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Transforming Local Retail – A Case Study from Germany

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Abstract: Fueled by the SARS-COV-2 Pandemic, hybrid business models that combine online and offline sales channels have become indispensable for the survival of retailers. Local retail in particular shows a strong need for improvement to maintain economically strong and attractive city centers in the future. In the context of a case study from Aachen, Germany we derive, combining qualitative and quantitative research methodologies, factors that influence the retailers' intention to use multiple sales channels in a local context. We find five main factors influencing the local retailers' intention to use multi-channel tools. In addition to financial and time-related obstacles, we observe that there is a critical company size that has a negative impact on the integration of different sales channels, while a low technology anxiety as well as the degree of involvement in further digitization activities influence the usage intention positively.

Keywords: Local Retail, Multi-Channel, Usage-Intention, Local Economy, Retailer Perspective, Case Study, Germany, Retailer Behavior

1 Introduction

The SARS-COV-2 pandemic has massively accelerated the shift of stationary retail to digital channels (Accenture 2021; Hofacker and Langer 2020). The displacement of small and local retailers has become the key transformation challenge of city centres. Dying inner cities are no longer a rarity, which results in vacant sales areas, less personal exchange, weakened local product diversity, aggravating social as well as economic problems (Hamm et al. 2020). However, the local economy is of great importance for the economic strength and innovative power of a city. It provides jobs and thus supplies a basis for the change of cities adapted to new living, behavioural and shopping habits. Furthermore, it fulfills a central supply function for the population living there. (Hamm et al. 2020; Gruninger-Hermann 2017). Especially rural areas, the midsized cities and regions in the vicinity of large cities are suffering from structural changes (Hamm et al. 2020; Hesse 2019; Neiberger 2020). A prediction of the Institute for Trade Research (IFH) postulates that the number of local retailers in Germany will further decrease by 64,000 until 2030. This is more than a quarter of the approximately 226,000 registered retailers in Germany (IFH Köln 2020).

This structural change is particularly influenced by transforming customer behaviour. Even though most customers still value brick-and-mortar shops, especially for the opportunity of serendipity (Heinemann et al. 2019; Accenture 2014), it also can be observed that shopping is done increasingly via digital and online channels. While in 2010 only 53% of the EU-wide internet users have been online shoppers, in the year 2020, this proportion was already up to 73% and in Germany even up to 87% (Statistisches Bundesamt 2020).

However, this does not mean, that only online channels have experienced a boost in consumer demand. The value of local showrooms to online competitors have been discovered to serve as billboards and brand ambassadors as well as offline experience providers for online sold products (Bell et al. 2018; Kang 2018; Samuel et al. 2020). Consumers are demanding multiple channels for their shopping experience (Gallino and Rooderkerk 2020) to switch between the merging boundaries of the virtual and physical world (Güsken et al. 2020; Verhoef et al. 2015). Resulting from this, the combination and integration of online and offline channels, also called multi-channel or omni-channel strategies, have become a key success factor for retailing (Karray and Sigué 2021).

The combination and integration of online and offline elements requires specific strategic approaches as well as new retailing concepts and new urban designs. Because of knowledge gaps about how such strategies are designed and rolled out, especially small, local and owner-managed retail stores are very challenged and often remain behind retail chains (Hamm et al. 2020; Neiberger 2020). To approach the design of liveable city centres and help local retail to be preserved, it is imperative to support the development of transformation strategies for local retail (Neiberger 2020). The reasons for changing and dying city centres have already been extensively investigated in the context of studies on structural change in the retail sector (Hamm et al. 2020; Hesse 2019; Neiberger 2020).

Nevertheless there has been little research on how new retail approaches can look like that support local retail, and what requirements and preconditions retailers have that influence the intention to use them (Jäger 2016; Chopra 2016; Gruninger-Hermann 2017). To this end, the factors that influence the intention to use local multi-channel strategies must first be identified. From this point, strategies for local multi-channel applications can then be designed. This paper elaborates factors influencing the retailers behavioural intention to use multi-channel strategies. For this, we use the city of Aachen in Germany as a case study and observe the ongoing shift in stationary retail. From the data of the Aachen retailers, we derive a hypothesis framework that reveals acceptance factors and their potential influences on the adoption of multi-channel strategies in local contexts. The focus of our research lies on small, owner-managed retail businesses in the region of Aachen in Germany. The case of Aachen serves as a starting point for our explorative approach. Following up on this research, the challenge will be to transfer the results to national and international contexts.

This paper is structured as follows: In Section 2 we describe the current knowledge on (local) multi-channel strategies, consumer behaviour and challenges of local retail. In Section 3 we explain our research approach and our process to identify the digitalization status of local retailers. In Section 4, we subsequently present results from our online survey and qualitative workshops that have been conducted within the context of our case study. We then interpret the results of the survey in Section 5 and present potential influences on the retailers behavioral intention to use multi-channel strategies in local contexts. The paper closes with an outlook on further research in Section 6.

