Climate Friendly Transport: A Study on Sustainable Trade Logistics in Multi-Channel Retail based on a Survey of Floristry Retailers in Germany

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Abstract: Retail is currently in a state of upheaval due to digitalization and the associated booming online trade. Sales figures in stationary retail are stagnating. Online trading offers advantages through convenience and quick availability that customers no longer do not want to miss. Due to climate change, retailers and customers have changed their mindset towards more sustainability. Consumers are increasingly demanding sustainable products, so retailers must act appropriately to be both digital and climate-friendly in the future. The aim of this exploratory study is to use the example of floristry retailers to analyze whether they are growing with digitalization and whether they are taking sustainable initiatives to act as climate-friendly as possible. In addition, the florists' whole value chain is examined for climate friendliness. The results of the exploratory online survey of 68 floristry businesses in Germany show that both digitalization as well as climate and sustainability awareness play a significant role in floristry retail.

Keywords: Climate Friendly Transport; Commercial Business Administration; Floristry Retail; Multi-Channel Retail; Sustainability Management; Sustainable Trade Logistics

1 INTRODUCTION

Retail is currently in a state of upheaval due to digitalization and the associated booming online trade. Sales figures in stationary retail are stagnating. Online trading offers advantages of convenience and fast availability that customers no longer want to do without. Due to climate change, retailers and customers have changed their mindset towards more sustainability. Consumers are increasingly demanding sustainable products, so retailers must act appropriately to be both digital and climate-friendly in the future.

The aim of this exploratory study is to use the example of floristry retailers to analyze whether they are growing with digitalization and whether they are taking sustainable initiatives to act as climate friendly as possible. In addition, the florists' whole value chain is examined for climate friendliness. Chapter 2 shows the literature review and is followed by the methodology in chapter 3. The results are presented in chapter 4 and the conclusion in chapter 5.

2 LITERATURE REVIEW

2.1 Commercial Business Administration

The Internet has changed the role of bricks-and-mortar retail in recent years. The momentum generated by the internet has affected the retail sector more than almost any other industry. In addition, many sectors in bricks-and-mortar retail experience low growth or even stagnate [1]. The shift from shopping in city centers to online retail platforms is causing a decline in retail sales. However, online shoppers are not automatically turning their backs on the city center; instead, they are increasingly combining both shopping options [2].

With the rapidly growing importance and power of e-commerce, it follows that conventional retailers must create new channel systems to satisfy customers across multiple channels. Management is considered a retail management technique for controlling various multi-channel channels. It occurs when two or more channels are used. Retailers who want to optimize performance for each individual channel pursue the multi-channel strategy. The boundary between online and offline shopping tends to disappear as efforts to integrate channels spread [3]. The concept of multi-channel retail can offer numerous advantages for a company. These include access to new markets, improved customer satisfaction and loyalty and the creation of strategic advantages [4]. Buyer analyses have shown that multi-channel customers generate higher sales than customers who only use one sales channel. Multi-channel creates the opportunity for retailers to reach existing customers even better and increase growth potential in the existing customer portfolio [5].

Retailers who offer more than just online or bricks-and-mortar stores will therefore be able to survive in the market. Retailers can use digital marketplaces such as Amazon to reach larger markets. Increasing network size also increases the benefits for the participants involved, for both retailers and customers [6].

Accompanied by the widespread use of e-commerce and the advance of innovative information technologies, retailers have begun to use new approaches. Information technologies such as virtual screens, virtual mirror fitting rooms, self-service kiosks, service robots, QR codes and smartphone apps are available in addition to mobile devices. Companies are actively integrating these new technologies into their business [7]. E-commerce is opening up new markets and customer groups for brick-and-mortar retailers. With the help of the internet, retailers are no longer limited to a regional market, but can tap into large markets at an acceptable cost. As a result, bricks-and-mortar retailers cannot afford to ignore online business [8].

