

Article

Predicting the Use of Chatbots for Consumer Channel Selection in Multichannel Environments: An Exploratory Study

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Abstract: Online consumers are increasingly looking for more convenient ways to purchase products and services, and chatbots are becoming increasingly popular in multichannel environments due to their ability to provide an efficient service. In this context, managing digital complexity with the help of artificial intelligence and supporting decisions in a multichannel context is an appealing perspective for the retailer, who must find the right strategy to win and keep customers online. The present empirical study aims to better understand consumer behaviour in the multichannel environment in the context of four categories of products and services (retail banking, mobile communications, fashion, and consumer electronics) from the perspective of identifying determinants of channel selection when the consumer uses chatbots. Data were collected from 936 respondents with multichannel retail experience to conduct an empirical investigation on social media platforms, including Twitter, Facebook, and Instagram; these data were then analysed using structural equation modelling (SEM). We found that the online consumer’s multichannel behaviour was not only a reality in the field of broad purchasing decisions but already a norm, and consumers had good reasons to use more channels in the context of chatbots. Research results suggest that chatbots can represent a decision-making aid for managers in retail companies who want to develop an efficient and optimal logistics service strategy in multichannel environments.

Keywords: decision makers’ objectives; multichannel; retailing; consumer behaviour; platform strategy; customer experience



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1. Introduction

Online platforms are increasingly characterised by high-customer and -competition dynamics, including faster product life cycles, mixed product ranges, and the spread of omnichannel or cross-channel concepts [1,2]. The extent of this change in online customer behaviour is most accurately depicted by the following statistic: 15 years ago, only around 7% of customers used more than four touchpoints when making an online purchase; by contrast, the current number stands at nearly 50% [3]. In this context, given the increasing differentiation in interactions between global corporations and consumers, the Internet has emerged as an essential channel, encouraging the development of multichannel management as an individual corporate function [1–3].

With the expansion of online sales channels and the increasing complexity of communication channels, virtual communities are now playing a significant role in all other value chain processes, as noted by the authors of [4,5]. Consequently, the consumer’s perspective on online channel selection behaviour has taken on significant importance [4–6]. Nevertheless, the differentiation of online information, communication, and channels between consumers and retailers represents one of the biggest challenges in recent years [2,5,7–9].

Within this particular setting, modern systems based on artificial intelligence for inventory control or consumer channel selection in multichannel environments offer initial

and promising answers to current challenges [5,10,11]. The utilisation of chatbots in customer and distribution channels gives rise to the possibility of engaging with a wider range of customer segments, bringing about various changes in the range of products and services offered [10–12]. Moreover, chatbots can play the role of communication channels depending on their characteristics [13–15]. In addition, multichannel retailers have developed algorithms for themselves that allow them to adjust their online strategies over short periods based on consumer demands. By using a multichannel system, online shoppers should obtain the right offer at the right time and be able to make more suitable choices within the system [16–18].

To meet consumer demands, many companies have also started using chatbots to engage customers across multiple channels [19–22]. This has allowed companies to expand their reach and create a personalised customer experience [23–25]. Similarly, the creative elements of campaigns were also analysed to understand consumer's attitudes toward the advertisements. Shumanov and Johnson [26] believe that to derive the most out of multichannel chatbots, companies should give customers the power to choose. This allows customers to select their preferred channel for engagement, creating a more personalised experience.

Moreover, these changes are customised to suit specific target groups or individual channels, as shown in several studies [22,26,27]. Different product lines have various priorities when it comes to the use of online touchpoints. Furthermore, the advent of self-publishing opportunities for internet users has resulted in a multichannel context for online retailers and consumers to communicate and share their content, as well as their personal knowledge and experiences [28–30].

Therefore, the field of e-commerce has been fundamentally transformed by the advent of chatbots [31–33]. While these have undoubtedly brought on many positive changes, there are also negative consequences that customers deal with when interacting with these technologies [34–36].

Given the dynamics driven by the utilisation of chatbots in channel usage, it is clear that previous empirical findings on multichannel consumer behaviour are only valid for a limited period of time [22–25,36]. Regular empirical studies are needed in order to take into account changes in channel selection behaviour, as well as to ensure that accumulated knowledge is updated, especially when chatbots are also used.

Meanwhile, considering different product and service categories in terms of their influence on online channel selection behaviour is of great interest to retailers and service providers when designing multichannel systems [37–40]. It is worth noting, however, that in the area of information channels, where the phenomenon of online channel proliferation has progressed the most, issues regarding the use of chatbots for consumer channel selection in multichannel environments are consciously or unconsciously ignored. In order to contribute to the existing research in this area, the present empirical study addresses the following research questions:

RQ 1: What is the impact of chatbots communicating with customers when they choose a channel?

RQ 2: Is there a connection between online consumer behaviour and chatbot personality?

RQ 3: What criteria should retail companies consider when evaluating chatbot solutions for customer service?

To answer these questions, online channel selection decisions are evaluated according to product/service category differentiation criteria, and the resulting consequences for determinants of the selection decision are presented. This approach was taken due to an increased tendency toward product and service differentiation and the dynamics of multimedia channels of information used due to technological innovations that amplify the complexity of selection decisions. In the context of this study, the term channel implies that retailers operate the channel themselves or have the authority to issue instructions for an externally operated channel, and it covers both text- and voice-based customer service chatbots.