2 Current Understanding

Current research regarding the transformation of local retail can be considered and discussed in relation to three research streams: (1) multi- and omni-channel strategies, (2) retailer and shifting consumer behaviour and (3) transformation challenges of local retailers.

Multi- and omni-channel strategies
Multi- and omnichannel research discusses the opportunities of how to connect online and offline sales channels (Cai and Lo 2020). Multi-channels are defined as the possibility for customers to “use a combination of different sales channels to request services from a provider. At least one channel must represent stationary trade and another channel must represent traditional internet trade. It is thus a combination of different sales channels under the same marker that a customer can use to request the services of a provider” (Böckenholt et al. 2018, p.13). Resulting from this a strategy can be called a multi-channel strategy if at least two channels – one stationary and one digital – exist. These two (or more) channels do not have to be integrated with each other and can be controlled independently (Verhoef et al. 2015). In addition, omni-channel retailing is an extension of the multi-channel strategy and describes the complete integration of various online and offline sales channels (Bailey 2020). “Omni-channel management is the synergetic management of the numerous available channels and customer touchpoints, in such a way that the customer experience across channels and the performance over channels is optimized” (Verhoef et al. 2015, p.176). In order to operate omni-channel retail, it is therefore first necessary to establish multiple purchasing channels. Since the use of a wide variety of shopping channels in local and stationary retail is currently still lacking (Hamm et al. 2020; Hesse 2019), the definition of multi-channel forms the basis for this research project.

In the context of multi-channel, research is primarily being conducted on how to combine online and stationary channels. Customers increasingly expect product offerings to be identical across all channels (Wernet 2021). It is evident that the full integration of purchasing channels is currently only practiced by large companies, as they are able to

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invest the necessary resources (time, knowledge, finances) (Hell 2015). Another area of research focuses on the benefits and challenges of using multi-channels for retailers. For example, it has been shown that offering multiple channels leads to an increase in sales per customers. Other aspects such as investment costs, employee retention, data integration and data protection are highlighted as challenges. (Cui et al. 2021; D'Hauwers et al. 2020)

Retailer and consumer behavior

In the field of consumer research, much of the existing literature focuses on the shopping experience, shopping behaviour as well as technical usability and acceptance (Gizycki 2018). Research is being conducted on how consumer online information search behaviour leads them to make purchasing decisions (Kruse Brandão and Wolfram 2018), how consumer behavior is strongly influenced by the need for convenience, which is especially reflected in the demand for fast shipping (Heinemann 2017) and about the consumers demand for individually tailored products and prices customized to them (Heinemann et al. 2019). It is shown that older people (above the age of 65) are increasingly becoming online shoppers and that not just younger target groups (below the age of 65) can be reached through online channels (Blok et al. 2020). Nevertheless, with increasing online possibilities, there is a growing demand for a shopping experience in which products can be touched, tried out and experienced (Samuel et al. 2020). That is why the combination of online and offline channels is what addresses the consumer's needs best (Samuel et al. 2020; Spreer and Gutknecht 2015).

As a result of changing customer needs and the intensity of competition, the pressure on retailers to adapt to new technological possibilities is growing. In this context, research is concerned with technology acceptance by retailers, which is considered as a major challenge especially for small local retailers (Spreer and Gutknecht 2015). In Germany, family-run stores dominate the retailer structure. They tend to take a conservative approach to technological innovations, viewing them skeptically or ignoring them (Böckenholt et al. 2018). It has been pointed out that small retailers often display a technology-related barrier and a general rejection of technology-induced change, which creates insecurity on the side of the retailers, particularly due to their lack of knowledge of how to deal with new technology (Spreer and Gutknecht 2015). The fear of change is also driven by the fear of losing advisory quality and the loss of employment (Schreiber 2020).

Transformation challenges of local retailers

In analyzing the research on transforming local economies, it becomes apparent that the impact of digitalization on local retail has not yet been extensively researched. Nevertheless, it has been pointed out that local retailers have not enough technological knowledge and financial resources to actively shape the cityscape and keep the appeal of local shopping economies alive (Herrmann and Genth 2017). Research also indicates that especially small local retailers struggle with the innovation of their traditional business models especially when it comes to the utilization of the opportunities of digitalization such as the adaption of multi- and omni-channel strategies (Bailey 2020; Böckenholt et al. 2018; IHK 2017). Other challenges include the lack of the perception of the value of customer data as well as data quality, data processing costs and data interpreting skills (D'Hauwers et al. 2020). However, some local retailers are already offering multiple sales channels to their customers. Since these are often inadequately integrated into the existing business model or the business model has not been adapted to the new organizational needs in the connection with multi-channel strategies problems are often reported in the handling of customer data, price management as well as supplier and brand management (Böckenholt et al. 2018). A recent study by Ziehe and Schüren-Hinkelmann even shows that poor channel integration can lead to the cannibalization of proprietary channels, especially for the channels with higher margins (Ziehe and Schüren-Hinkelmann 2020).