In 2020, the Covid-19 pandemic hit Germany with full force. It is estimated that almost 200,000 retail businesses went into lockdown in March 2020. Brick-and-mortar retail is still suffering from the resulting low customer footfall. In many sectors, sales are not reaching the level of previous years. The trend towards online shopping because of the lockdown is exacerbating the crisis, especially for retailers who are not using digital sales channels. Low sales and ongoing fixed costs such as rent payments are leading to insolvencies [9].
Due to the pandemic, flower shops in Germany had to close completely over several months during two lockdowns. As a result, floristry businesses suffered financial losses and had to fear for their existence and the jobs of their employees. Due to hygiene requirements and capacity restrictions, the work processes for providing services became increasingly complex during the pandemic. According to a survey by the Fachverband Deutscher Floristen (FdF) (Association of German Florists), 73 percent of the association's members who participated in the survey said they experienced declining sales in their flower shops since the beginning of 2021, especially in federal states with lockdowns [10]. 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. [11].

In Germany, the profession of florists is assigned to the retail sector [12, 13]. In 2019, 12,310 retail companies selling flowers, plants, seeds and fertilizers existed in Germany. In this context, a floristry company employed an average of 1.9 employees in 2019 [14, 15]. Accordingly, floristry businesses in Germany can be classified as small and medium-sized enterprises (SMEs) in the enterprise typology [16].

2.2 Climate Change and Sustainability Management

Individual economies are affected differently by climate change. On the one hand, climatic changes cause direct damage to nature, while on the other hand; economic adaptation burdens arise, such as physical damage to production facilities [17]. Climate change also influences the distribution of agricultural production and thus global markets [18]. On the one hand, all these developments have an impact on goods and companies. On the other hand, economic growth is a factor in environmental pollution [19]. Holistic sustainability management is required so that companies can master the extensive challenges in the future. The target dimensions to be considered include Environment, economy, social issues, and technology [20].

Retailers are looking for sustainability in their strategic management. They are increasingly inclined to think sustainably in their regular decision-making processes. There are varieties of ways to contribute to sustainable development. One aspect of a sustainable product is sustainable or no packaging. This encourages the customer to avoid waste. Customers need support to focus on new opportunities for zero waste when shopping. Zero is symbolic, producing no waste is impossible. The basic idea here is to bring waste as close as possible to zero [21].

Companies can benefit from implementing sustainable initiatives. In addition to financial benefits, an improved brand image and stronger customer loyalty are realized. In a survey of companies, operational cost savings, increased competitive advantages and improved supplier relationships were identified as the most important benefits [22, 23].

2.3 Sustainable Trade Logistics

Since 2012, there has been a continuous increase in the transport of goods by road. Total road transport, which includes international road transport, reached a total transport performance of almost 317 billion ton kilometers in 2018 [24]. In an economy based on the division of labor and globalization, the transport sector is more important than ever. As its importance increases, so does the environmental impact of transport-related emissions.

The decarbonization of the transport sector is one of the biggest challenges in the coming years [25]. The reduction of motorized private transport and the strengthening of intelligent and integrated mobility solutions must be a central element of a climate-friendly and sustainable transport system. Shifting traffic to rail can reduce greenhouse gas emissions and energy consumption. Freight transport can also take place using electric mobility. Electro mobility is considered a central component of a sustainable transport transition [26].

Between 2000 and 2017, the number of shipments in Germany doubled from just under 1.7 billion to 3.4 billion. As a result, the number of recipients has also increased, as in online retail a pallet is divided into many individual parts and distributed directly to the customer. This contrasts with conventional retail, where the goods are delivered in large pallets to a few addresses and purchased by the customer. This creates an inefficient situation for city logistics and increases cost pressure for retailers [27]. As the products ordered online do not always meet expectations, e-commerce often results in returns. One in five purchases is returned to the retailer. This means that Germany alone accounts for almost 286 million returns per year [28]. With 280 million returned parcels in Germany, a calculated value of just under 850 g CO$_2$ per return leads to a burden of 238,000 tons of CO$_2$ [29].

E-commerce is rapidly changing the way companies manage logistics along the entire value chain, making it one of the mega-trends. While the frequency of shipments is increasing, the size of shipments is shrinking. The ubiquity of the internet creates both new challenges and opportunities for companies to serve geographically dispersed customers [30]. Logistics 4.0 characterizes the effects of the digital revolution on the transport and supply sectors. As consumer habits change, supply chains must become more dynamic and adapt to new requirements. Established logistics companies are competing with new competitors across the entire transportation spectrum. Logistics 4.0 is creating a multitude of new opportunities and solutions through digitalization and networking [31, 32].