This article provides contributions to the domain of research concerning attitudes toward using chatbots for consumer channel selection in multichannel environments. Firstly, the integrative model regarding the attractiveness or selection of the channel used in this study includes constructs such as chatbots in customer communication, the quality of a channel's offer, the security of using the channel, consumer satisfaction, the ease of using the channel, and the attractiveness of the channel. Also, this paper discusses the option regarding the quality of one and the same channel, which could vary depending on the field of activity, product, or service.

Second, the results of this study enrich the theoretical and conceptual aspects of specific multichannel online strategies in multichannel retail. Additionally, the aim of this study is to build a bridge between theory and practice regarding the relevant determinants of channel selection in the context of online purchase decision-making processes when using chatbots. As such, establishing the customer categories determined by channel use could provide multichannel providers with significant information that might be used in the formulation of an online channel strategy. According to this study's findings, online consumers continue to select information channels, using chatbots for further channel differentiation, and the benefit of AI from the retailer's perspective is in requirement planning, demand forecasting, the potential for automation in logistics, the dynamic adjustment of prices, and chatbots in customer communication.

This paper continues as follows: Section 2 focuses on the development of the literature review and hypotheses; Section 3 outlines the research methods and model utilised in the study; the next sections cover findings from the empirical research, as well as the implications that followed. Finally, the paper ends with a summary of the study's conclusions.

2. The Literature Review and Hypothesis Development

The trend of integrated AI development also applies to the behaviour of using information and communication offers in mass media, posing entirely new challenges for retail communication design [30–33]. The daily confrontation of consumers with an uncontrollable number of communicative stimuli in the online environment causes changes in their reception and processing of this information [37]. In retail practice, there is a growing recognition that AI must be integrated into the overall concept in order to increase the capacity for communication capacity and exploit synergies across all available web channels. Of particular relevance for retail communication is the phenomenon of increasing multidimensionality in consumer behaviour [5,12].

In the literature, the use of chatbots has become increasingly widespread in the realm of customer service because they provide the capability to offer a more convenient, engaging, and distinctive substitute for conventional customer service [31,41–43]. According to Ashfaq et al. [23], the quality of information and services provided to customers can lead to greater satisfaction. McLean and Osei-Frimpong [43] found that chatbots can assist companies in delivering high-quality services, resulting in benefits such as word-of-mouth referrals and customer satisfaction. Therefore, chatbots are mostly used in instant messaging as digital voice assistants and in conversational interfaces with online customers, but few studies [23–25] have examined the actual use of chatbots in channel selection.

Additionally, the proliferation of artificial intelligence in e-services has rendered the use of chatbots commonplace, particularly in the arena of electronic commerce. For instance, Shumanov and Johnson [26] claim that customers often express dissatisfaction with online purchases due to perceived deficiencies in assistance, social connection, and human counsel. Therefore, the integration of conventional customer care with the ease of online buying offers an optimal approach that can enhance the conversion rate and attract prospective customers.

Regarding comprehensive investigations of the specialised literature and the multi-channel environment, a number of authors [7,43] have shown that actions are needed to reduce coordination and complexity problems and demonstrate concrete contributions to the success of new tools and media. To reduce these problems, many leading e-commerce

companies have started to facilitate the sale of products by outsourcing logistics services to third-party providers, which is known as the third-party logistics strategy, or by establishing an independent logistics network through which to distribute the products, known as the autonomic logistic strategy [44]. While keeping this in mind, Chen et al. [45] argued that by adopting an autonomous logistics strategy, the e-commerce platform could minimise the cost of logistics services, resulting in a higher consumer surplus compared to the third-party logistics strategy.

According to Parboteeah et al. [17] and Xiao et al. [27], multichannel retailing systems have been a firmly established component of the retail industry for a sizable amount of time. In the views of Jocevski et al. [40], as well as Pantano and Viassone [46], the multichannel consumer definition revolves around a selection of channels as part of a coherent purchasing process. Furthermore, it is important to note that consumers typically do not rely on a single reason for their purchasing decisions, instead opting for a combination of factors, as acknowledged by the authors of [3,44–46]. In the context of online purchasing decisions, consumers are guided not only by their own preferences but also by the behaviours of those associated with them [47,48]. High-channel involvement is generally associated with proactive behaviour, while low involvement results in more reactive behaviour based on exogenous stimuli. More and more consumers are intensively using various multimedia information channels, especially in the information phase, before purchasing or concluding a contract [1,49,50]. The reasons for choosing a channel are based on the personal characteristics of the consumer and the product or service to be purchased, while the online shopping options available are determined by market conditions and the quality characteristics of relevant retailers.

Prior studies [8,40,46] have also measured consumer decisions in multichannel environments. Some authors emphasise that purchasing decisions should not be understood as consumer attitudes that are stable over time because the same consumer may have completely different purchasing motives. For example, Yu et al. [51] underlined the fact that, in the context of channel selection, functional shopping motives, primarily oriented toward utility, are relevant; meanwhile, non-functional motives, such as the desire for social interaction or leisure activities, must be neglected, especially when there is a specific need to the consumer.

To summarise, in view of our study, the management of digital complexity and decision support in a multichannel environment are two significant areas of focus. First, the significance of chatbots in electronic markets is explored. Secondly, the perspective of retailers is considered, emphasizing the necessity of formulating effective strategies and making informed decisions in order to attract and retain online customers.

