

The Need for Digital Technologies in B2C Commerce from the Customer's Point of View: An Empirical Study with Focus on Sustainable Consumption

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Abstract: Digitalization and digital technologies have risen sharply in commerce in form of online offers and advice, even in formerly less technology-based sectors. By using the example of flower shops, the aim of this study is to find out whether customers perceive digital offers to be generally useful or necessary, or if local service is still sufficient. To answer this question, a quantitative survey was conducted in selected flower shops in Germany. 82 customers took part. Although most customers have not yet resorted to an online offering when buying flowers, over 66% of respondents are generally in favor of digital offers in the floristry industry.

Keywords: B2C commerce; consumer behavior; digital transformation; digitalization; sustainable consumption

1 INTRODUCTION

Over the course of the 21st century, digitalization has become a necessary step toward competitiveness for many companies. For citizens, too, digital technologies are becoming an increasingly large part of their everyday live, for example through video conferencing, robots, online offers, various technologies or diverse digital infrastructures. Digitalization can help companies in various industries to open up new markets and expand their customer base. The term digitalization covers areas such as industry 4.0, innovations that help to improve processes and workflows, e.g. online offers or the digital networking of companies and customers. Digital offerings and innovations enable a company to set itself apart from other competitors and achieve potential success. Sustainability has also to be given attention to in the area of digitalization. After all, digitalization can also have a negative impact on the environment in the form of CO₂ emissions, for example, which are produced in the IT sector or in deliveries.

During the corona pandemic, many exclusively florist businesses had closed for months, whereas garden centers or supermarkets were allowed to continue selling flowers. Especially, small and medium-sized floristry businesses experienced lower sales due to fewer walk-in customers and the loss of event decorations, e.g. for weddings, etc. [1]. Therefore, for many floristry companies the only way to survive the pandemic and remain competitive was to develop or further expand online offerings, with delivery or pick-up service.

This raises the following research question: is digitalization necessary in the floristry industry and what is the level of customer acceptance?

The aim of the theoretical and empirical study is to find out whether customers generally find a digital offering in the floristry industry useful or even necessary, or whether a local offering is sufficient. For this purpose, QR codes were laid out for a survey in selected florist stores in the German city Schwäbisch Hall and thus an anonymized survey was conducted and subsequently evaluated.

This paper is divided into three thematic areas. The theoretical foundations, the methodology and the empirical results. In the first part of the paper, the theoretical

foundations are explained and presented according to the superordinate scientific fields. The theory can be assigned to the scientific fields of behavioral economics, digitalization and sustainability management. The methodology is mostly based on a written survey, described in chapter 3. In chapter 4, the empirical results of the survey are presented and interpreted. Finally, a conclusion is drawn and an outlook on the need for further research is given.

2 THEORETICAL STATE OF THE ART

The paper covers the following three specific scientific fields: behavioral economics, digitalization and sustainability management.

Behavioral economics is a sub discipline of economics and thus belongs to the social sciences. It deals with human behavior within an economic situation, for example, how behavior can be influenced by economic parameters [2].

Digitalization is a complex consideration, which till now does not have a uniform conceptual definition. Digital infrastructures have already been known since the 1990s at the latest. Digitalization is connected to economic success and includes efficiency improvements, such as the creation of new digital ecosystems, the networking of companies and an expansion of diverse opportunities through cyber physical systems [3].

Sustainability management is a sub-discipline of economics. The term sustainability originally comes from forestry - one should only consume as much wood as the trees can grow back naturally. Today, sustainability refers to social, ecological and economic resources that should be consumed in such a way that future generations can also live well [4].

2.1 State of the Art – Behavioral Economics

Customers are looking for brands and companies with which they can identify themselves [5]. Environmental labels, for example, can positively influence the purchasing behavior of customers and raise consumer awareness. Wurster and Ladu believe that such certificates reveal

verified information on environmentally related properties, which would support consumers in their purchasing decisions and encourage them to buy sustainable products [6]. Psychologists had also found out that people primarily rely on their own experiences and would therefore sometimes be in conflict with new information. Thus, if people are not directly affected by a problem, such as climate change, they would find it difficult to comprehend the significance of this issue [7].