The ever-growing acceptance and increased demand in society for green products and services is also causing a rethink in the logistics industry. Failure to act and insufficient anchoring of sustainability efforts in the strategic orientation of logistics companies can lead to permanent cost and competitive disadvantages [33]. Many logistics companies, such as DHL, Schenker AG, UPS, Kühne & Nagel, etc., are now applying the principles of green technologies in the implementation of their activities. By green logistics, they mean an effective approach to managing logistical processes and the flow of resources in order to reduce environmental and economic damage. Solutions for this are reflected in green programs, strategies, and projects [34]. Green practices that support green goals through organizational methods or techniques include, for example, eco-driving, the reduction of empty runs, the full loading of
vehicles and routing techniques to minimize driving distances [35].

In the following, five major parcel service providers in Germany (DPD, DHL, GLS, Hermes and UPS) are compared in terms of green logistics. According to its own information, DPD fully offsets unavoidable transport emissions by investing in renewable energy projects. In this way, almost one billion tons of CO₂ were offset in 2018. However, only one percent of DPD's fleet consists of alternative vehicles, i.e. those without combustion engines. DHL, on the other hand, sends its mail within Germany in a climate-neutral way as standard. The company is also attracting positive attention, particularly with the development of the electrically powered street scooter. Almost 10,000 of these environmentally friendly vans are already in use. Like DHL, GLS delivers all parcels within Germany in a climate-neutral manner.

However, only around 460 of the 23,000 delivery vehicles have alternative drive systems. UPS, on the other hand, shows only below-average environmental commitment; in 2018, CO₂ emissions increased by six percent compared to the previous year. At Hermes, absolute CO₂ emissions have remained consistently high in recent years, and there is no mention of climate-neutral shipping for private customers. The fleet conversion to alternative drive systems is only progressing slowly at Hermes [36].

DHL's GoGreen Logistics Solutions program is one of the company's innovative strengths in sustainability. Diversified innovation techniques that contribute enormously to improving fuel efficiency and reducing air and noise pollution are part of this program. In 2007, DHL set itself the target of reducing its carbon emissions by 30% by 2020. The target was achieved long before the deadline, in 2016. The interim target is to achieve a 50% reduction by 2025 with the aim of approaching, zero net carbon emissions for all transport-related activities by 2050 [37].

3 METHODOLOGY

The study design is an interplay of the above presented literature review and a quantitative survey of flower shops in Germany.

The literature analysis is based primarily on articles from peer reviewed journals that were not older than three years. Literature was searched for in the scientific areas "Commercial Business Administration", "Climate Change and Sustainability Management" and "Sustainable Trade Logistics" as well as under the keywords Climate Friendly Transport, Commercial Business Administration, Floristry Retail, Multi-Channel Retail, Sustainability Management and Sustainable Trade Logistics.

Based on the literature review the survey is used to explore new insights. Descriptive statistical procedures are used for data analysis and interpretation.

The literature research includes the indexing and processing of the documented results in the scientific fields relevant to the study commercial business administration, climate change and sustainability management as well as sustainable trade logistics. The literature review has integrated the study into the state of research. Findings documented in literature on the scientific fields of commercial business administration, climate change and sustainability management as well as sustainable trade logistics developed the three research questions (RQ1, RQ2 and RQ3) [38]. Hereby the focus was on the operationalization of relevant variables for the empirical investigation as well as on the development of explanatory approaches.

The quantitative survey of 450 randomly picked flower shops in Germany was conducted between 2th of August 2021 and 16th of August 2021. The florists were sent an email with a link to the "umfrageonline" platform, which invited them to take part in the survey. A total of n=68 businesses took part in the survey (response rate of 15.1%). Both highly standardized and structured questions were presented in the survey. This study contributes to the field of research in sustainable transport by analyzing flower shops.

The following research-guiding questions were the basis for the design of the quantitative survey and data analysis:

RQ1: To what extent are brick-and-mortar retailers already active online?

RQ2: Do multi-channel retailers source their products sustainably?

RQ3: Do multi-channel retailers sell their products sustainably?

RQ4: To what extent do multi-channel retailers see climate change as an opportunity for their company/industry?