2.1. Quality of the Offer in Multichannel Retail

The quality of the offer in multichannel retail refers to the quality of the product/service offered online in the channel. In the pre-order stage, the quantity of information provided is the most important [27,52]. In addition, in previous research [53–56] on channel selection behaviour, interactive channels could adapt to the presentation of real-time information at any moment, superior to static information media in this evaluation dimension. The breadth and depth of online offerings play important roles in assessing the quality of channel offerings, as well as individual retailers. Moreover, the options to influence or customise multimedia information and services offered on a channel based on personal interests can play an important role in meeting the needs of consumers [51,55]. In addition, the Internet offers significantly better price transparency due to the almost unlimited supply and price comparison tools offered in the channel, which is why many consumers end up with a preference for using the online channel [55–57]. Consequently, the research hypotheses are as follows:

Hypothesis 1 (H₁). *The quality of the offer in multichannel retail positively influences the attractiveness of the channel.*

Hypothesis 2 (H₂). *The quality of the offer in multichannel retail positively influences consumer satisfaction.*

2.2. Perceived Ease of Use in Multichannel Retail

The focus of this construct is often encountered in the online purchasing process and targets opportunity, time, space, and effort [18,27,57,58]. An easy-to-use and easily accessible information channel is associated with time saved for the online consumer [58–60]. The ease of use of a channel is particularly relevant for channels without direct contact with retailer employees. Additionally, the location-independent aspects of the Internet may be particularly relevant to consumers if the purchase of certain products or services involves a corresponding expenditure of time [61–64]. Specifically, the perceived ease of using the channel, the opportunity to explore a certain retail offer, and the facilitation of conditions, such as the purchase of products or services, have a significant relationship with consumer satisfaction [65–69]. As a result, the study hypothesises that the following:

Hypothesis 3 (H₃). *Perceived ease of use in multichannel retail positively influences the attractiveness of the channel.*

Hypothesis 4 (H₄). *Perceived ease of use in multichannel retail positively effects consumer satisfaction.*

2.3. Security of Using Multichannel Retail

The security of the electronic storage of personal and financial data upon purchase came with the use of the Internet as an additional channel for remote transactions [70–72]. Thus, in recent years, a lot of emphasis has been placed on the introduction of secure transaction techniques and the obligations of responsible data use [73–76]. With these obligations in mind, the aspects regarding the security of multichannel retail must be further considered from the consumer's point of view [39]. Hence, it can be stated that the security of use in the multichannel environment has an impact on the attractiveness of the channel or on the probability of channel selection:

Hypothesis 5 (H₅). *The security of using multichannel retail affects the attractiveness of the channel.*

2.4. Consumer Satisfaction

In addition to channel needs in a given situation, previous online experiences with certain information and sales channels can also influence future channel use [20,23,31,67,73]. If consumers have previously had particularly positive (or negative) experiences with that channel, they also transfer those experiences to the new online purchase flow available in the relevant channel [48,76,77]. The link between past channel satisfaction and future channel use can be so strong that, in a given online shopping situation, a channel used in the past is even more popular than a channel that objectively promises greater benefits to consumers [73–77]. Online consumers' prior satisfaction with the channel can also be characterised as a complex construct that requires independent investigation: the channel's own expectations thus spill over into prior channel experiences and perceived quality attributes at the time of purchase [59,62,64,78–81]. This leads us to the following hypotheses:

Hypothesis 6 (H₆). *Consumer satisfaction in multichannel retail positively influences the attractiveness of the channel.*

Hypothesis 7 (H₇). *Consumer satisfaction in multichannel retail positively affects channel selection.*

2.5. Chatbots in Customer Communication

In recent years, the literature has given chatbots increasing recognition as a significant technological trend that bolsters customer service [25,42,61,82,83]. Chatbots have emerged as an innovative medium of customer interaction [83,84], leading to studies analysing their impact on business outcomes, with a specific emphasis on customer service. According to the research presented in [25], customers tend to use chatbots for more extended periods of time when the chatbot's personality aligns with their own. Other studies have shown that customers prefer chatbots when it comes to simple and routine questions [23,78]. Indeed, chatbots can improve customer experience, provide fast and personalised responses to customer questions, handle multiple customer interactions at once, and operate 24/7, giving customers access to support at any time [14,31,78]. This can help reduce customer wait times and improve efficiency. However, there are also counterarguments that suggest that chatbots cannot completely replace human representatives, might not be suitable for all types of businesses, and are unable to provide a seamless customer experience, as some customers may prefer to interact with human representatives for sensitive issues [57,68]. As a result, chatbots may not be able to integrate seamlessly into all multichannel environments [1,22]. Chatbots may also not be able to provide the same level of service quality across all channels. In their research, some authors [15,25,35,78] discovered that an individual's attitude towards chatbot-based services had a significant impact on their intention to use them and, conversely, a negative experience with chatbot interactions resulted in a decreased intention to use such services.

Equally, through the continuous analysis and linking of consumer data based on their current reactions, a permanent optimisation of individual planning and control of chatbots in customer communication processes can take place [24,34,37]. The different forms and levels of integrated communication characterise the possibility of achieving the general standardisation of communication through the integrated coordination of online communication tools, means, and channels. It should be emphasised that communication through dialogue with consumers is not an independent communication tool but rather a way of using interactive multimedia forms or existing communication tools [9,37]. Due to the object-related nature of this construct, the online consumer using chatbots in their communication can be influenced, both in terms of channel attractiveness and channel choice, as follows:

Hypothesis 8 (H₈). *The use of chatbots in customer communication in multichannel retail positively affects consumer satisfaction.*

Hypothesis 9 (H₉). *The use of chatbots in customer communication positively affects perceived ease of use in multichannel retail.*

Hypothesis 10 (H₁₀). *The use of chatbots in customer communication in multichannel retail positively influences the attractiveness of the channel.*

Hypothesis 11 (H₁₁). *The use of chatbots in customer communication in multichannel retail positively influences channel selection.*

2.6. Attractiveness of the Channel

As internet speeds continue to improve and online offerings become more abundant and of higher quality, the prevalence of digital channels only increases, further bolstered by the continued evolution and dissemination of disruptive technologies [12,45,56]. Channel evaluation is primarily based on the channel's quality attributes compared to the current buyer's personal goals or shopping motives [27,57,80,81]. Similar to the classical utility maximisation hypothesis, the consumer chooses the channel that provides the highest utility. Previous studies [8,18,27,61] in the multichannel context support this hypothesis of a direct positive connection between perceived channel attractiveness and channel choice.