The current literature thus outlines that local retailers are experiencing difficulties in adapting to new digitalization strategies, but approaches to resolving these problems are scarcely discussed. In particular, research on local multi-channel approaches is currently non-existent. Looking at the advantages of multi and omni-channel strategies, a local multi-channel strategy can bring many benefits which help small retailers to remain viable against high-turnover retail chains. This is important to keep city centres vibrant and provide consumers with an irreplaceable shopping experience. Nevertheless, multi-channel strategies require a general and holistic rethinking as well as willingness to change within the retailers in order to create competence and acceptance for the transformation of sales and its processes from both the retailer and customer perspective.

3 Research Approach

As outlined in Section 2, there is still little knowledge about the use of multiple sales channels and their strategic linkage in local retailing. Likewise, the factors that influence retailers' intention to use and combine different digital and non-digital sales channels in local contexts are still unexplored. Nevertheless, as various technology acceptance research reveals, the usage intention plays a central role in the success of the adoption and introduction of new digital tools (Davis et al. 1989; Fedorko et al. 2018; Juaneda-Ayensa et al. 2016). In order to work out the multi-channel strategies that may support the local retail trade, it is therefore necessary to first identify the factors that have a core influence on the adoption of new digital sales channels in local retailing. As not much research regarding this has been undertaken, we follow an explorative approach combining quantitative and qualitative methodologies (see Figure 1). We chose an online survey for the quantitative data collection, serving two goals: first, to assess the status-quo of the digitalization and technology acceptance of retailers and second to validate and expand the information collected through our qualitative data collection. For the qualitative data collection, we conducted five workshops with local retailers.