As a result, many would not act for environmentally friendly or sustainable reasons and often give little thought to the impact of their choices [8]. Customer loyalty has a high significance in retail. Not only towards a physical shopping store, but also with an online store, customers can build emotional bonds. Services, virtual representation and, for example, personalization options are very important for this. The creation of an emotional bond with an online store is of even greater importance right now, because after the covid pandemic, customers are happy to seek personal contact with retailers and other customers again [9]. During the covid pandemic, many retailers ventured towards digitalization and e-commerce. Even though some retailers adapted to hygiene regulations and made corresponding changes to their physical stores, customers preferred to use online offers, especially at the beginning of 2020 [10].

The buying behavior of consumers in the Internet also differs depending on the product. Products that do not represent a large investment for customers, i.e., whose purchase does not require a lot of thought, are mostly bought by feel. Decorations as well as bouquets of flowers are therefore ordered or purchased depending on the effect on the customer, without every last detail being checked in advance or compared with many suppliers [11]. When it comes to deliveries, the decision of many customers is shaped by the price and the delivery time. Although nowadays people often have the choice of offsetting deliveries and the resulting CO₂ emissions by donating money to charitable or environmentally friendly projects, many consumers still decide against this [12, 13].

2.2 State of the Art – Digitalization

The pandemic forced retailers to find new solutions in order to survive on the market. Therefore, many have integrated new processes and also (online) offers. Especially the delivery offer, online services and also interaction are very important in online retail. Changes and innovations are necessary for a company to increase its attractiveness and to be competitive in the long term [10]. Especially in recent years, the number of online orders has increased significantly.

For physical retailers, therefore, it is only advantageous to represent themselves online and thus create an expanded customer offering [14]. It is particularly important that the bond a customer feels when shopping is not lost, otherwise customer loyalty can suffer. The design and online environment with diverse functions and personalization options for consumers can have a major impact on customer satisfaction [9].

Innovations and developments such as industry 4.0 go hand in hand with sustainable development. They favor the integration of sustainability and thus, among other things, circular economy can also be promoted by industry 4.0 [15]. Circular economy seeks to close the loops of products and break the link between economic growth and exploitation [16]. Industry 4.0 technologies can promote models of circular economy, such as recycling or reuse of products. Appropriate technologies could be used to develop processes that make it as simple and efficient as possible to break down materials into their individual parts so that they can be reused for new products. Overall, linking technological and sustainable development can reduce resources such as energy and water, but also waste and emissions [17].

Soluk et al. [18] examine the role of dynamic capabilities as mediators in the relationship between family influence and digital business model innovation (BMI), as well as the moderating role of environmental dynamics. Based on unique survey data from 1,444 German companies with and without family influence, they show that knowledge utilization, risk management, and marketing capabilities mediate the positive relationship between family influence and digital BMI. Continuous renewal through innovation is essential to the long-term success of a business, including family-influenced businesses. Soluk et al. [18] report that previous studies on family businesses have already shown how product and process innovation activities essentially differ from non-family businesses. The background to this are the specific resources and often non-financial goals of family businesses.

The term "dynamic capabilities" describes the potential of companies to solve problems in a systematic and reliable manner as well as to seize opportunities through targeted further development and modification of their resource base. Among the various dynamic capabilities that exist, three specific dynamic capabilities may be particularly important in the context of digital BMI: the ability to utilize knowledge, the ability to actively manage risk as well as marketing capabilities. These capabilities are particularly noteworthy in the age of digital transformation, as they help companies to develop new customer-oriented business models and thus achieve competitive advantages [18].