Depending on the product or service category, purchasing stage, and individual situation, personal channel preferences may vary depending on the perceived attractiveness of the channel in each situation. In this context, retailers need to understand situation-specific channel preferences as much as possible to best align their channel's product and service offerings with online consumer demand. Therefore, the following hypothesis is assumed:

Hypothesis 12 (H₁₂). *The perceived attractiveness of the channel plays a significant role in channel selection.*

Control variables include demographic characteristics (gender, age, and education level) that significantly impact consumer channel selection in multichannel environments when chatbots are used [12,35,48,64]. Figure 1 illustrates the conceptual model for this research, which is based on a review of the literature and hypotheses.

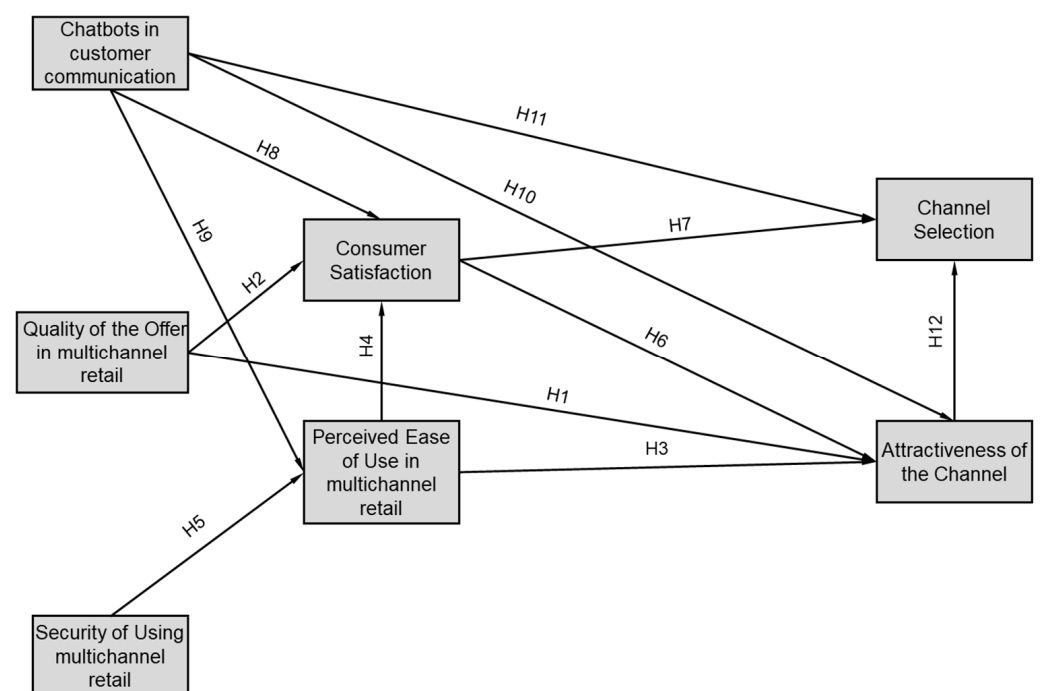


Figure 1. Conceptual model.

3. Research Methodology

The use of online surveys is especially useful in the multichannel area, and a prerequisite is consumer familiarity with the Internet channel. This questionnaire's items were derived from previous research [4,14,20,34,39,82] with modifications. The study model, which includes influencing factors (quality of the offer, perceived ease of use, security of use, consumer satisfaction, chatbots in customer communication, and attractiveness of the channel) with multiple items, was evaluated using structural equation modelling (SEM). We estimated structural models with AMOS 22.0 using the maximum likelihood method to test the proposed research hypotheses.

Table 1 presents the measurement items and descriptive statistics for each variable.

Table 1. Measurement model results.

Constructs	Items	
Quality of the offer in multichannel retail (QO) [52,55,56]	QO 1	The information about the offers available on the channel is always up to date.
	QO 2	Transparency is maintained throughout the distribution of the information.
	QO 3	The channel provides a complete overview of all products that interest me.
Perceived ease of use in multichannel retail (PEU) [18,27,58,62,63]	PEU 1	The channel provides me with comfortable and convenient information options.
	PEU 2	Using the channel allows me to adapt exactly to my personal needs.
	PEU 3	When I use the channel, I can always obtain the latest products/services.
	PEU 4	My life is more convenient due to digital channels.
Security of using multichannel retail (SU) [70–72]	SU 1	When I use the channel for purchases or post-contract services, the security of my personal data is guaranteed.
	SU 2	During the process of shopping, customers who use digital channels have access to support available.
	SU 3	The security of the funds in the transaction at the time of payment is important.
Consumer satisfaction (CS) [20,31,67,73,77]	CS 1	Most customers, like myself, are pleased with our interactions with retail.
	CS 2	I am satisfied with making use of a variety of different channels.
	CS 3	Multichannel shopping has proven to be an effective effort thus far.
Chatbots in customer communication (CCC) [23,25,42,78]	CCC 1	I successfully replied to multichannel online communications.
	CCC 2	Because of the use of chatbots, I can establish conversations at any time regarding relevant offers based on my preferences.
	CCC 3	The chatbot allows me to best meet the newly developed trendiness expectations.
Attractiveness of the channel (AC) [8,45,46,56,80]	AC 1	In general, the information-seeking channel is very attractive and appropriate.
	AC 2	The channel is easily accessible to me and available at all times.
	AC 3	The digital channel system consistently delivers accurate results.
Channel selection (CMS) [1,54,55]	CMS 1	I use channels to learn about the products/services offered before buying online.
	CMS 2	When using the channel, the risk of incorrect/incomplete information is lower than with other channels.
	CMS 3	The channel provides a large variety of products/services from which to select.

