exercises can help guide the design and development of data warehouse structures to facilitate efficient data extraction.

b) *Multidimensional analysis of sales, customers, products, time, and region:*

The retail industry requires timely information regarding customer needs, product sales, trends, and fashions, as well as the quality, cost, profit, and service of commodities. It is therefore important to provide powerful multidimensional analysis and visualization tools.

c) *Analysis of the effectiveness of sales campaigns:*

The retail industry attracts customers and promotes products through sales campaigns using advertisements, coupons, and various types of discounts and bonuses. A careful analysis of the sales campaigns is necessary to improve the profits of the company. Multi-dimensional analysis can compare the number of sales and the number of transactions that contain the sales items during the sales period versus those that contain the same items, and the association analysis can reveal which items are likely to be purchased alongside items for sale, before or after the sales campaign.

d) *Customer retention—analysis of customer loyalty:*

Customers' loyalty card information can be used to record purchase sequences. Customer loyalty and purchasing trends can be systematically analyzed. Goods purchased in different periods by the same customers can be grouped in sequences. Changes in consumption or customer loyalty can be investigated by mining sequential patterns and then suggesting adjustments in the price and variety of goods to help retain customers and attract new ones.

- e) *Product recommendation and cross-referencing of items*: Through the associations of the sales records, we can discover that a customer who buys a digital camera is likely to purchase another set of items. Knowing this information and through data mining techniques it is possible to make personalized recommendations in collaboration during live product transactions. Product recommendations can also be posted on sales receipts, in weekly brochures, or on the web to help improve customer service, help customers select items, and increase sales. Similarly, information such as "hot items this week" or attractive offers can be displayed along with associative information to promote sales.
- f) *Fraudulent analysis and the identification of unusual patterns*: The retail industry has to pay millions of dollars a year for fraudulent activities. It is important to 1) identify potentially fraudulent users and their atypical usage patterns; 2) detect attempts to gain fraudulent entry or unauthorized access to individual and organization accounts; and 3) discover unusual patterns that may need special attention.⁶

Brick-and-Mortar

The term Brick-and-mortar describes any physical store that sells goods and services directly to customers. Coffee shops, bank branches, grocery stores, and clothing outlets in the mall are all examples of brick and mortar stores. The term arose in response to the proliferation of Internet-based businesses that customers could only visit online. Brick and mortar are the antitheses of virtual

⁶ cf. Han, et al., 2011, pp. 501-502.

companies since unlike virtual companies, brick-and-mortar stores interact face-to-face with customers.⁷

How does a brick and mortar work?

It is common for brick-and-mortar stores and online businesses despite being opposite to mix in the real world. When businesses are new, they often choose only one form of marketing, but many businesses eventually incorporate aspects of both. For example, an online business can grow to the point of deciding to open a brick and mortar store in a city. In contrast, a brick and mortar business may downsize its facilities to focus on online sales. While it is true that physical stores incur more overhead costs, there are also advantages to having a physical location. Products are easier for customers to test, and it is easier for a business to build a good reputation for customer service. For some businesses, like a coffee shop, there is no way to run the business virtually.⁸

Retail

One of the largest, accelerated and constantly changing industries in the world, especially in the last decade, is retail. Retailers are the final stage in the marketing chain and the point of contact between consumers and manufactured goods. Today the retailer follows a more strategic approach to management and marketing, taking advantage of the opportunity to be consumer-oriented, establishing personal contact with customers, gathering information on consumer

⁷ cf. Ward, 2020

⁸ cf. Ward, 2020

behavior and exploiting ideas about consumer behavior and consumer preferences.⁹

In many countries, retail has become a highly concentrated industry. According to the market research company Planet Retail, the top five food retailers account for more than 70% of the market in the UK, Germany and France. Large-scale retail chains have emerged that developed first into regional groups and then into active national and even international retail operations and have massive turnover, large numbers of employees, and extensive store networks. In the last decade, mergers and acquisitions between large companies have accelerated this development. The power of individual retail organizations is growing; they are now comparable and in many cases even larger than many manufacturers. Thus, manufacturers today often depend on a few large retailers for a substantial part of their global turnover. The world's largest retailer, Walmart, has an annual turnover of more than 485,000 million euros, higher than the GDP of many countries, and employs about 2.2 million people.¹⁰

The German group Metro Group uses grocery superstores (Real), consumer electronic car malls (Media Markt and Saturn), cash and carry wholesale stores (Metro C&C) and other formats, and obtains around 60 percent of their volume business in markets outside of Germany.

Along with this increase in the size of retail organizations, so have grown retail marketing budgets, IT budgets, and senior management budgets. One of the

⁹ cf. Zentes, et al., 2017, pp. VII-XI.

¹⁰ cf. Zentes, et al., 2017, pp. VII-XI.

contributing factors to this shift in power is also due to the increased sophistication of retail management, combined with better availability of customer data. Retail is currently one of the leading industries when it comes to adopting new technologies.

Retail point-of-sale data has become more valuable because IT systems have made it easier to collect data at the checkout. Customer-specific data, which is now increasingly collected via cards of fidelity, add to this knowledge.

Retailers have started to embrace the concept of strategic merchandising. Thus, the huge purchasing volumes of retailers are only one source of their power base, although by far the most important. Retailers are now using their positions to become the dominant player in the distribution channel. They develop their own merchandising concepts and take merchandising leadership in their vertical relationships with manufacturers. Retailers today strive to achieve logistics leadership in the distribution channel, and for that, they have developed their own logistics concepts and created central warehouses.¹¹

1.3.2. Other important keywords

Loyalty programs

Loyalty programmes are integrated, structured and regulated systems (based on charging and redemption rules) of marketing actions, which aim to encourage long-term repeat purchases and increase the cost of switching suppliers through

¹¹ cf. Zentes, et al., 2017, pp. VII-XI.

short- and long-term incentives.¹² These incentives or rewards refer to any abstract stimulus (e.g. convenience, hedonic, novelty, social recognition, self-esteem) or concrete stimulus (e.g. financial savings, miles, points, discounts) that results in triggering internal cognitive responses by consumers.¹³ Other literature uses different terms, including reward programs, frequency reward programs, frequent-shoppers programs, and frequent-flier programs.¹⁴ Typically, loyalty program rewards consist of discounts, goods, services, customized offers and marketing efforts, or preferential treatment. To create a sustainable effect on member loyalty, the cost of change should increase through loyalty program participation and rewards. Behavioral loyalty should also be increased (e.g., cross-shopping, repeat shopping, average basket size) and attitudinal (building relationships through positive attitudes, trust, attachment).¹⁵

Well, known loyalty programs include for instance PAYBACK which is a “multi-brand loyalty program that lets you earn and redeem points on every shopping” or Amazon Prime, which has been successful in many countries as we can see in figure 2. Amazon Prime appeared as a solution for customers to meet their needs for delivery speed and more quality for less money.¹⁶ A loyalty program example more specific to retailers and therefore more relevant for this thesis is

¹² cf. Meyer-Waarden, 2006, pp. 87-114.

¹³ cf. Vesel & Zabkar , 2009, pp. 396-406.

¹⁴ cf. Meyer-Waarden, 2015, pp. 22-32.

¹⁵ cf. Meyer-Waarden, 2015, pp. 22-32.