Even though digitalization and digital technologies are not the core of the floristry business and service, research exists about combining the digital world with the flower industry, including supply chains, auctions and service offers [19, 20, 21].

2.3 State of the Art – Sustainability Management

Sustainability is becoming increasingly important in today's world, be it in food, packaging, automobiles or retail. Certified and sustainable products are used in order to achieve positive effects for the environment and for the common good of people and animals [22]. Often it is the poorer part of society that does not pay much attention to the issue of environmental protection or sustainability, as these people have other problems and concerns. Huckelba and van Lange emphasize the need for understandable sustainability

communication so that the importance of sustainability is comprehensible to everyone. People need to know how they can live more sustainably in their everyday life and what alternatives are available. Everyone has an obligation to think about their lifestyle and be aware of the long-term consequences for the environment [7].

Sustainability is also playing an increasingly important role in deliveries. In 2018, 9.3 billion packages were ordered and delivered in Europe alone. Since Corona, the figures have risen even more dramatically. Transport and deliveries, as well as the entire supply chain, generate huge amounts of CO₂ emissions [12].

The transport sector alone accounts for around 25% of global greenhouse gases [13]. According to various studies, the so-called "last mile" in particular generates between 30% and 50% of the CO₂ emissions generated by a product ordering process [12]. To make deliveries more sustainable, customers would have to settle for higher prices and longer delivery times. Thus, more efficient routes could be selected, drivers' working conditions and wages could be adjusted, and waste and emissions could be reduced [13]. Depending on the business sector or company size, sustainability plays a different role and is often seen as a costly challenge [23]. However, integrating sustainability can be seen as an investment and brings long-term financial benefits for the company, as the needs of the stakeholders are met and the company value can increase [24]. Young companies in particular often integrate sustainability into their corporate goals from the outset. This integration is important to make the jump to an established company and strengthen the chances of survival [23]. Retailers should also link their corporate strategy with a sustainability strategy in order to be successful and competitive [24].

Sustainability standards and labels provide more awareness and attention. For each of the three pillars of sustainability – economy, ecology and social – exist standards, some of which are represented in more than 170 countries. Sustainability standards can contain general requirements and improvements regarding sustainability in companies or, for example, serve the reporting of non-financial information. In agriculture, standards such as Fairtrade, Demeter or SA8000 can be found above all [25].

3 METHODOLOGICAL APPROACH

In a survey, random samples from a defined population are interviewed. The aim of a survey is to collect primary data on the responses of the respondents. The procedure of a survey contains the following steps: setting of a goal, defining the population, creating a schedule, considering the sample size, creating a questionnaire, conducting the survey, and finally analyzing it.

For the questionnaire, there are certain rules regarding the formulation of questions. Above all, questions should be formulated simply and briefly so that they are understandable for everyone. In addition, neutrality and a hypothetical formulation is important in order not to overwhelm the respondent. Furthermore, avoiding unnecessary personal data of the respondents as well as ensuring anonymity are very important.

Before starting the survey, a pre-test should take place to check whether the aforementioned regulations are met. A general distinction is made between open and closed questions. Open questions do not have any answer specifications and are mostly used if one expects a large diversity of answers. Closed questions, on the other hand, contain a certain number of answer options, which can also be provided with open question parts [26].

For the survey of this paper, in the period from April 7th to April 27th 2022, QR codes with a connection to the questionnaire were displayed in the florist stores "Blumen Bierbach GmbH" and "Straußbinderei Starz" in the German city Schwäbisch Hall. The stores represent small businesses as well as family businesses that only have local stores and do not belong to a big company chain like e.g. Blume 2000. They are located in the vicinity of the researchers' university and were therefore chosen due to practicality reasons. Besides that, small flower shops have been hit especially hard by the lockdowns [1] and might have limited capacities to adapt to digitalization processes. To map customers' wishes and positions on digital technologies might offer orientation for these companies to know what to focus on, when trying to change to a more digital service approach [27]. The costumers were surveyed mainly on the subject of digital technologies and offers in the floristry industry. The aim was to find out to what extent digitalization is generally desired in the floristry sector and whether a digital offering is already being used.