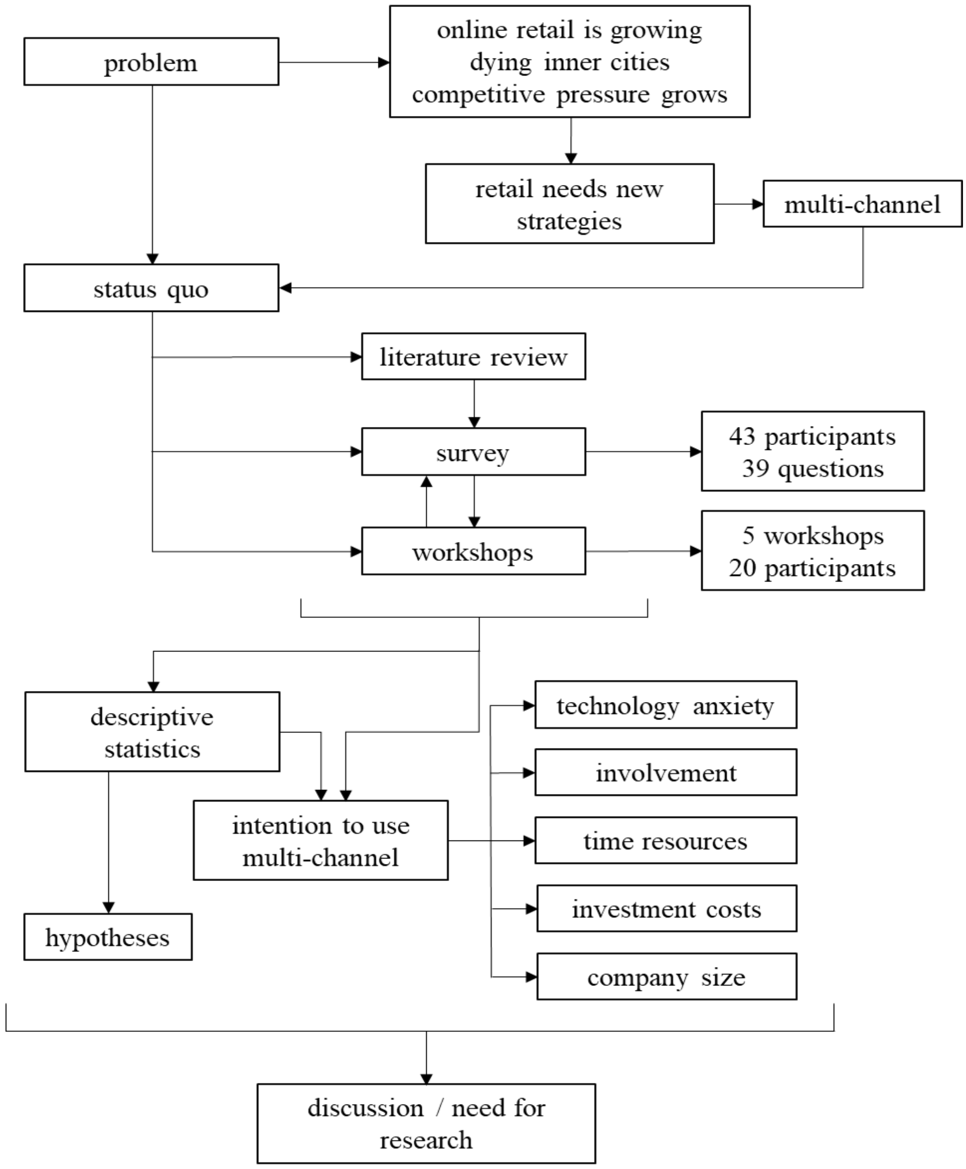

Figure 1 Research Prodecure

Workshops

In order to survey the status quo of the retailers digitalization efforts as well as their digitalization challenges, we conducted 5 workshops each with 20 retailers from our case study region, the city of Aachen in Germany. Each workshop was held under a separate topic and consisted of three parts: impulse lectures, discussion and mini-surveys. The workshops were recorded and subsequently qualitatively analyzed using a deductive approach following the documentary method (Bohnsack et al., 2013). The workshop topics as well as key questions discussed are presented in Table 1.

Table 1: Workshop Contents

Workshop Topics	*Key Questions*
Challenges of Digitalization in Retail	• What are the difficulties with digitalization? • Who are your customers? • What service do your customers expect?
Requirements for Multi-Channel Tools in Local Contexts	• Which digital tools are important to you? • Which support do you need?
Online-Marketing	• What are you already doing to present your business professionally to the outside world (stationary and digital)? • Which online media/channels do you already use?
ERP Systems & In-Store Appointments	• How do you offer an instore appointment? • If a digital tool is used, which one do you use?
Digital Retail Technologies	• What are the barriers of using further digital retail technologies and sales channels?

Online Survey

The online survey was conducted with 43 local retailing companies from the city of Aachen in Germany. It was carried out in German language via the online software "Unipark" by questback over a duration of 2 months. The quantitative data was analyzed using descriptive statistics and cross-tabulations to reveal undiscovered connections between the individual factors surveyed. The questionnaire contains 39 questions elaborating 8 topics:

1. socio-demographic data
2. business types and sizes
3. products and customers
4. status quo digitalization
5. the willingness to invest in digital technologies
6. perceived barriers of digitalization
7. technology acceptance
8. assessment regarding the use of different online services

The items and their corresponding scales used for surveying topic 1 to 6 are based on a study examining local economies (IHK 2017). The elaboration of the technology acceptance is based on the Technology Usage Inventory (Kothgassner et al. 2012). In topic 8 the participants were asked to assess different multi-channel solutions regarding their awareness and potential usefulness. These solutions have been derived and discussed in the first qualitative workshops previously to the online survey.

We collected the essential characteristics of the retailers to get an overview of the type of the operating mode, sector, position, number of employees, sales, age of the business and the number of locations of the shops. In this context, we also asked about the information that retailers possess and use regarding their own customers. With this, we aimed to find out which marketing strategies are already in place and how the products are geared towards the customers. Furthermore, we wanted to understand to what extent digital multi-

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channel and retailing tools are already deployed. Central questions revolved around whether there is an online shop, which digital communication channels or techniques are used and which sales channels are available.

To be able to assess the attitude towards technological innovation we surveyed personal attitudes towards technology as well as technology anxiety, technology interest (Kothgassner et al. 2012) and perceived barriers for the implementation of digital retailing tools. To put these attitudes in relation to concrete digitalization activities, we explored the retailers' willingness to invest in digital tools and multiple sales channels. The main focus was to find out whether digitalization strategies or projects already exist in the company and whether there is a predefined budget for investments in digital tools. In a last step we surveyed the level of knowledge regarding digital retailing tools and the usage of multi-channels as well as the need for further training. Ultimate goal of the survey was to find requirements, needs and influences that retailers are facing, when it comes to establishing multi-channel strategies in local contexts.

4 Results

In the following, the core results of the qualitative workshops are presented, followed by the main results of the survey. The results presented form the basis for the discussion and derivation of the hypothesis framework on factors influencing the behavioral intention of local retailers to use multi-channel strategies.

Workshops

The core results of the five workshops are shown in Table 2.