¹⁶ cf. Ladd, 2018.

for instance the DEUTSCHLAND Card where collected points can be exchanged for products or charity projects.

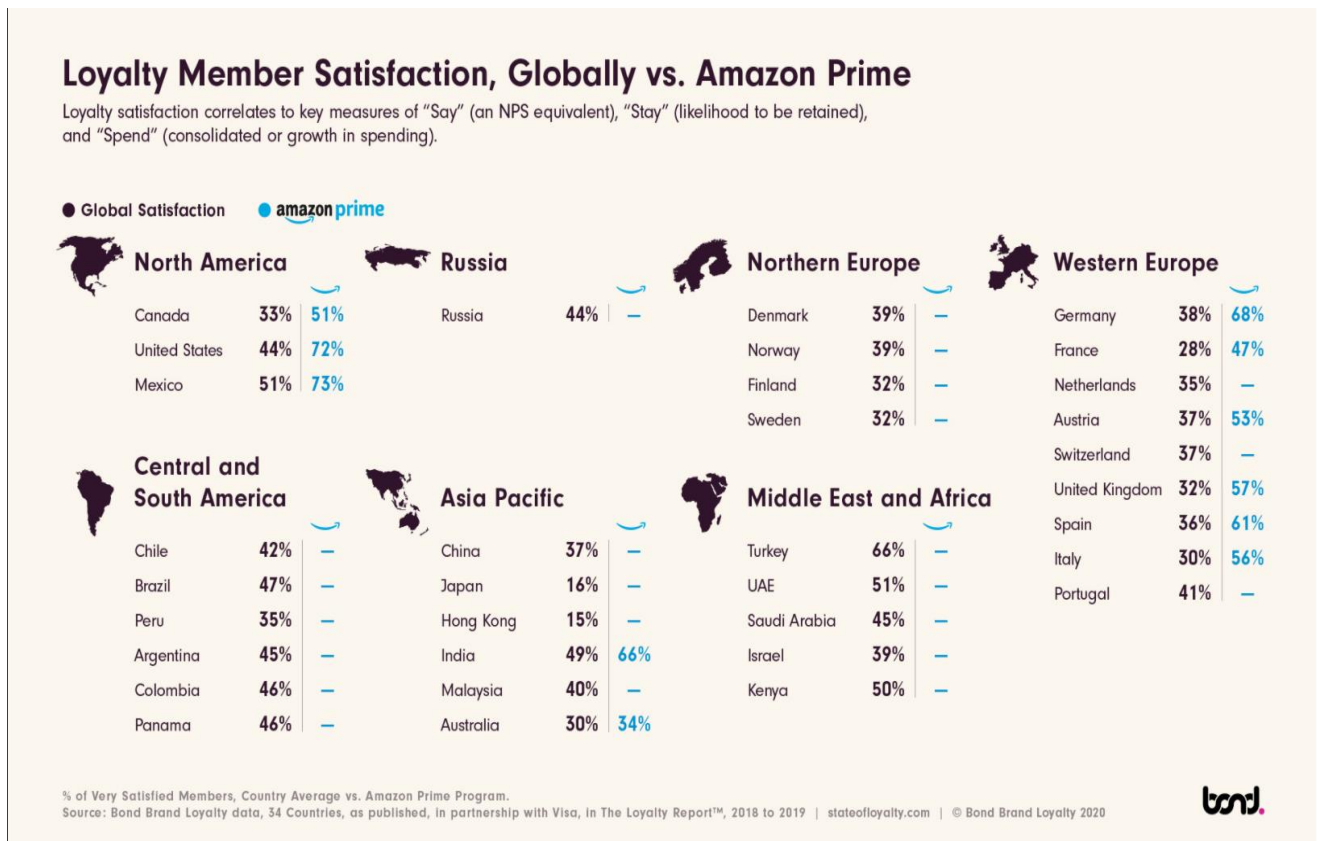


Figure 2. Loyalty Member Satisfaction vs. Amazon Prime (Source: Bond Brand Loyalty Inc, 2020)

Shopping experience

A shopping experience is much more than just walking into a shop and buying a product. Shoppers are not only motivated by the potential purchase of a product, but also by the satisfaction that can be gained from the shopping experience¹⁷

A shopping experience starts from the moment the customer has the first point of contact with the brand, either online, through reviews or advertising until after the purchase has been made, that is, in case they have queries about problems with the product. The shopping experience definitely includes what happens after the purchase and how the customer is helped by a seller. This can make a customer loyal, talking about his online experience and being an advocate of the brand.¹⁸

In-store Marketing

In-store marketing (or "point of sale marketing") is the use of retail marketing tools related to information and communication within a retailer's points of sale, such as the structure of a store, their basic layout, the presentation of the products, the allocation of space for the merchandise, the measures to influence the store atmosphere, including the events in the store.¹⁹ The design component of in-store marketing is often used synonymously with visual merchandising, which refers to the way products are presented at a point of sale. Although this expression is

¹⁷ cf. Tauber, 1972, pp. 46-49.

¹⁸ cf. Retail Native, 2019.

¹⁹ cf. Gröppel-Klein 2012, pp. 645.

often used with a focus on the display of merchandise (for example, the choice of accessories and the method of presenting the products), it also refers to the general design of the store, the layout of the store and other facets of the store environment.

Two basic objectives of marketing at the point of sale are:

- Facilitate customer search processes, that is, allow easy internal orientation and
- Create a positive atmosphere in the store.

Both goals are important to different degrees in different stores and for different consumer segments.²⁰

Consumer behavior

Consumer behaviour is just as a diverse field as the consumer itself and the products and services a person consumes. It can be defined as “the study of the processes involved when individuals or groups select, purchase, use, or dispose of products, services, ideas or experiences to satisfy needs and desires.”²¹

Promotions

There are different type of promotions. In this thesis, we focus on retail

²⁰ cf. Zentes, et al., 2017, pp. 227-228.

²¹ cf. Solomon, et al., 2012, pp.1-2.

promotions which are “are promotions offered to consumers by retailers” and come often but not always in the form of price promotions or also defined as “temporary price discounts offered to a customer.”²²

Assortment

A retailer’s assortment can be considered as its full range of goods and a mixture of different categories. Each category defines a specific subgroup of products, which customers regard as substitutes for each other in satisfying a particular need (Hart and Rafiq, 2006; Levy and Weitz, 2008).²³

Instore – technology

“Technology used by businesses in the physical environment to assist a customers purchasing of goods and/or services”.²⁴ Examples include touchscreens, QR codes, tablets, video displays and click-and-collect facilities in-store.²⁵

²² cf. Blattberg & Neslin, 1990, pp. 116-129.

²³ cf. Bauer, et al., 2012, pp. 11-26.

²⁴ cf. Turner & Corstorphine, 2020, p. 28.

²⁵ cf. Turner & Gardner, 2014, p. 15.

2. THEORETICAL FRAMEWORK

This research is being written from the clients' perspective. For which the model of the consumer behavior *Theory of reasoned action* was chosen as the basis of the theoretical framework. However, this theory did not fully fit the specific study theme Data Mining on the Brick-and-Mortar retailers, and therefore scientific articles and journals about data mining, Millennials and loyalty programs were added.

The literature reviewed highlights the importance of understanding the behavioral process to better understand consumer behavior towards information delivery. With a focus on loyalty programs as a means to meet consumer needs and as a means to collect information that would later be used for the benefit of the consumer.