Straußbinderei Starz has a flower store in Schwäbisch Hall with a special focus on regionalism of their products. The company is represented online by a homepage and accepts orders by telephone. However, there is no online ordering procedure.

The family company Blumen Bierbach GmbH can be found both directly in Schwäbisch Hall and in Gelbingen. However, the QR codes were only displayed directly in Schwäbisch Hall. Blumen Bierbach GmbH offers a telephone order, delivery and pick-up service, and an online contact form can also be used to place orders.

In total, 82 customers took part in the survey and answered the standardized questionnaire with six closed questions on the scientific areas of behavioral economics, digitalization and sustainability management.

At the beginning, the questionnaire was tested in a pre-test by three experts to ensure the plausibility and comprehensibility of the survey.

The paper is based on an exploratory study to give an overview on the relevant research area. Therefore, in a first step only descriptive analyses are used. Further research should take more detailed analyses using more specific data and inductive methods as for example multivariate regression analysis.

4 EMPIRICAL RESULTS

4.1 Empirical Results – Behavioral Economics

Florists were closed for several months during the corona pandemic. Whether and where the customers bought flowers during this time is shown in Fig. 1. In total, the question was answered by 82 customers. The answer option "no" received 37 percent of the votes, 45 percent of the costumers bought

flowers in supermarkets, which were not closed during the pandemic, and only eight percent voted for the answer "online". For the category "others" the respondents were able to provide own examples of where flowers could be purchased during the Corona pandemic. Examples are gas stations and nurseries. Fig. 1 indicates that a large proportion of the customers has not purchased flowers during the corona pandemic, despite having several alternatives.

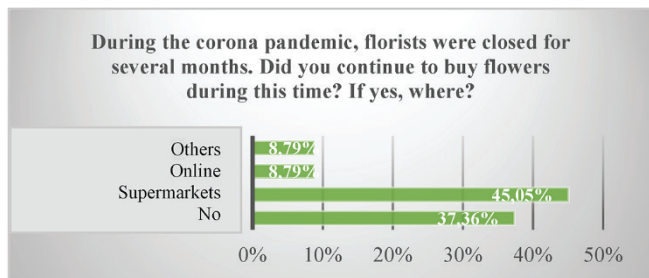


Figure 1 Where did you buy flowers during the corona pandemic?

The question whether customers have ever bought flowers online was neglected by a majority of 74% of the customers. Looking at the answer option "yes", "Fleurop" and "Blume 2000" are the most known online companies each with 13 percent of the votes. One person also indicated the online store of Floraprima. The opportunity to justify why they are using the online offer was only used by two of the respondents. The arguments given here were firstly the greater choice available in an online store and secondly the simplicity that comes with a digital ordering and delivery process. Although much more shopping was done online in general during the pandemic, this does not include the floristry industry. As indicated with figure 1, the majority of costumers continued to buy flowers in on-site alternatives during the lockdown phase. Most costumers still largely ignore digital offerings.

4.2 Empirical Results – Digitalization

The statement "an online offer weakens the bond with the local retailer" could be confirmed or declined by the costumers on a scale from 0 ("I fully disagree") to 10 ("I fully agree"). 27 percent of the 79 respondents voted for the category 10, whereas only one person voted for 0. Nine percent were neutral on this statement (see Fig. 2). Overall, more than half of the respondents agreed with the statement. Although, according to other research, an emotional bond is also possible with online opportunities, regarding the survey results, the situation in the floristry industry seems to be quite different. This result could also explain why the majority of respondents have never used an online florist offer.

As mentioned before, digitalization in the retail sector has increased in the last two years in particular, and the number of online shoppers has risen sharply. Although more than two-third of the respondents have never used the online services of florists, the clear majority is nevertheless not averse in principle to digital technologies and offers in the floristry industry. The question "does a digital floristry offering make sense in principle" was positively answered by 67 percent of the respondents.