Table 2: Key Results from the Workshops

Workshop Topics	*Key Results/Key Challenges/Key Requirements*
Challenges of Digitalization in Retail	• Response times: Customers are used to getting an immediate response and local retail can't compete with that • Assistance for the introduction of digital instruments is needed • Not losing the contact to the customer
Requirements for Multi-Channel Tools in Local Contexts	• Assistance in how to digitally reach the customers • Overview of which digital options are available at all • Networking and collaboration with other retailers • Usability of technological tools • Assistance in the introduction and use of new multi-Channel technologies

Table 2: (continued) Key Results from the Workshops

Workshop Topics	*Key Results/Key Challenges/Key Requirements*
Online-Marketing	• Most used marketing channels are Instagram, Facebook, WhatsApp and the own website • Mostly only the basic functions are used because there is no more knowledge about how to do it even better
ERP Systems & In-Store Appointments	• Great uncertainty about the use of ERP systems, especially about which system should be used, what costs need to be budgeted for and how it will be integrated into everyday working life • Appointments (particularly relevant during SARS-COV-2 lockdown) are mainly made by telephone or directly in-store • Digital tools are used only sporadically, as there is a high degree of uncertainty about how this works
Digital Retail Technologies	• Time, investment costs and lack of knowledge are the greatest obstacles to the use of new digital retail technologies

Online Survey

The survey sample includes 43 retailers from the Aachen region in Germany. Their demographic profile (age, gender, education) is shown in Table 3. The age group 46-60 years is slightly overrepresented in the sample, whereby this corresponds to the current retailer structure of the region. The gender ratio is balanced and over 50% of the respondents reported having an academic degree.

Table 3 Profiles of the Respondents

Characteristics		*Results in %*
Gender	Male	41.9
	Female	55.8
Age	18 - 25	2.3
	26 - 35	9.3
	36 - 45	14.0
	46 - 60	**55.8**
	> 60	18.6
Education	Secondary school or equivalent	4.7
	Advanced technical certificate or general university entrance qualification	14.0
	Professional education	16.3
	Academic degree from a technical college/university	**51.2**

Table 4 shows the retailer structure regarding the type and size of the business, target groups and sales are reflected. 81.4% of all examined retail stores are owner-managed. The most strongly represented sector is fashion, clothing and textile retail. 56% of the stores surveyed have 1 to 9 employees. The turnover of the stores is mostly below 150,000 euros and while the number of products offered ranges between 100 and 500.

Table 4: Retailer Structures (multiple selection possible)

Characteristics		*Results in %*
Operating Mode	Specialised retail (non-branched)	**46.5**
	Specialised retail (chain stores)	4.7
	Specialist store	0
	Craft	18.6
	Owner-managed retail	**81.4**
	Department store	2.3
	Online retail	**23.3**
	Hypermarket	0
	Shipping of goods	4.7
Sector	Clothing	**39.3**
	Office supplies	**14.3**
	Household supplies	10.7
	Foods	10.7
	Furniture & living	10.7
	Household, house & garden	7.1
	Electronics	7.1
	Drugstore	0
	Entertainment	0
Position	Managing director	**81.4**
	Permanent employee	4.7
	Temporary employee	2.3
Number of Employees	One-person retail	11.6
	1 - 9	**55.8**
	10 - 30	20.9
	> 100	2.3

Table 4 (continued) Retailer Structures (multiple selection possible)

Characteristics		*Results in %*
Sales	< 150.000 €	**25.6**
	150.000 € - 199.999 €	14.0
	200.000 € - 499.999 €	**23.3**
	500.000 € - 1,9 Mio. €	18.6
	2 Mio. € - 4,9 Mio. €	9.3
	5 Mio. € - 10 Mio. €	2.3
	> 10 Mio. €	2.3
Number of Offered Products	1-50	**25.6**
	100-500	39.5
	800-5000	18.6
	12000-100000	16.3
Offered Products	Antiques & art	9.3
	Clothing, shoes, bags & leather products	**34.9**
	Flowers & plants	7.0
	Glasses & contact lenses	9.3
	Books & newspapers	11.6
	Drugstore items	2.3
	Photo & equipment items	2.3
	Information & communicaton technologies	7.0
	Household items	14.0
	Pharmacy items	0
	Medical/ orthopaedic products	4.7
	Music	0
	Food & beverages	11.6
	Sports equipment, outdoor & bicycles	4.7
	Watches & jewellery	**32.6**
	Other	**18.6**
Age of the Customers	16-25 years	4.7
	26-35 years	**46.5**
	36-45 years	**46.5**
	46-65 years	**53.5**
	> 65	9.3
	No specific age group	34.9

The digitalization profile of the retailers surveyed shows a high degree of dispersion, which can be seen in Table 5. 37% of respondents stated that they already carry out digital marketing adapted to their individual target groups, which is performed in particular via the company's own website (83.7%), Googly My Business (83.7%) and email marketing (37.2%). 47% of the retailers surveyed offer their own online shop in addition to their stationary retail store. It is particularly noticeable that only half of the retailers surveyed work with inventory management systems (ERP systems) for organizing their own inventories.