1.4. reasoned action

The science of consumer behavior is always evolving and there are different consumer behavior models to determine the consumer behavior. One of them is the Theory of Reasoned Action created by Martin Fishbein and Icek Ajzen in the late 1960s. It centers its analysis on the importance of pre-existing attitudes in the decision-making process. According to the theory, a consumer only takes a specific action when there is an equally specific result expected and from the time the consumer decides to act to the time the action is completed, the consumer retains the ability to change his or her mind and decide on a different course of action

Today it can be almost assured that social behavior can be predicted, the stronger the intention, the more likely it is that the behavior will be carried out,²⁶ sometimes with a very high level of accuracy. The importance and usefulness of forming attitudes in consumers to obtain the expected result is also known. The human social behavior is not complicated, the same group of processes can be applied to predict and understand any behavior of interest, because the process before taking a behavior is very similar.²⁷

To predict a behavior, you must first identify what will be the behavior of interest, once identified you can begin to evaluate its determinants. It is usually assumed that the behavior is a reasonable, often spontaneous consequence of information or beliefs that the person has about that behavior.²⁸

Next, we will go on to describe the different determinants that guide a person to a certain behavior.

1.4.1. Attitude

First, people have beliefs about the consequences of choosing a certain behavior and these expectations determine the attitude towards certain behavior, which could be positive or negative. As we can see below in figure 3, a consumer only takes a specific action when there is an equally specific result expected. These

²⁶ cf. Fishbein & Ajzen, 2010, pp. 17.

²⁷ cf. Fishbein & Ajzen, 2010.

²⁸ cf. Fishbein & Ajzen, 2010, pp. 16.onsd

beliefs can have a diverse origin, such as personal experiences, formal education, interactions with family and friends, the Internet and other media. Personal differences also influence the way remember and interpret this information. Consequently, people with different personality traits and social backgrounds are likely to differ in their beliefs as well.²⁹

1.4.2. Perceived norm

As a second determinant, people believe that important individuals or groups of people in their lives would approve or disapprove the behavior in question, as well as the beliefs that these important individuals or groups in question do or do not perform this particular behavior. These descriptive and prescriptive normative beliefs produce social pressure towards the performing or not of certain behavior.³⁰

1.4.3. Control Beliefs

That term refers to the belief towards certain personal or environmental factors to carry out a behavior, as means that could prevent or facilitate their attempts to carry out a conduct.

These beliefs result in a level of self-efficacy (Bandura, 1986, 1997) or a perception of the control of behavior with respect to it. If the control belief

²⁹ cf. Fishbein & Ajzen, 2010, pp. 16.

³⁰ cf. Fishbein & Ajzen, 2010, pp. 16.

perception identifies more facilitating than inhibiting factors, perceived behavioral control should be high.³¹

1.4.4. Intention–Behavior Gap:

Several factors can influence on intentions and behavior. The inconsistency between intentions and behaviors can not only be evidenced through their low correlation but also in a more literal way. Literal inconsistencies occur when a person says they intend to do something but do something different. The general inconsistency patterns are asymmetrical, generally, people who have a negative intention towards something act according to their intention, however people who have a positive attitude towards something may or may not. According to Donald Campbell (1963), this could be because discrepancies between words and deeds can often be more apparent than real.³² The other possible explanation could be that sometimes people simply fail to carry out intentional actions that are in their best interest.³³

³¹ cf. Fishbein & Ajzen, 2010, pp. 17.

³² cf. Campbell & Fairey, 1985, pp. 236,264.

³³ cf. Fishbein & Ajzen, 2010, pp. 54-57.

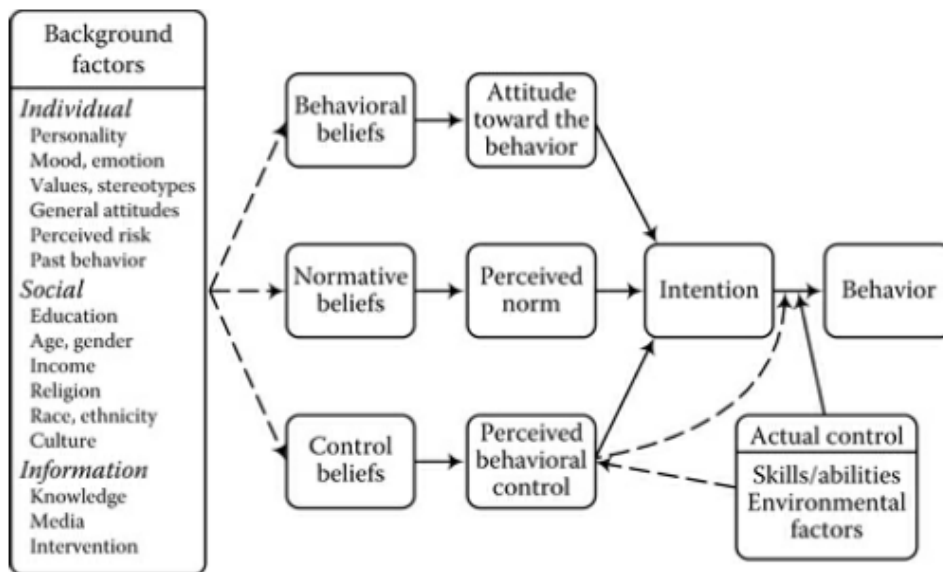


Figure 3. Schematic presentation of the reasoned action model. (Source: Fishbein & Ajzen, 2010, pp.18.)

In short, people will perform a behavior if the attitude towards this behavior and the perceived norms of their environment are favorable. However, if they feel that they lack control over the perceived behavior, either because of a lack of skills or barriers that may prevent the realization of the behavior, they will not intend to perform the behavior in question.³⁴

³⁴ cf. Fishbein & Ajzen, 2010, pp. 17.

1.5. Gap on the reasoned action

1.5.1. The Millennials' attitude toward data mining and loyalty programs as a data collector in the brick-and-mortar retailer

Physical retail stores continue to have the highest sales worldwide, although e-commerce is a growing sector, even in countries with greater digital penetration. For example, in the United States, a recent report shows that 86% of retail sales are made in physical stores (although 53% of these purchases are digitally influenced).³⁵ It is important to offer customers a better shopping experience and as retailers to have a holistic view of the customer's journey.³⁶

To offer a better shopping experience it is vital to get a positive attitude towards our brand and thus be taken into account in their decision-making process and for that intend we researched the *theory of reasoned action*.

Making customers loyal is one of the best ways to increase the final result of the sale. Loyalty program customers spend 12-18% more than non-members. It also costs more to get a new customer than to sell to an existing one,³⁷ and the generation of Millennials is the most brand-loyal group of customers compared to

³⁵ cf. Meena & Kumar, 2017.

³⁶ cf. Bowling, 2018.

³⁷ cf. Chen, 2017.

to other generations, and that is one of the reasons why Millennials are also part of our study.³⁸

Theory of the reasoned action

Many researchers misinterpret the title of this theory, interpreting it as people being too rational, logical, and taking too much time before committing to a decision. This idea is misleading because the theory of reasoned action focuses on the intention of people assuming in a reasonable, automatic and consistent way their beliefs about carrying out an action.³⁹

The theory of reasoned action states that people will perform a behavior if the attitude towards this behavior and the perceived norms of their environment are favorable. However, if they feel that they lack control over the perceived behavior, either because of a lack of skills or barriers that may prevent the realization of the behavior, they will not intend to perform the behavior in question.⁴⁰ Derived from this we develop our first hypothesis:

Hypothesis 1: If people have a positive attitude toward data delivery, they will have

a positive intent in giving their data.