In order to pay special attention to the comparability of results in a single field of activity, for the four categories of products and services, the structure of the questionnaire is the same, but the content is divided by category. The product and service categories come from retail banking, mobile communications, fashion, and consumer electronics. All are characterised by a high level of relevance for the participants of this study, with a generally extensive online purchasing process for consumers and multichannel structures. All questionnaires were pre-tested to check the length and consistency of the survey and the comprehensibility of individual questions. As a result, 40 selected consumers and retailers received online tests and detailed personal feedback.

This quantitative exploratory research study was conducted between January 2023 and March 2023 through an online campaign on social media platforms, including Facebook, Twitter, and Instagram, on a sample of 975 online consumers, but complete responses were received from 936 consumers (which corresponds to approximately 234 questionnaires per product or service category). Regarding multi-group analysis, in our study, we used partial least squares multi-group analysis (PLS-MGA), which is a non-parametric significance test for group-specific differences in outcome, which is built on the PLS-SEM bootstrapping results from every group.

Online consumers who bought and had previous experience interacting with chatbots (text- and voice-based) during the prior 24 months from one of the four categories of products or services taken into account took part in the survey, and each participant was informed about the aim of the survey and the processing of their personal data according to the principles laid down in the General Data Protection Regulation of the European Union. The responses were evaluated on a 5-point Likert scale, ranging from “strongly agree” to “strongly disagree”, with the individual providing the unit of analysis.

Respondents were considered representative of the online population in terms of age, gender, and frequency of Internet use, considering consumers aged 20 and over. Of the respondents, 46.69 percent (n = 437) were male, and 53.31 percent (n = 499) were female.

In terms of age, 41.67 percent ($n = 390$) were between 20 and 30 years old, 34.93 percent ($n = 327$) were between 31 and 40 years old, 15.17 percent ($n = 142$) were between 41 and 50 years old, and 8.23 percent ($n = 77$) were over 50 years old. In terms of education, 57.16 percent ($n = 535$) of respondents held a bachelor's degree, 26.70 percent ($n = 250$) completed secondary education, and 16.14 percent ($n = 151$) completed post-graduate education.

Following an analysis of the reliability and validity of these constructs, using the measurement model as a starting point, the structural model was used to investigate predicted connections between the research model's factors. A combination of reliability and validity approaches were used, including Cronbach's alpha, composite reliability, average variance extracted, and factor loadings. Confirmatory factor analysis (CFA) was used to assess the model's fitness, and numerous variables were tested.

4. Results

Convergent validity, discriminant validity, and internal consistency were used to assess the suggested study model. According to the results presented in Table 2, the composite reliability varied from 0.793 to 0.927, all within the acceptable level. Cronbach's alpha coefficients were used to assess the internal consistency of the measurement model, and the average variance (AVE) was calculated. Cronbach's alpha values varied from 0.726 to 0.924, confirming that the indicators were within the desired range. According to the data, the AVE varied from 0.602 to 0.781, thus meeting the acceptable level. These findings confirm that the internal consistency, validity, and reliability of the measurement model are acceptable and within the required thresholds.

The model's fitness was also measured by examining the model's fit indices, which confirmed the suggested model's goodness of fit, of which GFI = 0.943, CFI = 0.964, NFI = 0.952, RFI = 0.946, TLI = 0.969, RMR = 0.049, AGFI = 0.864, RMSEA.097, SRMR = 0.0457, and the Chi-square/df = 2.902 were identified using confirmatory factor analysis. Based on these standards, the results represent an acceptable fitness.

Structural model evaluation is based on the test of our hypothesised relationships. This research introduced pathways to the model's individual modified indicator parameters when combined with indicators corresponding to residual variables. Table 3 illustrates this model's standardised path coefficient for the four sectors. All twelve hypothesised direct links were supported by these findings.