Table 5 Digitalization Profiles of the Respondents

Characteristics		*Results in %*
Customers grouped?	Yes	41.9
	No	58.1
Adapted marketing	Yes	**37.2**
	No	2.3
Infrastructure	Internet in store	97.7
	Online shop	46.5
Use of sales channels	Stationary retail	**95.3**
	Own online shop	**44.2**
	eBay	2.3
	Amazon	0
	Other online marketplaces	9.3
	Local online marketplace	2.3
	Weekly market	0
	Cooperation	**11.6**
Use of digital communication channels & techniques	Website	83.7
	Google-My-Business	83.7
	E-mail-marketing	37.2
	Search engine optimisation	41.9
	Search engine advertising	23.3
	Facebook	74.4
	Instagram	79.1
	Twitter	0
	Pinterest	9.3
	Own application	2.3
ERP/Inventory management system	Yes	**55.8**
	No	**44.2**

In surveying attitudes toward new technologies, technology anxiety and industry-specific obstacles, a large proportion of respondents stated that they were very open to digitalization (48.8%) and had a high level of knowledge on the subject of digitalization (25.6%). Lack of time resources (65.1%) and high investment costs (39.5%) were cited as the main obstacles to implementing technological innovations. However, this contradicts the finding that only 23.3% perceive a lack of financial resources as an obstacle to the implementation of digital technologies. The survey results also show that 86% of retailers surveyed do not have an explicit budget for digitalization activities. Further indications of barriers to digital innovations are shown in Table 6.

Table 6 Respondents' Personal Attitude Towards Digitalization and Knowledge Status

Charasteristics		*Results in %*
Personal attitude towards digitalization	Very sceptical	2.3
	Sceptical	2.3
	Rather sceptical	2.3
	Neutral	7.0
	Rather open	4.7
	Open	32.6
	Very open	**48.8**
Knowledge regarding digitalization in stationary retail	Low	4.7
	Rather low	9.3
	Neither	**32.6**
	Rather high	14.0
	High	**25.6**
	Very High	11.6
Equipped for the challenges of Digitalization	Very bad	2.3
	Poor	4.7
	Rather poor	2.3
	Neither	**30.2**
	Rather good	**23.3**
	Good	**23.3**
	Very good	11.6

Table 6 (continued) Respondents'Personal Attitude Towards Digitalization and Knowledge Status

Charasteristics		*Results in %*
Barriers to the implementation of digital tools	Lack of time resources	**65.1**
	High investment costs	**39.5**
	Lack of competences	**30.2**
	IT security	9.3
	Legal uncertainty	**25.6**
	Lack of technical standards	20.9
	Lack of qualified employees	9.3
	Lack of broadband access	7
	Lack of employee acceptance	0
	Lack of financial resources	**23.3**
	Lack of relevance to customers	4.7
Budget for investments in digital tools	Yes, we have a separate budget	7.0
	We do not have an explicit budget for this	**86.0**
Existence of digitalization strategies or projects	No, and it is not planned	11.6
	No, but it is planned	16.3
	Yes, there are strategies/projects, but they are not documented	**53.5**
	Yes, there are documented strategies/projects	11.6
Information needs	Education by experts	**58.1**
	Workshops & trainings	**69.8**
	E-learning	**46.5**
	Information events	20.9
	Networks with other retailers	37.2
	Newsletter	4.7
	Flyers/brochures	2.3

In the outcome of the surveyed results regarding technology anxiety and technological involvement (see Table 7), it is noticeable that 14% of the respondents are skeptical in their first contact with new technical devices despite being open to new technologies. It can also be seen that 21% of retailers describe a low level of commitment to driving forward digitalization measures independently.

Table 7 Respondents' Technology Anxiety & Involvement

Characteristics		*Results in %*
I often worry that new technical devices might overwhelm me	Does not apply at all	30
	Does not apply	30
	Tend to not apply	23
	I don't know	6
	I tend to agree	7
	I agree	2
	I totally agree	2
When I'm asked to use a new technical device, I'm suspicious at first	Does not apply at all	30
	Does not apply	35
	Tend to not apply	9
	I don't know	**12**
	I tend to agree	4
	I agree	**10**
	I totally agree	0
I find it difficult to trust technical devices	Does not apply at all	35
	Does not apply	35
	Tend to not apply	17
	I don't know	5
	I tend to agree	6
	I agree	2
	I totally agree	0
The idea of doing something wrong when using technical equipment scares me	Does not apply at all	44
	Does not apply	42
	Tend to not apply	4
	I don't know	0
	I tend to agree	2
	I agree	5
	I totally agree	3
In the course of my life, I have acquired a lot of technical knowledge	Does not apply at all	3
	Does not apply	7
	Tend to not apply	5
	I don't know	16
	I tend to agree	14
	I agree	30
	I totally agree	25

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Table 7 (continued) Respondents' Technology Anxiety & Involvement

Characteristics		*Results in %*
When a new technical device comes into the market, I inform myself about it	Does not apply at all	5
	Does not apply	7
	Tend to not apply	28
	I don't know	12
	I tend to agree	7
	I agree	28
	I totally agree	13
I always try to get up-to-date information about new technical developments	Does not apply at all	5
	Does not apply	12
	Tend to not apply	**26**
	I don't know	5
	I tend to agree	16
	I agree	20
	I totally agree	16
I keep myself informed about technological developments	Does not apply at all	5
	Does not apply	16
	Tend to not apply	7
	I don't know	5
	I tend to agree	18
	I agree	35
	I totally agree	14
My commitment to driving the topic of digitalisation forward myself is …	Very low	2
	Low	5
	Rather low	**14**
	Neither	**21**
	Rather high	26
	High	23
	Very high	**9**

5 Interpretation

As core results of the online survey and the workshops we derive four main hypotheseses and one hypothetical moderating relationship regarding the influences on the intention of local retailers from Aachen to use multi-channel tools (see Figure 2). Each hypothesis is explained in more detail below.