³⁸ cf. Chen, 2017.

³⁹ cf. Fishbein & Ajzen, 2010, pp. 20.

⁴⁰ cf. Fishbein & Ajzen, 2010, pp. 17.

Millennials

As we said before, Millennials are the most brand-loyal group of customers compared to other generations. As the earliest group to hit adulthood after the year 2000, Millennials are the first generation to join the workforce in the new millennium. According to Pew Research Center, Millennials include anyone born between the year 1981 and 1996, which puts them in the 22-37 age range.⁴¹ Millennials are in favor of e-coupons or promotions that offer benefits in exchange for any comment, survey or interaction. The digital marketing strategy that draws the attention of a millennial is the use of graphics as well as personalization, competitive prices, and good shipping rates. They continually watch their peers determine the merit of a product. If given an incentive, such as a discount or reward, Millennials will write an online product review.⁴² We therefore hypothesize:

Hypothesis 2: The majority of Millennials are members of any kind of loyalty program

The purchasing power and large size of the millennial population have made them a very attractive segment for companies. In addition, their behavior is different from that of other generations, which is why it is very important and relevant as an object of study.⁴³

⁴¹ .cf. Nawalkha, 2018.

⁴² cf. Smith*, 2011, p. 486.

⁴³ cf. Moreno, et al., 2017, p. 135.

Bevölkerung - Zahl der Einwohner in Deutschland nach relevanten Altersgruppen am 31. Dezember 2019 (in Millionen)

Bevölkerung Deutschlands nach relevanten Altersgruppen 2019

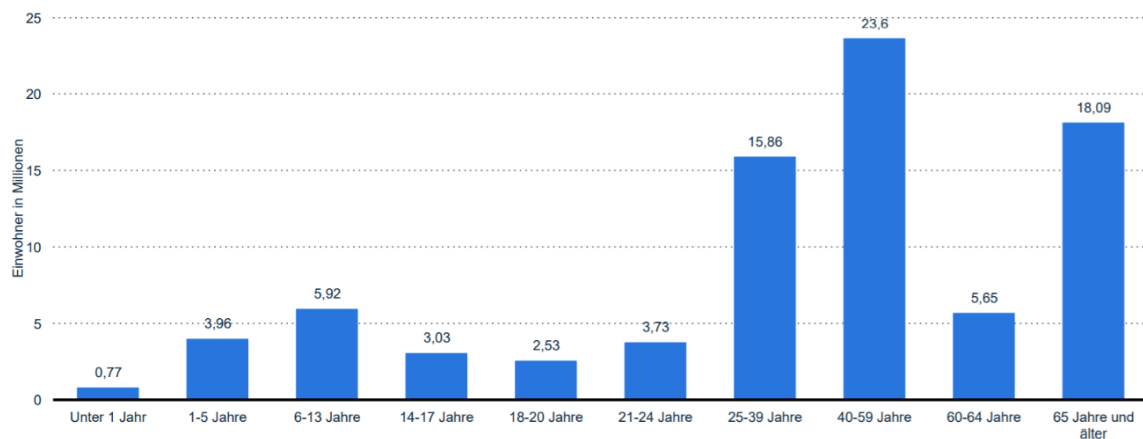


Figure 4. Population - Number of inhabitants in Germany according to relevant age groups on 31. December 2019 (in millions) (Source: Statista, 2019)

The millennial consumers have undeniable power. 40 % of the German workforce equivalent to 19.59% of the total population are Millennials as depicted in figure 4, that is why it is essential for brands to duplicate their identity. Having a clear set of values and communicating them is the fastest way to let people know who you are and technology is a powerful tool to achieve this more easily.

Maintaining brand loyalty for Millennials requires authentic communication and sharing brand values. Existing technology and platforms must be leveraged if you

want to stay in the market. If your brand strategy and tactics work, you can quickly scale up in the international markets where the Millennials are located.⁴⁴

Data mining

In deciding to share personal data, context is more important than the data itself, however, customer concerns about the use of their data are increasing. According to the conjoint study conducted by Roeber, et al., 2013 figure 5 nearly all consumers want to share personal data with organizations if the benefits and terms suffice their needs. As we can see in table 1, the majority of respondents are willing to share their data if they consider the trade-off between the cost for revealing personal information and the benefit they receive as favorable and depending on the type of information, people are more willing to deliver certain types of information than others.

Increasingly, organisations other than retailers are looking for the best way to improve their products and costs by taking advantage of digital identity.⁴⁵

⁴⁴ cf. Chen, 2017.

⁴⁵ cf. Roeber, et al., 2013, pp. 95.

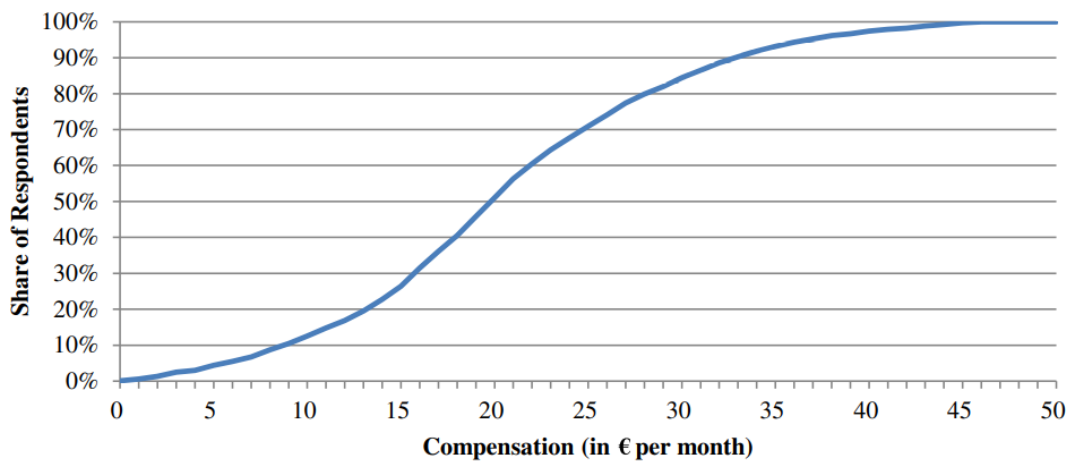


Figure 5. Average required compensation for sharing of data. Values shown for Dutch and German respondents only, as Polish respondents were offered compensation in Zloty. However, the shape of the curve based upon the results from Poland is almost identical (Roeber, et al., 2013)

About consumers' privacy concerns there are many inconsistencies with the consumer behavior in relation to activities that influence privacy, however, authors agree that as the monetary incentive increases, people tend to be more willing to give up their data.⁴⁶ We therefore hypothesize:

Hypothesis 3: People value their personal data differently depending on the data type.

⁴⁶ cf. Roeber, et al., 2013, pp. 96.

Table 1. Cojoint study.- Attributes, levels, relative importance and final utilities. (Source: Roeber, et al., 2013.)