The results from Figure 2 assume that all hypotheses were supported, with a significance of $p = 0.001$. As can be seen in Figure 2a, when discussing retail banking, the impact of perceived ease of use on the attractiveness of the channel (H3: $\beta = 0.278$, $p < 0.001$) was significant. The same could not be said about the impact of consumer satisfaction on the attractiveness of the channel ($\beta = 0.137$, $p < 0.001$) or on channel selection ($\beta = 0.131$, $p < 0.001$), for which less significant values were recorded, though this allowed for validation in hypotheses H6 and H7. Also, chatbots in customer communication significantly influenced consumer satisfaction (H8: $\beta = 0.246$, $p < 0.001$), perceived ease of use (H9: $\beta = 0.232$, $p < 0.001$), the attractiveness of the channel (H10: $\beta = 0.238$, $p < 0.001$), and channel selection in multichannel retail (H11: $\beta = 0.240$, $p < 0.001$). When analysing the results in Figure 2b regarding mobile communications, consumer satisfaction directly and positively influenced the attractiveness of the channel (H6: $\beta = 0.251$, $p < 0.001$), as well as channel selection in multichannel retail (H7: $\beta = 0.224$, $p < 0.001$). According to Figure 2c, if we consider the perceived attractiveness of the canal (H3: $\beta = 0.268$; $p < 0.001$) and the selection of the canal in multichannel retail (H4: $\beta = 0.259$; $p < 0.001$), H3 and H4 were supported. In the same register, results related to electronics (Figure 2d) were also included, which showed that the quality of an offer impacted the attractiveness of the channel ($\beta = 0.268$, $p < 0.001$) or the selection of the channel in multichannel retail ($\beta = 0.223$, $p < 0.001$) significantly. The results also illustrate the influence of security when using a channel to determine perceived ease of use (H5: $\beta = 0.104$, $p < 0.001$). Thus, the results indicate that all of the hypothesised relationships are significant, and the hypothesised model is acceptable.

Table 2. Summary of measurement scales.

		Factor Loadings				Cronbach's Alpha				CR				AVE			
		RB	MC	FS	EC	RB	MC	FS	EC	RB	MC	FS	EC	RB	MC	FS	EC
QO	QO 1	0.791	0.810	0.784	0.787	0.813	0.796	0.830	0.807	0.874	0.802	0.884	0.879	0.705	0.602	0.687	0.708
	QO 2	0.874	0.688	0.823	0.863												
	QO 3	0.836	0.706	0.794	0.845												
PEU	PEU 1	0.723	0.771	0.783	0.741	0.795	0.783	0.727	0.803	0.894	0.793	0.879	0.867	0.781	0.661	0.609	0.701
	PEU 2	0.818	0.822	0.778	0.874												
	PEU 3	0.834	0.743	0.825	0.884												
	PEU 4	0.867	0.725	0.869	0.792												
SU	SU 1	0.863	0.787	0.782	0.764	0.822	0.814	0.758	0.881	0.896	0.817	0.865	0.874	0.712	0.631	0.694	0.608
	SU 2	0.842	0.689	0.849	0.845												
	SU 3	0.736	0.769	0.726	0.769												
CS	CS 1	0.873	0.812	0.843	0.825	0.841	0.842	0.726	0.836	0.889	0.851	0.861	0.896	0.717	0.611	0.675	0.714
	CS 2	0.858	0.743	0.796	0.902												
	CS 3	0.834	0.778	0.834	0.848												
CCC	CCC 1	0.803	0.823	0.863	0.878	0.862	0.881	0.926	0.924	0.907	0.882	0.927	0.899	0.726	0.651	0.729	0.742
	CCC 2	0.867	0.803	0.822	0.854												
	CCC 3	0.911	0.805	0.846	0.831												
AC	AC 1	0.889	0.774	0.793	0.743	0.831	0.829	0.905	0.884	0.889	0.830	0.918	0.897	0.703	0.607	0.715	0.658
	AC 2	0.874	0.708	0.812	0.767												
	AC 3	0.926	0.787	0.884	0.886												
CMS	CMS 1	0.885	0.821	0.838	0.867	0.827	0.823	0.911	0.887	0.908	0.834	0.927	0.878	0.710	0.625	0.717	0.653
	CMS 2	0.922	0.774	0.819	0.914												
	CMS 3	0.890	0.778	0.825	0.794												

Table 3. Structural model assessment and hypothesis test outcome.

Hypotheses	Path	RB		MC		FS		EC		Results
		Std. Coef.	t-Value	Std. Coef.	t-Value	Std. Coef.	t-Value	Std. Coef.	t-Value	
H1	QO→AC	0.177	3.078	0.282	3.963	0.166	3.016	0.268	3.505	Supported
H2	QO→CS	0.168	2.917	0.181	2.854	0.235	2.935	0.223	4.162	Supported
H3	PEU→AC	0.278	4.977	0.241	2.893	0.268	4.838	0.218	3.681	Supported
H4	PEU→CS	0.212	3.279	0.145	2.825	0.259	4.263	0.109	2.328	Supported
H5	SU→PEU	0.249	4.441	0.142	3.216	0.221	3.725	0.104	2.257	Supported
H6	CS→AC	0.137	2.378	0.251	4.582	0.130	2.751	0.147	2.928	Supported
H7	CS→CMS	0.131	2.342	0.224	4.219	0.108	2.462	0.156	3.737	Supported
H8	CCC→CS	0.246	4.427	0.193	4.683	0.258	4.573	0.288	4.111	Supported
H9	CCC→PEU	0.232	2.835	0.168	3.017	0.204	3.295	0.137	2.475	Supported
H10	CCC→AC	0.238	2.883	0.279	3.025	0.124	2.697	0.211	2.849	Supported
H11	CCC→CMS	0.240	2.891	0.284	3.152	0.103	2.445	0.174	3.152	Supported
H12	AC→CMS	0.234	2.847	0.286	4.692	0.113	2.551	0.181	3.337	Supported