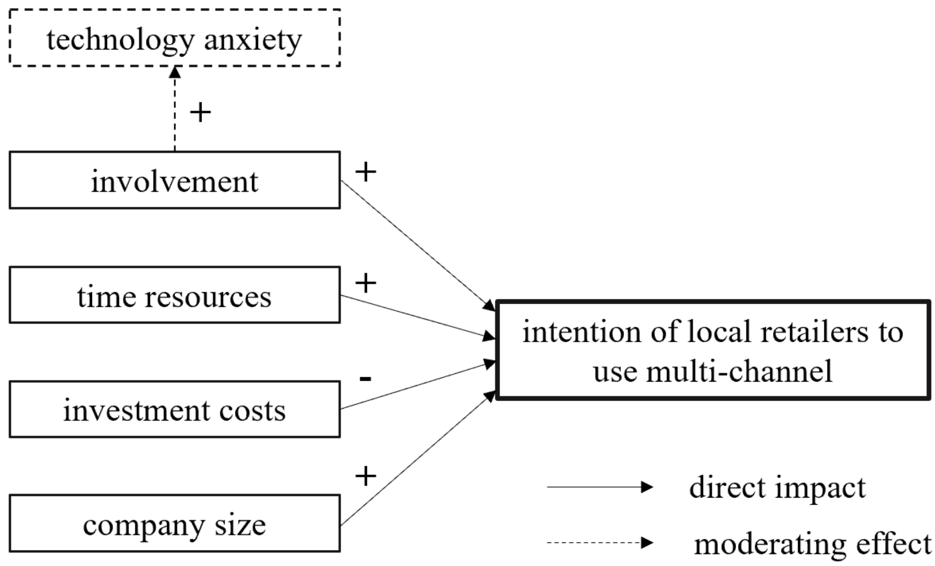

Figure 2 Intention of Respondents to use Multi-Channel Tools

H1a: Involvement influences the local retailers intention to use multi-channel tools

We describe *involvement* as the extent to which the local retailer has already dealt with the topic of multi-channel and digitalization tools for retail and continues to do so, i.e. how interested the retailer is in local multi-channel developments. Under this factor we subsume questions regarding the knowledge levels on the digitalization of retail, commitment to digital developments, and intention to start or continue education in this regard.

Our results show that there is an influence of involvement on the intention to use multi-channel tools, but the results are not clearly positive or negative. The following observations lead us to conclude that there is a rather positive relationship between these two factors. This assumption needs to be clarified in further studies:

- 80% of the respondents that deploy a webshop in addition to their stationary store (and therewith already started their way to use multiple sales channels) assess their own level of knowledge in the digitalization of retail as high. In contrast to this, 100% of the retailers that assess their digitalization knowledge as low, do not deploy an own webshop.
- 40% of the respondents state that they train their employees in the subject of digitalization in retail, further 26% state that they plan to train them.

- 52% of the surveyed retailers regularly inform themselves about current digital developments in the retail trade. However, we can also oberve that 42% of the respondents are not informing themselves about digital developments. Out of these, 66% even assess their own level of digitalization knowledge as rather low.
- 58% of the respondents state that their own commitment to driving digitalization forward in their own retail business is rather high (26%), high (23%) or very high (9%).
- 50% of the respondents rate their knowledge regarding digitalization in stationary retail as rather high, high or very high, 30% of the retailers evaluate their knowledge as neither high or low. 14% rate their knowledge as rather low or low, which negatively affects the openness to use multiple sales channels.

Combining these results, we hypothesize that retailers who are more involved in digital retail developments (knowledge, commitment, education, usage of tools) are more likely to engage in multi-channel efforts.

H1b: Involvement influences perception of technological anxiety

Technology anxiety is described as evoking anxious or emotional responses through the use of digital technologies. It can provide information about whether people feel overwhelmed by technical devices of all kinds or are afraid of doing something wrong when using them (Kothgassner et al. 2012).