Attribute	Level	Final utilities (part-worths)	Delta of final utilities ^b	Relative importances
Context of Sharing Data type	Age group and gender	1.400		31 %
	Opinion on products and services	1.378	0.022	
	Interests	1.197	0.181	
	Name and e-mail	0.976	0.221	
	Past purchases	0.791	0.185	
	Purchase plans	0.597	0.194	
	Media usage	0.512	0.085	
	Location (where you are)	-0.126	0.638	
	Social network posts, photos and contacts	-0.997	0.871	
	Health record	-1.519	0.522	
	Financial data	-1.640	0.121	
	Credit card data	-2.570	0.930	
	Monetary compensation ^c	50	1.504	
25		0.741	0.763	
20		0.302	0.439	
15		-0.137	0.439	
10		-0.389	0.252	
5		-0.623	0.234	
0		-1.398	0.775	

Loyalty Programs

A loyalty program rewards you based on your past, present or future value to the company.⁴⁷ Thus, loyalty is one of the best ways to increase the final result of the sales and have hence gained popularity. 90% of Europeans and 90% of U.S. shoppers have at least one loyalty card.⁴⁸ Loyalty program customers spend 12-18% more than non-members. A main reason for retailers to offer loyalty programmes is that it costs more to get a new customer than to sell to an existing

⁴⁷ cf. Meyer-Waarden, 2015, pp. 22-32.

⁴⁸ cf. Meyer-Waarden, 2015, pp. 22.

one. The best way to track your loyalty program is to use a digital system that gives your customers more control and better access to your products where they can create wish lists, write shopping lists, clip coupons and much more. Through a digital loyalty program, you will offer your buyers the flexibility they crave and at the same time boost sales.⁴⁹

A marketer's challenge is to communicate brand values authentically and succinctly across touchpoints. As it is increasingly costly to acquire a new customer both online and offline, businesses should invest in maximizing customer lifetime value. A happy returning customer goes beyond additional revenue. It is also your most effective and cheapest advertising.⁵⁰ Therefore, many retailers are very concerned about their competitors' price comparison methods and try to find a magic solution by matching prices to the competition, to keep and acquire new customers. However, competitors' prices are constantly fluctuating and even if it seems logical it is difficult to keep prices on par with the competition, as competitors most likely receive special pricing or cost incentives from the seller or manufacturer. Therefore, this solution would erode the base of the margin to the point that they could go bankrupt. Through loyalty data, it is possible to determine which products are price sensitive for the most valuable consumer base, and thus develop a structure that allows you to reward consumers with daily savings on the products that are most important to them, without having to lower the price of each item. It is possible to offer a lower differentiated price and additional discounts for the most loyal group of

⁴⁹ cf. Bowling, 2018.

⁵⁰ cf. Chen, 2017.

customers. Some retailers even have charts that indicate two types of tiered pricing, one for loyalty members and one for non-members.⁵¹ However existing research claims that loyalty programs offer rewards that fail to increase loyalty.⁵²

3. EMPIRICAL ANALYSIS

Procedure and sample

A purely online, self-report, survey was distributed to buyers between October 1st and 15th, 2020, using a convenience sample of adult buyers in Germany. Since most individuals can be characterized as shoppers, the focus of the recruitment was on individuals who have the means to shop at a physical store. Consequently, to obtain a varied sample of respondents, respondents were recruited through different social networks and the university, where respondents were asked to complete the questionnaire regarding their level of satisfaction with the loyalty programs and their willingness to provide their data in physical stores. We received 110 answers from which 3 were deleted, due to incomplete observations. Hence, our data set is based on 107 valid responses. 62% of the respondents were between 18-30 years old, as shown in table 2. On average, participants spent 3 minutes answering the whole questionnaire.

The questionnaire asked respondents to recall and identify their in-store retail experience and respond to a series of semantics and Likert-type questions

⁵¹ cf. Cox, 2012, pp. 82.

⁵² cf. Leenheer, et al., 2007, pp. 31-47.

related to their preference for loyalty rewards, willingness to provide their data and what they consider fair to obtain in exchange for their data.

To ensure that survey questions and descriptions were understood by respondents from different regions and backgrounds we avoided technical terminology in the survey. The online survey was conducted in English. Before conducting the survey, two people were pre-surveyed, from which some observations were made regarding age range, the meaning of a term used in the survey, and type of industry targeted by the survey.

After making the respective corrections and clarifications the survey could proceed. To reduce the level of ambiguity a minimum wording was adjusted.

Table 2. Age structure of the survey participants

Age Structure		
From	To	Share in %
18	30	62%
31	40	32%
41	50	2%
50+		4%
Gender		
Male		40%
Female		59%
Divers		1%

Measurement

The questionnaire consisted of 14 questions that sought to investigate the attitudes and preferences of customers towards loyalty programs and data collection methods. For the demographic, purchase frequency, payment method and purchase preference questions we used multiple-choice questions. For the frequency of review evaluations and predisposition to join a loyalty program, we applied a 5 point Likert scale question. The expectation they have about the shopping experience, the predisposition to provide their data, the possession and satisfaction of a loyalty program was measured through closed questions. The willingness to provide certain information and the importance of the benefits in loyalty programs was measured through rating questions. To test whether the difference in means in the fourth hypothesis between the different data type is statistically significant, we use the ANOVA hypothesis test which is used “to determine whether there are any statistically significant differences between the means of three or more independent (unrelated) groups”.⁵³ We also use the Chi-Square test of Independence to see whether the trends for the third hypothesis are statistically significant. This test “is applied when you have two categorical variables (or in our case ordinal) from a single population and used to determine whether there is a significant relationship between the two variables.”⁵⁴

⁵³ Laerd Statistics, 2018.

⁵⁴ Stat Trek, 2020.

1.6. survey results and data analysis

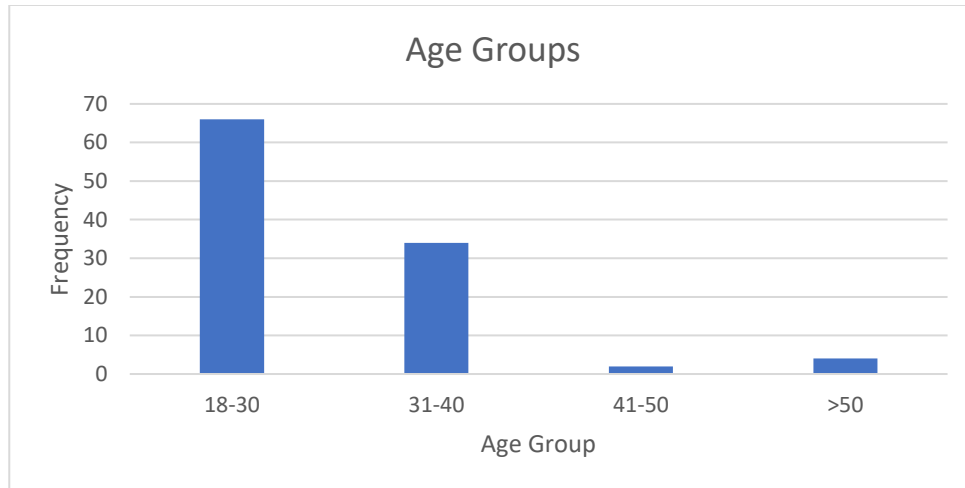


Figure 6. Age range of respondents.