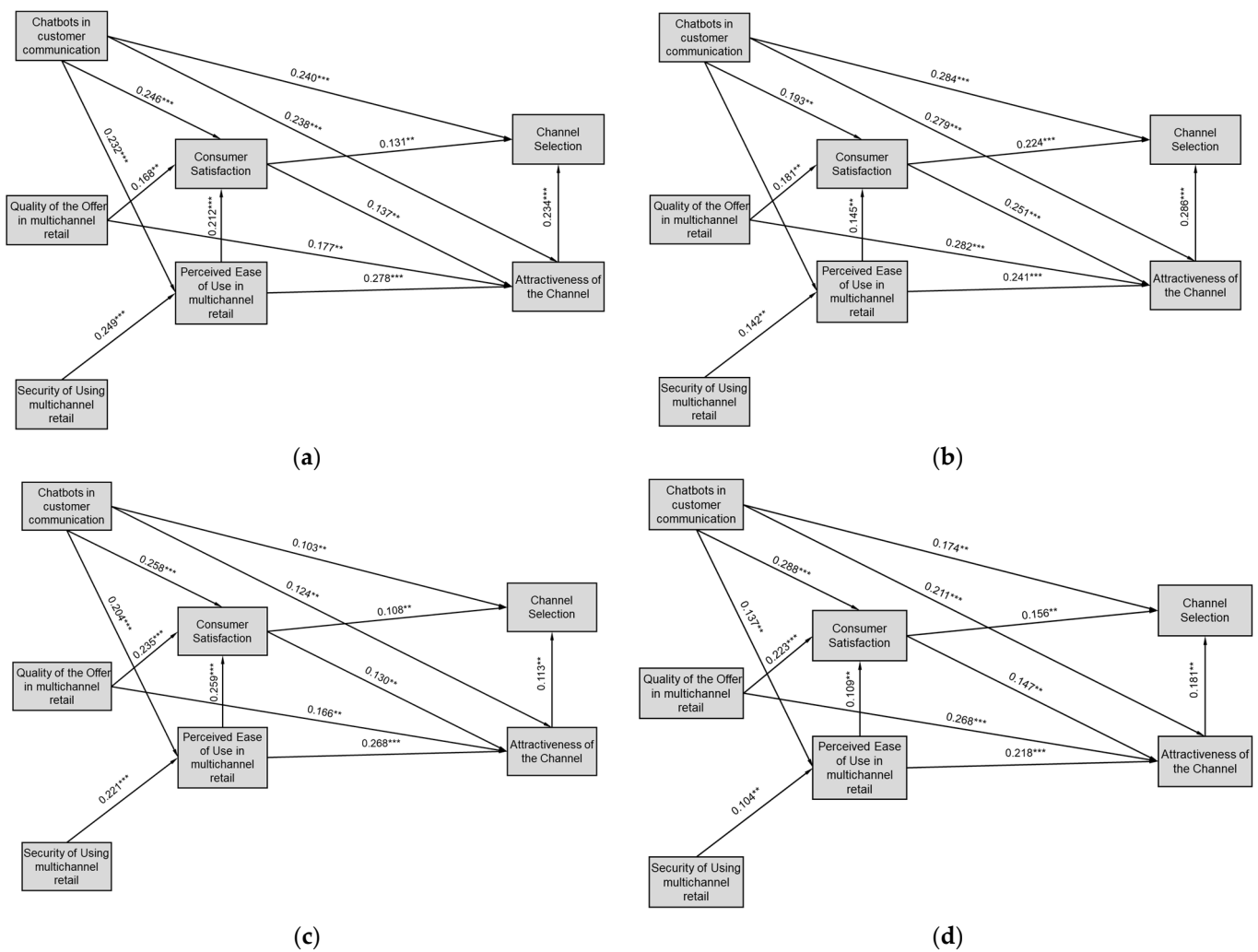


Figure 2. Results of path analysis. Values represent standardised estimates: ** $p < 0.01$; *** $p < 0.001$. (a) Retail banking (RB); (b) Mobile communications (MC); (c) Fashion (FS); (d) Electronics (EC).

5. Discussion

Chatbots have emerged as a tool through which to improve consumer choice in multichannel environments. This study aimed to examine the impacts of chatbots for consumer choice in multichannel environments. We identified that their benefits included increased efficiency and personalisation, and many companies successfully implemented chatbots to improve customer satisfaction and increase sales. However, the use of chatbots also faces challenges and limitations, including language barriers, a lack of emotional intelligence, and ethical considerations. To overcome these challenges, companies can invest in improving the language-processing capabilities of chatbots, implementing stricter privacy policies, and using chatbots alongside human customer service representatives. Ultimately, the use of chatbots in multichannel environments has the potential to greatly improve customer experience and increase business success.

The full sample supports all the hypotheses. From the perspective of the first two research questions, an important finding is that interactive information channels have advantages over classical information media that communicate in one direction. In all four product and service categories, chatbots were favoured by consumers in terms of scope, timeliness, and quality of the information provided. Especially for more complex and/or expensive products and services, consumers clearly see the benefit of receiving personal advice online or at least to easily compile a lot of information before making a purchase.

Since the business areas analysed in this study are very comparable in terms of their characteristics in relation to consumer satisfaction, comparable channels were used to obtain information on the quality of offers. Withal, considering the dominant information channel, it provides valuable information that drives the attraction and choice of that channel. In addition, the Internet is clearly the preferred information channel for many consumers who continue to shop online due to easy access to a wide range of information through this channel. Even though there are good information websites, these customers are no longer just people who shop in stores.

The results of this study show that online consumers, especially those in consumer electronics or fashion, place a lot of trust in the opinions of their personal environment, while in banking and mobile communications, they value word-of-mouth advocacy during the process of purchasing. As a result, before making such vulnerable purchases, consumers want to ensure positive feedback from their surroundings.