The opportunity to make additional statements on this question in an open field was used by 23 respondents. Nineteen statements were in favor of digital technologies and offers, while three were against and one person was neutral. Reasons supporting a digital offer include simplicity due to independence of location, flexibility and a lower time requirement. Flowers can be bought outside regular opening hours or, for example, despite illness. In addition, by digital offers it is possible to send bouquets to family members and friends at a certain time or cause even if a spatial distance is present. Furthermore, the price and the selection range are called as arguments for an online offer.

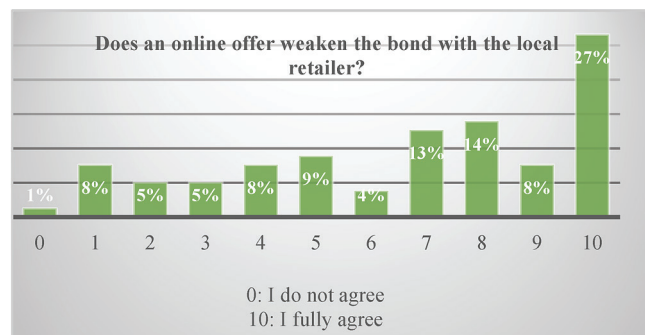


Figure 2 Does an online offer weaken the bond with the local retailer?

The following reasons speak against an online offer for the customers. Since flowers are a fresh product, the condition and quality of the flowers can best be assessed on site. In addition, the essential individual customer consultation is only possible on site. The arguments that there must be a basis of trust with the retailer and that it should be a local florist go in the same direction.

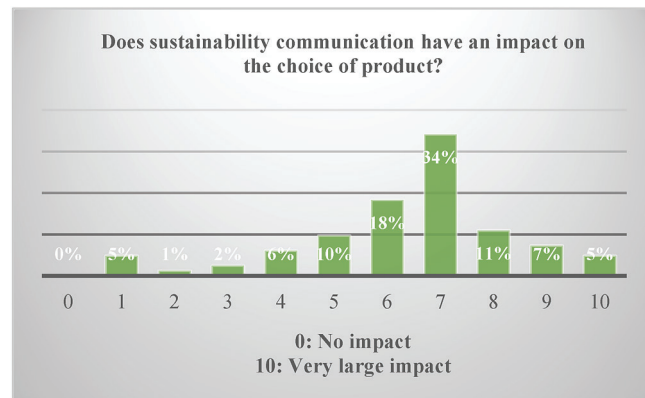


Figure 3 Does sustainability communication have an impact of the choice of product?

4.3 Empirical Results – Sustainability Management

In another question, scaled again from 0 to 10, the costumers were asked whether and to what extent a purchase decision depends on the sustainability communication of the product. The answer option 0 states that sustainability communication has no impact on the choice of product, while 10 stands for a large impact. For 5 percent of the customers, sustainability communication has a very large impact on the product choice. The answer options "0 to 4" cumulate 14 percent and the answer options "5 to 9" 81 percent of all

costumers (see Fig. 3). Therefore, the answers state clearly that sustainability communication has a major impact on the product choice of the 82 respondents.

Among other things, labels can be used to ensure that a product has been produced sustainably. The 82 respondents could indicate which labels they are looking for when buying flowers. A multiple selection was possible (see Fig. 4).