A total of 107 respondents answered this survey. We will start the interpretation of the survey by investigating the characteristics of our sample. As you can see in figure 6, with 62 % the largest part of our respondents are between 18-30, followed by the age 31 to 40 years old (32 %). People between 41 to 50 are with 2 % less represented followed by people above 50 with 4,7 %.

As seen in figure 7 , women form the majority of survey participants constituting to 59.4 % of all respondents. Men make up for 39,6 % of all respondents. 1 person or 0.9 % identified as diverse.

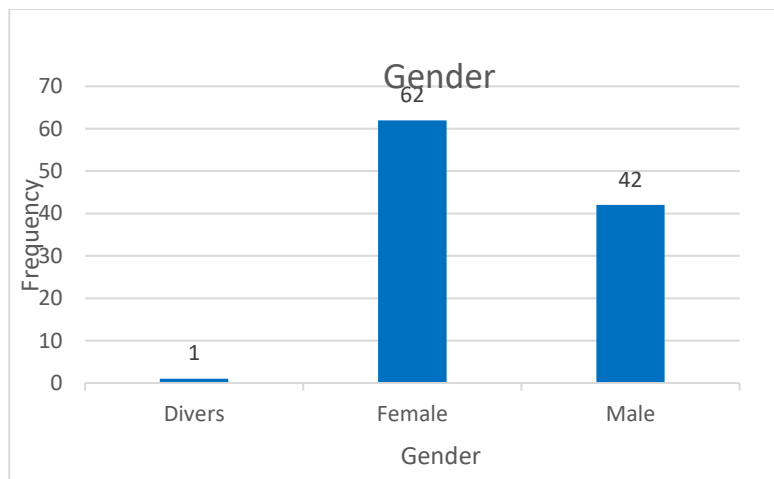


Figure 7. Gender of the respondents.

Seeing this inequality in participation between women and men in the survey, we created table comparing the percentage of women who have a loyalty card and the percentage of men who have one. The result is in line with the participation by gender, as you can see in figure 8. since it shows that women lead in the participation of loyalty programs, with little more than twice the members that men have.

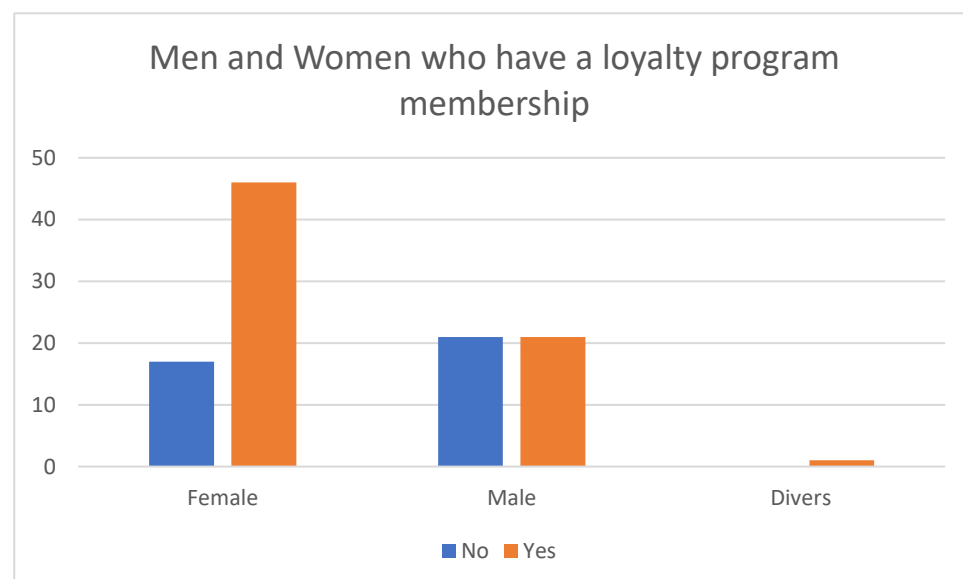


Figure 8. Men woman who have a loyalty program membership.

Most of our participants seem to be regular shoppers as most of them visit a physical store more than once a week (85 %). This comes to no surprise as our questions also specifically included supermarket shopping. Here we could have had broken in down into stores other than grocery shops. Then the numbers would have been less high. However, we intentionally included the supermarkets to show that they also form an important retail sector with potential for loyalty

programs.

Overall, we have a rather young, female-dominated, frequent shopper sample.

If we consider these two questions, we can answer the first hypothesis *If people have a positive attitude toward data delivery, they will have a positive intent in giving their data*. As can be seen in the figure 11 and table 4, the combination of the results of these two questions (See figure 11), the first question can be interpreted as people's attitude towards data delivery and the second question as people's intention towards data delivery in exchange for obtaining a better shopping experience.

Concerning attitude, the highest percentage was obtained by the answer "maybe" with 45.8%= 49 counts, of which one third had a positive intention towards the data delivery. The second-highest percentage in attitude was obtained by the answer "No" with 33.6%=36 counts, of which almost one third also had a positive intention to deliver their data.

And finally, the lowest percentage in attitude was obtained by the "Yes" answers with a percentage of 20.6%=22, of which 77% had a positive intention. In total, 42% ended up with a positive intention to deliver their data, and this shows that the hypothesis is true, since more than 70% of the people who had a positive attitude also ended up with a positive intention to deliver the data, and the people who answered "Maybe" and "No" in part also ended up having a positive intention.



Figure 9. Bar chart. - People's attitude and people's intention towards data delivery in exchange for obtaining a better shopping experience.

Table 3. Crosstabulation. - People's attitude and people's intention towards data delivery in exchange for obtaining a better shopping experience.

Do you think providing certain data when paying could enhance your shopping experience?	CROSSTABULATION				Total
	Would you be willing to provide certain information to get a better shopping experience ?				
	Maybe	No	Yes		
Maybe	21	11	16		48
No	4	20	12		36
Yes	2	3	17		22
Total	27	34	45		106

Table 4. Chi-Square Tests. - People's attitude and people's intention towards data delivery in exchange for obtaining a better shopping experience.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	29.232a	4	.000
Likelihood Ratio	28.225	4	.000
N of Valid Cases	106		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.60.

To see whether this trend is statistically significant we use the Chi-Square test of Independence (See table 4). This test “is applied when you have two categorical variables (or in our case ordinal) from a single population and used to determine whether there is a significant relationship between the two variables.”⁵⁵ With a very high p-value of 0.00, this test finds support for the rejection of our the null hypothesis which states that the two questions are independent. Thus, for our sample we can confirm the first hypothesis *“If people have a positive attitude toward data delivery, they will have a positive intent in giving their data”*.

⁵⁵ Stat Trek, 2020.