These results also reinforce the idea that the use of ICT is expected to bring special performances and benefit potential for the development of innovative communication solutions. The possibilities that arise from the use of chatbots in customer communication in the automated store should, therefore, be understood not only as a tool to increase efficiency but, above all, as an opportunity to readjust the distribution of tasks between humans and machines: the strengths of machines lie in their speed, accuracy, and inexhaustible endurance, especially for monotonous activities. These characteristics are complementary to those of humans, who are still superior to any machine in terms of communication, empathy, and creative situational awareness. While chatbots take over recurring routines in work and increase efficiency when shopping for customers and sellers, there is a lot of freedom for everyone involved to make the shopping experience more comfortable and personal.

When analysing different areas of activity, consumers who engage in online purchasing are especially concerned with the risks of making inappropriate purchases and safeguarding their personal data. Those who prefer to use online channels tend to be more averse to risk, particularly when it comes to these two dimensions of risk. Likewise, companies that operate through multiple channels need to take note of the attributes of each channel, as the quality of each channel is directly under their control and has a significant impact on the consumer's experience.

Considering the third research question, this study highlights that digital solutions can contribute to ensuring (and increasing) the quality of results regarding the prediction of intentions to use chatbots for the selection of the consumption channel in multichannel environments: here, it is primarily about the longitudinal recording of relevant data for customer and retail companies (e.g., through "smart supports"), which, until now, could only be registered with difficulty or only selectively. This seems plausible against a background of measuring and evaluating the quality of services provided by chatbots. This also explains why the use of digital technologies in new situations, where existing data do not provide any added value, has no quality. If this impression can be substantiated by further studies, this would be a relevant aspect in developing further measures for chatbot use in the selection of consumption channels in multichannel (legislative or private) environments.

At the same time, when designing channels, it is only possible to indirectly take into account contextual and demographic factors related to channel selection. Another point to note is that all channel properties are measured on the same scale for each individual analysis. Based on these empirical results, age, and gender differences can also be found in terms of engagement, depending on the field of activity or product/service category, which helps explain the differences in channel choice between segments.

The main limitation of the present study is that it does not focus on all determinants of channel choice, especially those unrelated to the channel itself. This could be a starting point for future research into how commercial companies with a higher quality range of

products need a more in-depth look at the factors that affect channel choice and use and could implement a stronger multichannel strategy.

Another limitation concerns the fact that, in the present study, there is clearly a greater interest in the subject from retail companies, which ultimately indicates the increased relevance of the multichannel approach. Of interest for further investigation is an assessment of the discrepancy between online sales potential and actual sales figures for the categories in question from the perspective of online consumer behaviour. The growing importance of independent multimedia information channels is a challenge for multichannel retail. The Internet for today's consumer is not just an information channel, and business is not just a transaction channel. Effective multichannel management includes more than evaluating your own channels in this digital age.

6. Conclusions

With the rise of multichannel environments, consumers can choose to make purchases through a variety of different channels, including online marketplaces and social media platforms. As a result, companies are constantly looking for new ways to improve their customers' experiences across these channels. One technology that has emerged as a tool through which to improve consumer choice is the chatbot. Chatbots have become increasingly popular due to their ability to improve customer experience, reduce operational costs, and increase customer loyalty. While market conditions and increased competition have led to further growth in the importance and specialisation of communications, developments in media and communications markets and the changing and sometimes multi-choice behaviour of consumers have led to combined problems [83–85]. Innovative retailers try to come up with new ways to solve problems and take advantage of the chances that arise when the environment changes. This gives them an edge in the fierce communication competition.

This study sheds light on these anticipated changes, including the benefits of using interactive media, as well as their increasing importance in the retail communication mix. Retailers are especially concerned with optimizing and improving their interactions with online customers. They see communication as a fundamental component of their digital marketing strategy and perceive an enormous opportunity to modify the ways in which things are currently being conducted. The current and future importance of new media in the communication mix, the goals and expectations associated with their use, and the problems to be overcome in this regard are of particular interest for further investigation.

In addition, the objective of this study, which examines the correlation between the degree of interconnectivity among channels and effective communication using chatbots, as well as the utilisation of individual control procedures, is to offer insights into the trends and challenges of multichannel retail needs thorough analysis. It is noteworthy that, although enhancing communication efficacy is a crucial aim of integrated multichannel communication, decision makers in retail operations often disregard efficiency controls. A significant drawback of integrated multichannel communication is the lack of sufficient tools for controlling its operation. However, the main question that remains, despite the advantages offered, is as follows: does consumer mentality regarding the use of chatbots for consumer channel selection in multichannel environments represent an obstacle or a solution?

This study explores both theoretical and practical implications for retail companies. Considering the theoretical implications, this study significantly contributes to the available literature [8,14,86–88] on the investigation of online consumer behaviour in a multichannel environment in terms of identifying the determinants of channel selection and use. The empirical findings of this paper support previous studies in the multichannel context regarding the limited usability of sociodemographic characteristics to identify online customer segments based on channel usage [27,35,88–90].

In terms of managerial implications, this study suggests that the greater the degree of integration and networking in multichannel communication, the more companies can

ideally benefit from free product PR and complete information on how customers perceive their own products and services through these channels. The analysis carried out on the links between the degree of cross-channel interconnection and the success of communication, on the one hand, and the use of individual control procedures, on the other, aims to provide indications of challenges and trends in multichannel retail services that require in-depth analysis. Simultaneously, it appears that, despite the fact that increased communication efficiency is an important goal of integrated multichannel communication, decision makers in retail practice pay little attention to efficiency controls. Based on the digital marketing theory, these research findings can help retailers find tools for integrating different multimedia communication channels in multichannel retail. Finally, a problem of integrated multichannel communication is that there are not enough control tools.

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