4 RESULTS

4.1 Results Commercial Business Administration

In the first step, the florists were asked about their presence on the retail channels. None of the businesses surveyed had an exclusively online presence. 70% have a purely stationary, local presence, while 30% pursue the multi-channel approach both stationary and online.

Contrary to the findings of the literature review, according to which stationary retail is dying out, there is a clear trend towards stationary retail in the floristry industry. However, almost a third of those surveyed are also pursuing a multi-channel approach by relying on more than one sales channel. This enables them to achieve a greater reach. Of the companies that pursue a multi-channel approach, three quarters sell their products via their own online store; while a quarter choose to do so via marketplaces. None of the companies surveyed use both distribution channels at the same time.

Figure 1 Online and offline presence of retailers
The results show that florists are increasingly opting for the channel that they can best influence themselves: the online store. What is striking here is that none of the retailers chooses both the online store and the marketplace as a dual distribution channel, which could generate even more reach and influence.

In the following, the biggest difficulties for florists in online retail were surveyed. The retailers were given the opportunity to rank the challenges in order from one (greatest challenge) to four (least challenge). Half of the participants identified online marketing as the biggest challenge. Competitive pressure is seen as a minor challenge in online retail. Retailers see legal certainty and environmentally friendly transportation as the least challenging aspects.

The findings from the literature review that online marketing is considered important were confirmed by this result. With retailers stating that they see online marketing as the biggest challenge, it can be deduced that they want to focus on it and grow with digitalization.

In the next question, the florists were asked about their strategic planning for the next five years. The focus was on which retail channel they would like to pay more attention to in the future. As there are no purely online retailers, no one stated that they only wanted to focus on online retail. At 63%, hybrid retail will become more important in the floristry sector in the coming years. Just over a third will continue to focus on bricks-and-mortar retail.

A frequent response from florists was that both channels are important to them and that they therefore want to strengthen both. Others only see online retail as a supplement to their traditional business model. It was also increasingly argued that it is impossible to escape the trend towards digitalization. Some of the retailers who want to concentrate on their brick-and-mortar business in the long term do not see the size of their business as suitable for online retail. Personal contact was repeatedly mentioned, which, according to the retailers, makes the difference in the industry.

The florists were then asked about their online affinity. At around 70%, and thus the clear majority, the majority of retailers make an effort to maintain their social media presence. Almost 30% have neither a social media presence nor a smartphone app. Other retailers are increasingly offering click and collect.

It has become clear that the majority of florists are integrating social media marketing into their business. This offers retailers even greater reach to reach customers. Retailers can quickly and easily listen to customers' opinions via comments on social media and respond accordingly. Furthermore, a smartphone app does not yet play a role for florists. Costs and the time required to develop the app could be possible obstacles. The click and collect tool is the classic combination of online and stationary retail, which has already found favor in the floristry industry.

The retailers were then asked which tools they use in stationary retail. At just under 70%, customer events or events are the most popular among florists. The card service entry is only used by just under 10%, while 33% stated that they do not use either tool.
Events are very popular in the stationary floristry trade, as they provide an opportunity to promote products on site. A measure that is also possible online, but products are traded in the floristry sector that can be presented more vividly on site. In addition, events create direct customer contact and a personal exchange, which can be a further factor in customer acquisition. It should not go unmentioned that customer events and functions have only been possible to a limited extent, if at all, over the past year and a half due to the coronavirus pandemic. However, the card service entry, which can be used to gain additional reach via Google, is hardly popular in the floristry industry.

Sustainable or no packaging when selling their products is very important to 33% of florists with a score of ten. Followed by just under 15% at nine and 30% at eight, florists show an environmentally friendly attitude here. Only 5% see no real relevance in sustainable packaging.

With an arithmetic mean of 7.7, the florists show a high level of environmental awareness when selling their goods. The value shows that retailers try to sell their products in the most climate-friendly way possible by using sustainable or no packaging. This also avoids waste.

4.2 Results Climate Change and Sustainability Management

In the first question, the floristry businesses were asked to what extent they see their company affected by climate change. At just under 90%, almost all businesses see themselves affected by natural-physical events, such as extreme weather events. This is followed by 69% who see themselves affected by market events, such as changes in demand, and just behind them 61% who see themselves affected by regulatory events, such as laws and regulations.