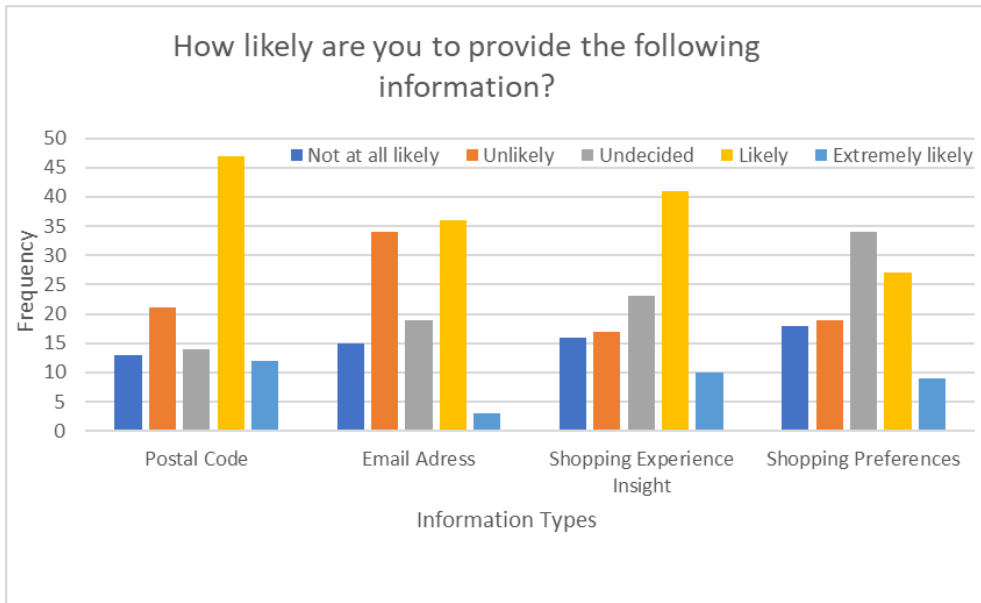


Figure 10. Willingness of people to provide their data.

To examine the third hypothesis *“People value their personal data differently depending on the data type”*, whether people value their personal data differently depending on the data type, we look at the figure 12. the question: “How likely are you to provide the following information?” with the above-shown categories and answers. From the visualization above it becomes visible that certain data is more likely to be provided especially postal code or shopping experience versus email address or shopping preferences that were less likely to be provided according to the graph.

This is also confirmed when calculating the average for each data type after transforming the categorical answers (not at all likely, unlikely, etc.) into ordinal numerical values (1,2,3,4,5). As expected “Postal code” and “Shopping

experience “have the highest means respectively (3.22 and 3.13). “Shopping Preferences” and “Email Address” have the lowest average with 2.92 and 2.79.

In order to test whether the difference in means between the different data type is statistically significant, we use the ANOVA hypothesis test which is used “to determine whether there are any statistically significant differences between the means of three or more independent (unrelated) groups”.⁵⁶

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Column 1 Postal Code	106	342	3.226.415	1.548.248
Column 2 Email Adress	106	296	2.792.453	1.308.895
Column 3 Shopping Preferences	106	310	2.924.528	1.422.821
Column 4 Shopping Experience	106	332	3.132.075	1.487.152

⁵⁶ Laerd Statistics, 2018.

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.230.189	3	4.100.629	2.844.145	0.037454	2.626.147
Within Groups	6.055.472	420	1.441.779			
Total	6.178.491	423				

As our significant p-value of 0.0374 indicates that overall, we find support for the fourth hypothesis “People value their personal data differently depending on the data type”.

Table 5. Crosstabulation by age of people who have a loyalty program membership.

Crosstabulation by age of the members of a loyalty program.

Age	No	Yes	Total
18-30	29	37	66
31-40	7	27	34
Total	36	64	100

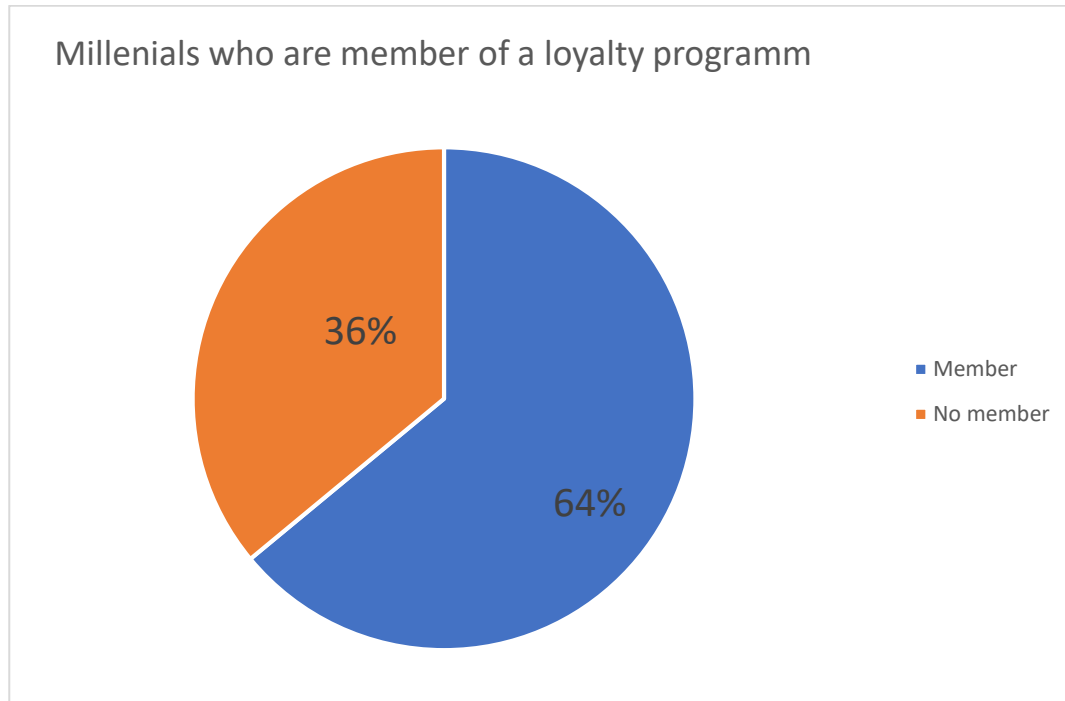


Figure 11. Percentage of Millennials who are members of a loyalty program.

In the analysis of the second hypothesis, *The majority of Millennials are members of any kind of loyalty program*, we evaluate whether the majority of Millennials are a member of the loyalty program by creating crosstabs (See table 5). Where we have the two age groups of Millennials (20 to 40) in the rows and whether somebody is a member of a loyalty program (Yes or No) in the columns (See figure 14.). The participants older than 40 have been removed before creating these graphs.

In the row for the total numbers, one can see that the participants who indicated “yes” are in the majority. The pie chart illustrates this majority. Therefore, for our sample, we can confirm the second hypothesis *that the majority of Millennials are*

a member of a loyalty program. The total number of respondents rose to 105. Of the 250 respondents, 127 were women (50.4%). In the sample, the mean age of the respondents was 25 years, with a range of 18-55.

1.7. Gap analysis

After analyzing the results of our survey, we analyzed the hypotheses of our research.

Hypothesis 1: If people have a positive attitude toward data delivery, they will have a positive intent in giving their data”.

The results show that the first hypothesis is fulfilled, since the Chi-Square Tests shows that both questions are dependent and through the bar chart we can see that three quarters of the respondents who had a positive attitude ended up with a positive intention towards the delivery of data in exchange for a better shopping experience, thus obtaining the highest percentage of intention according to its attitude. This may have an explanation in the theory of reasoned action, since there are three determinants (Attitude toward the behavior, perceived norm, and perceived behavioral control) that may have influenced in the other two responses or attitudes before they became intentions. Which leads us to think that the attitudes "Maybe" and "no" are more likely to be influenced.