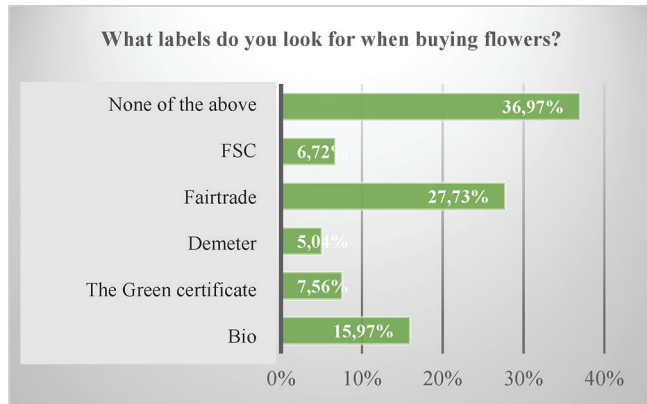


Figure 4 What labels do you look for when buying flowers?

The abbreviation "FSC" stands for the international non-profit organization "Forest Stewardship Council". The label issued by the organization guarantees that the wood used for a product comes from a sustainable and environmentally friendly production. This label can usually be found on wood and paper products. Flowers cannot be directly labeled with an FSC sign. However, it can be found on some wrapping paper for flowers. Only six percent of the costumers voted for this label. Therefore, it can be assumed that many customers either do not know what the FSC label stands for in detail, or that they extend their understanding of sustainability only to the origin of the flowers and not to the corresponding packaging material. The customers voted most frequently for the "BIO" and "Fairtrade" label, whereby the highest percentage answered "none of the above". This shows that although sustainability communication has a major influence on the purchase decision, labels are ignored by more than one third of all costumers when buying flowers.

5 CONCLUSION

Digital technologies are becoming increasingly important in today's world. Change and innovation are essential for companies to be competitive. Another essential component for a competitive company is the integration of the three pillars of sustainability: the economic, ecological and social dimension. It can also be seen in the floristry industry that digitalization is growing in importance. This is particularly evident in the increasing number of digital offerings. Following the results of this survey, most costumers are in favor of digital technologies and offers, even if the services of local retailers are still preferred. Nevertheless, the digitalization of the floristry industry should be driven forward in order to be competitive in the future.

The results of the online survey shed light on the purchasing behavior of consumers in the floristry industry.

Although most customers have not yet made use of online offers, 67% of the respondents are generally in favor of digital technologies in this sector. However, it may still take some time before online floristry offers are completely accepted. Nevertheless, the findings from this survey are in line with findings from other surveys. According to a survey among German, French, Dutch and British customers by the market research agency Motivaction, 24% of the survey participants have bought flowers and 26% have bought plants online for the first time since the beginning of the corona pandemic. About 50% of the participants rated it as positive that flower stores and garden centres offer delivery services for flowers and plants [28].

This research has shown that digital technologies and digital offers are seen as useful for many industries and companies from the customer's point of view. However, since most of the respondents have never purchased flowers online, one of the questions that arises is what factors would make online floristry offers more attractive. Further research is also needed in the area of sustainable floristry. Although sustainability generally influences the purchasing behavior of consumers, many of the customers do not pay attention to sustainable labels when buying flowers. In this context, it could also be investigated why labels receive little attention in this industry and whether more transparency or even industry-own labels would ensure more awareness and greater attention to sustainability.

Additionally, it should be noted that this empirical research only looks at the consumer side and the supply side was not surveyed. This leads to further research into the acceptance and benefits of digitalization on the part of suppliers.

Given the fact that the survey sample only consists of customers of two flower shops in one German city, the results cannot be generalized, but should be seen as exemplary insights into this branch. Additionally, people that already made use of online offers to buy flowers online were not included. To be able to generalize the findings, it would be helpful to survey a higher number of flower shops and to take locality and region (rural or urban), customer habits and age as size, ownership structure and other characteristics of the flower shop into consideration. Besides that the survey was executed at a point in time, when pandemic restrictions were still in place more or less, which impacted not only customer behavior but also business behavior and their services. As a study among US florist shops showed that almost all flower shops offered no-contact delivery service due to the pandemic restrictions. Social media marketing was used by about one third of the stores as well as similar share offered no-contact shopping options [29]. It might also be interesting to research on possible changes in customer and shopping behavior after the pandemic.

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