The results show that businesses see themselves affected by climate change through a wide range of measures and events. Extreme weather events are assigned a high level of importance in the floristry sector - due to the agricultural industry. Furthermore, the discussion of climate change is reflected in the realization that none of the companies does not see themselves affected by the specified criteria.

The second question analyses the extent to which floriculture companies are trying to counteract climate change. Almost all the companies surveyed promote domestic, local production. Almost 75% of businesses use alternative raw materials, while 50% use climate-friendly technologies and 39% reduce their CO₂ emissions.
Just under a third each see incentive, pro-grams for products or the creation of new business sectors as opportunities.

10% of retailers each use GLS and Hermes and 5% use UPS or others.

The result shows that florists do not rely on the big names in the parcel service sector for the most part. The first major parcel service provider that is used the most is DHL. As the Literature Review shows, DHL has emerged as the parcel service provider that is considered the most climate friendly. By using this parcel service provider, florists can make an environmentally friendly contribution.

In the following figure, the florists were asked what reasons motivate them to choose a parcel service provider. Almost 90% stated that none of the reasons mentioned were decisive for their choice of service provider. In each case, 11% of retailers choose the service provider because it promotes electromobility, because it promotes renewable energies or for other reasons, such as parcel size or performance. None of the retailers uses the service providers because they deliver parcels by bicycle.

The retailers were then asked to what extent returns play a role in their business. The result concludes that all retailers surveyed have to arrange returns less than three times a month.

The literature review has shown that returns can play a significant role in greenhouse gas emissions. In the floristry sector, this does not apply - probably due to the freshness aspect of the goods. The clear result shows that retailers do not, or hardly ever, have to deal with returns.

4.3 Results Sustainable Trade Logistics

The retail model used by florists is analyzed here. The majority of retailers use their own warehouse. Retailers who do not use any of the trading models mentioned follow this. A small proportion of 13% use drop shipping, while 5% of retailers rely on the just-in-time model or fulfillment.

This result confirms the theoretical finding that the majority of retailers rely on their own warehouse, despite the potentially considerable costs involved. By having their own warehouse, florists are able to manage order processing themselves at all times. This is the most significant advantage of having your own warehouse. Fast order processing always ensures customer satisfaction. Drop shipping, the JIT model and fulfillment have not yet found favor in the floristry industry, which may be due to the product traded in this sector.

The florists were then asked which parcel service providers they integrate into their logistics processes. The majority of retailers (60%) stated that they do not use any of the service providers mentioned. This is followed by 40% who use the services of DHL, followed by DPD with 20%.
The following question analyzed how florists get their products transported. The majority of retailers, 93%, receive their products by road. Air and sea freight each account for 43%. Rail transport falls slightly behind with a value of 18%.

The result illustrates that road transport is the main mode of transportation in the floristry industry for the delivery of goods; almost every floristry business relies on this mode of transportation. Just under half of the companies use air transport in addition to sea freight, while a small proportion of retailers only use rail transport, which is considered particularly environmentally friendly, (18%).

In the last question, the florists were asked about the radius within which they procure their products. A third of the retailers procure their goods within a radius of 51 to 100 km, closely followed by the local radius of up to 50 km (29%). Just under a quarter of retailers procure their goods within between 101 and 500 km. The greatest distance, between 501 and more than 1000 km, is claimed by 15% of retailers.

The last result of the online survey shows that retailers mainly source their products locally or regionally. This shows that the majority of florists avoid long transportation routes. However, 38% of retailers also procure their products from a radius of 101 to more than 1000 km, which means long and costly transportation routes. It can be concluded that the majority of florists contribute to sustainable procurement by preferring short transport routes of up to 100 km.

5 CONCLUSION

5.1 Summary

To gain a precise insight into the challenges and opportunities of climate-friendly multi-channel retail, the study presented here conducted a survey of florists in Germany in the form of an online survey based on the literature review. The literature review shows that less and less attention is being paid to bricks-and-mortar retail and that online retail is benefiting as a result. Retailers cannot escape the trend towards digitalization and must act accordingly to avoid being squeezed out of the market. The aspect of corporate sustainability is also becoming increasingly important. Companies can combine economic success with sustainability.