Hypothesis 2: The majority of the Millennials are members of any kind of loyalty program

We can also confirm our second hypothesis, as 64% of all millennials surveyed are members of a loyalty program. This coincides with the characteristics of the millennial generation, since they are attracted to promotions that offer rewards in exchange for any comments, electronic coupons, surveys or interactions.⁵⁷ Millennials are the most loyal generation of customers.⁵⁸ This explains the large participation of people within the Millennials age range in the survey and the large percentage of them who are members of a loyalty program. However we can see in the figure 8., that the distribution of gender among people who are members of a loyalty program is very unequal, because women double the participation of men. A reward that is appreciated by one gender may be valued less or even backfire for the other gender⁵⁹

Hypothese 3: People value their personal data differently depending on the data type.

The third hypothesis is also fulfilled, looking at the average acquired by each type of data, you can see that the highest averages were obtained by the postal code and the shopping experience insight, having less preference to deliver the data of their email address and their shopping preferences. This was also supported using the ANOVA Test and observing the bar graph. This showd that people gave

⁵⁷ cf. Smith, 2011, pp. 489-499.

⁵⁸ cf. Nawalkha, 2018.

⁵⁹ cf. Melnyk & van Osselaer, 2012, p. 546.

different ratings according to the type of information. This may be because people perceive as a threat to deliver certain information, perhaps considered more sensitive information for them e.g., when sharing their email they receive too many messages to a point that it can become unpleasant and have the perception that they could not easily control it, in the theory of reasoned action is called as perceived behavioral control toward the behavior and in this case would be unfavorable.

4. RECOMMENDATION

1.7.1. Closing the gap: Incorporating gender to the Millennials' attitude toward data mining and loyalty programs as a data collector in the brick-and-mortar retailer

Given that we could confirm that people who have a positive attitude towards data delivery, are more likely to have a positive intent in giving their data, there are several suggestions we can make based upon these findings. Retailers should design their loyalty programs and data mining efforts in a way that especially address customers who generally have a positive attitude towards data delivery. On the other hand, retailers can also try to improve the attitude towards providing data with image campaigns that focus on the advantages of having more data of a customer and how that can enhance the shopping experience and at the same time ensure that his data are handled in a professional, confidential and discrete manner.

The confirmation of our second hypothesis (The majority of Millennials are members of any kind of loyalty program) indicates that special attention should

be devoted to this generation when designing loyalty program. Advantages of this generation are among others loyalty and openness. Therefore, loyalty program rather focused on this generation than baby boomers could be a worthwhile investment. This could be done by offering discounts on products that are more relevant to millennials than to other generations.

Considering the third hypothesis, we have also seen that the data type is crucial in determining a customer's willingness to provide it. As a consequence, when asking costumers about their data in a brick and mortar setting one could focus on less personalised data such as "Postal Code" or "Shopping Experience" as which can still be valuable if made use of efficiently. It can for instance provide insights into where clients live (e.g wealthy or less developed area, gives hints on income) or their experience in the shop which can lead to store improvements. To get more personalised data such as an email , a positive attitude towards it has to be created which relates to our first hypothesis. Again this can be done through ensuring that the data is managed confidentially and allowing the customer to select his email preferences on the spot as well as through making the person aware of how he or she can benefit from providing his data (e.g discounts notifications, better recommendations).

5. CONCLUSION

According to the latest research, data mining helps us to better understand consumer purchasing behavior, uncover consumption patterns and trends, improve quality and customer service, and achieve better customer retention and satisfaction. However, customers are also concerned about the use of their data,

which is why it is important to provide more information to customers about the management of their data, to convey greater confidence.

Millennials are the largest group of brand loyal customers that many generations have seen and an ideal means of collecting data are loyalty programs, their information can be used to record purchase sequences, customer loyalty and purchase trends can be analyzed systematically.

Today it is possible to predict behavior with a very high level of accuracy, which is very beneficial for industries, because predicting the behavior of their customers is easier to meet their needs. That's why this research focuses on consumer behavior and how behavior can be predicted, as well as on loyalty programs as a method of meeting consumer needs and as a means of collecting data.

According to the results of our survey, customers who are highly motivated to obtain a better shopping experience are no longer interested only in the potential purchase of the product but in the satisfaction of being able to enjoy a seamless shopping experience. Our survey had a very high participation of the millennial generation and of women, in addition it was possible to verify the correlation that exists between attitudes and intentions.

We recommend changing the consumer's attitude towards behavior in a positive way and increase the customer's perception of control over the behavior or action to be taken, through more information about how their data will be used, especially the most sensitive data.

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APENDIX

Empirical analysis survey

1. 1. Age *

Marca solo un óvalo.

- 20-30
 31-40
 41-50
 >50

2. 2. How often do you go to the physical Store ? *

Physical Store refers to stores where customers browse and make purchases in person, including supermarkets. Choose an option.

Marca solo un óvalo.

- Once a year
 Twice to 6 times in a year
 Once a month
 Once a week
 Multiple times in a week

3. 3. Do you think providing certain data when paying could enhance your shopping experience? *

Choose an option

Marca solo un óvalo.

- Yes
 No
 Maybe

4. 4. Where do you prefer to buy? *

Choose an option

Marca solo un óvalo.

- Online
- Offline (Physical store)
- No particular preference

5. 5. Would you be willing to provide certain information to get a better shopping experience? *

Such as offers customized to your needs and preferences at the right time, discounts for the day of your birthday or for your purchases, ease of exchange or return

Marca solo un óvalo.

- Yes
- No
- Maybe

6. 6. How likely are you to provide the following information? *

Marca solo un óvalo por fila.

	Not at all likely	Unlikely	Undecided	Likely	Extremely likely
Postal Code	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Email Adress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shopping Preferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shopping Experience Insight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



7. 7. What do you think might influence your decision to provide the above mention Information at the time of purchase in a physical store? *

Selecciona todas las opciones que correspondan.

- Trained Staff
- Layout
- Technology and digital tools in the store
- promotions
- Assortment
- Free WiFi

8. 8. In a loyalty program, how important are the following benefits for you? *

Loyalty Programs: A structured approach to rewarding customer actions that includes giving customers incentives for specific actions like discounts, rewards, free merchandise, collecting points or exclusive access.

Marca solo un óvalo por fila.

	Not important at all	Not important	Undecided	Important	Very important
Personalized offers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discounts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speed in making my next purchase	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having a record of my purchase history available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speed and ease in making returns or exchanges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
collecting points for future benefits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. 9. Are you a member of a loyalty program? *

Loyalty Programs: A structured approach to rewarding customer actions that includes giving customers incentives for specific actions like discounts, rewards, free merchandise, collecting points or exclusive access.

Marca solo un óvalo.

Yes

No

10. 10. Are you satisfied with your loyalty program? *

Marca solo un óvalo.

Yes

No

Maybe

I don't have any

11. 11. What gender do you identify yourself with?

Marca solo un óvalo.

Female

Male

Divers

Otros: _____

12. 15. Email in case you want to participate in the 2 vouchers of 20 euros for purchases at Amazon.

DECLARATION

I hereby declare that this thesis is my own work, that I have not presented it elsewhere for examination purposes and that I have not used any sources or aids other than those stated. I have marked verbatim and indirect quotations as such.

Ingolstadt, 13.11.2020

(Date)



(Signature)

First name, Surname Kathia Karen Zambrana Colque