Our data shows that retailers who engage in digitalization training and regularly keep up to date with the latest developments in digital retailing show less technology anxiety. 91% of the people regularly engaging in digital training and information have no fear of new technologies and find it easy to familiarize themselves with new technological tools. None of them has expressed fear of doing something wrong when dealing with new technologies. In contrast, 38% of the retailers who do not regularly undergo further training show uncertainties in dealing with new technological applications. 24% even report being afraid of new technologies, having trust issues, and being afraid of doing something wrong.

H2: Time resources positively influence the retailers' intention to use multi-channel tools

Insufficient time is the main obstacle for the adoption of digital measures. 65% of retailers cite missing time resources as the main barrier. However, we also know from our workshops that an additional employee to make up for the missing time is too high an investment for the retailers. Our results also disclose that especially those retailers who do not use digital tools yet, are struggeling with time resources. 62% of those who do not have an online shop report that they do not have the time to deal with digital solutions on top of their current work.

H3: Investment costs have a negative impact on the retailers' intention to use multi-channel tools

Another strong obstacle in connection to implementing digitalization measures, described by 40% of retailers, are high investment costs. However, as a lack of financial resources is seen as an obstacle by only 23% of the respondents, we assume that the initial investment costs for digitalization measures have a massive deterrent effect. This is supported by statements from the workshops in which investment costs were discussed critically, especially when the outcome of the investment is not foreseeable. Nevertheless, 7% of the surveyed retailers have a designated digitalization budget for digitalization projects.

H4: The size of the company has an influence on the intention to unse multi-channel tools

Our data shows that the larger the company, the more businesses deploy their own online shop in addition to their stationary store. For example all retailers that own more than one stationary store have their own online shop, whilst 61% of the retailers that only own one store have no online shop. we have also been able to identify a critical retailer size. From all retailers with a size of one to nine employees, only 50% have an online shop. we hypothesize that this particular company size is a difficult transitional size in which an online store would be helpful to grow further. Nevertheless, companies of this size doe not manage to implement online channels due to a lack of time resources. 79% of all retailers in this company size report lack of time resources as a core obstacle to the implementation of digitalization activities. From this, we assume that companies of this intermediate size in particular need special support to tackle this disadvantage.

6 Contributions, Further Research & Limitations

With this research we exploratively investigated what factors from local retailers from the city of Aachen potentially influence the intention to engage in multiple digital channels. Previous research has mainly focused on consumer behavior and the factors that lead them to their purchase decision. However, research from the perspective of retailers is scarce and research related to local trade is almost non-existent (Spreer and Gutknecht 2015). With this work we contribute to a better understanding and the knowledge about local retailers, their obstacles and behavioral intentions to use multiple sales channels. In doing so, we lay the foundation to help them innovate their business models.

Previous research has highlighted investment costs, data integration and data protection as particular barriers and challenges for multi-channel retailers (Cui et al. 2021; D'Hauwers et al. 2020). With our research we can confirm these findings in the case of Aachen. Furthermore, we assume that there is a critical retail size in the local context when it comes to multi-channel adoption and potential growth. Retailers in Aachen with between 1 and 9 employees have greater problems allocating their personnel resources to integrate different sales channels. This is where external support is needed to help overcoming this critical hurdle. We were also able derive that 20% of the retailers are not yet committed to driving digitalization forward in the retail sector itself. The results of our workshops indicate that this is due to overwhelming challenges, as too many options increase complexity and make the scope of action for retailers seem endless. Future research should focus on how to improve engagement in own digitalization efforts.

Contrary to existing research, our dataset gives no indication that the size of the turnover of local retailers is related to the existence of an online store. our finding contradicts current research, which postulates that more sales channels lead to more revenue (Heinemann et al. 2019; Griffin et al. 2017). In the local context in particular, the integration of new channels must therefore be viewed critically and examined in further research.

In the context of this research, we are operating exclusively within a regionally limited case study. This case study serves as a starting point for our research and makes it possible to

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derive initial hypotheses about the behavior of local and stationary retailers in Germany. This explorative approach takes particular consideration of the still very young stage of this research stream. However, the results of the presented online survey display a very small regional sample and therefore do not claim to be complete. At this point, however, it should be emphasized once again that this work pursues an exploratory approach and the results presented should therefore only be regarded as first steps. Further research needs to consider a much larger sample size and overcome the regional limitation. An international comparison could also yield interesting results. Furthermore, the difficulty of the validity of qualitative studies lies in their very nature. Thus, with the available data of this research, it is only possible to make a first assumption about the existing influences. In order to be able to derive concrete measures that support local retailers in introducing digital technologies and multiple sales channels, further studies are required.

One approach to achieve this could be the project called "Hybrid Retail". In this project a living laboratory is being set up in cooperation with local retailers. Within the scope of this project, digital tools are jointly developed and tested. All participating retailers receive support, based on their level of digitalization, to try out and offer multiple purchasing channels. In this way, the difficulties identified in this research (time resources, knowledge, financial resources) can be overcome. Furthermore, the factors that contribute to the success of the integration of different sales channels in local contexts are identified.

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