The survey results showed that more than two thirds of florists are increasingly opting for the stationary approach, while only one third of retailers are pursuing the multi-channel approach. However, over the next five years, more than two thirds of retailers want to focus more on a hybrid sales channel. Of the smaller proportion of floristry businesses that are active online, 75% rely on their own online store, while 25% rely on retail platforms (RQ1). Just over half of florists procure the products they need locally and regionally (RQ2). This is mainly done via road transportation. Just under half of the retailers procure their products by air and sea freight. Florists only rarely use rail transport. By looking at the end of the value chain, it becomes obvious that climate friendly distribution of their products is important to florists (RQ3). Both the green image and sustainable packaging were given very high importance by the retailers.

In addition, more than half of the retailers integrate sustainable products into their range. It can therefore be concluded that both digitization and sustainability awareness play a significant role for florists. As many negative aspects as climate change entails, the clear majority of florists can also see opportunities in it. Due to the rising climate, they can imagine growing products that are otherwise only native to southern climes. The companies also see the profiling opportunities associated with an incentive program for green products as a perspective (RQ4).

5.2 Discussion and Limitations

As the study shows, the floristry industry has not yet assigned online retail the importance that has been identified in the literature. Only just under a third of retailers are represented in online retail - combined with bricks-and-mortar retail (RQ1). An exclusively online business model was not found among the florists surveyed, which may be due to the products traded. In terms of long-term strategic orientation, however, the majority of retailers see themselves on the hybrid path. This may also be linked to the fear that future crises such as the coronavirus pandemic will occur more frequently and that bricks-and-mortar retail may not
take place at all or only to a limited extent as a result. Both the relevance of a green image and the importance of sustainable packaging and the integration of sustainable products were considered significant in literature and empirical studies. Retailers can contribute to environmental sustainability through these measures. The predominantly local and regional procurement of florists can be done for both sustainable and economic reasons (RQ2). This could not be fully clarified by the empirical data.

Regardless of this, the conclusion is that local and regional procurement means that fewer tons-kilometers are covered, resulting in lower CO2 emissions. Retailers mainly transport their products by road, which is particularly harmful to the environment. Slightly less than half of the florists receive their goods by airfreight, which has the highest CO2 emissions. Just under 40% of retailers receive their goods by sea freight, which generates very low CO2 emissions when using an inland waterway vessel. In the area of product transportation, it can be deduced that retailers can act in an even more climate-friendly manner. When choosing a parcel service provider, almost half of the florists stated that they use the services of DHL. DHL is currently considered the service provider that is working most effectively on its green, sustainable programs. By choosing DHL as their parcel service provider, retailers can make a climate-friendly contribution. (RQ3).

The aim of this study was to find out to what extent retailers in the floristry industry are positioned for the future regarding digital and ecological issues. The results in sustainability show that florists are taking climate change seriously. None of the retailers stated that they were not affected by climate change. The importance of corporate responsibility from the literature review was partially confirmed. (RQ4).

5.3 Implications

The Literature Review shows that digitalization is an ongoing process that will play an increasingly important role in retail in the future. Retailers need to think about the extent to which they want to equip themselves for the future and which digital topics are relevant to them in the floristry industry. The increased environmental awareness of consumers, who are prepared to accept a price premium for environmentally friendly products, offers retailers new possibilities and opportunities to build a sustainable green image.

The results of the survey have shown that floristry businesses will generally focus on both digital and ecological topics in the future. Nevertheless, the results presented raise further questions. One aspect that requires further empirical investigation is the retailers’ stated long-term digital orientation. The reasons why retailers would like to become digital in the future, in the form of online retail, need to be explored here. In the area of green retail, retailers also stated that they attach great importance to a green image. In this context, it would be interesting to investigate which measures retailers would like to use to create this image. In addition, further research into environmentally friendly transportation is required to obtain a clear and meaningful result. For example, when delivering products by sea, a distinction must be made between simple inland vessels and large freighters, and in road transport between combustion and electric vehicles, in order to be able to derive a climate-friendly trend. It would also be important to investigate the extent to which floriculture companies can influence the choice of electric cars by their logistics service providers.

6 REFERENCES


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