



Publisher

<http://jssidoi.org/esc/home>

INFORMATION COMMUNICATION PROMOTING INSURANCE SALES: USE OF CHATBOT TECHNOLOGIES

Alexander Fichter ¹, Kiril Anguelov ²

^{1,2} Technical University of Sofia - 8 Kl. Ohridski Blvd, 1000, Sofia, Bulgaria

E-mails: ¹ fichter@sw-transporte.de; ² ang@tu-sofia.bg

Received 20 December 2023; accepted 25 March 2024; published 30 June 2024

Abstract. The development of information and communication technologies (ICT), and especially of artificial intelligence, provides opportunities at a qualitatively new level in the digitalisation of a number of business processes. Similarly, the insurance sector can digitise many of its capabilities by using AI-based chatbot technology to provide another channel for customer communication. The advantages of this channel are indisputable: geographic and temporal independence, cost reduction, inclusion in various social networks, etc. On the other hand, this new communication channel has not been sufficiently well researched from the point of view of consumer attitudes. This paper presents research that seeks to identify user attitudes that are key to the usability of chatbot technology. The research is in two parts: a quantitative empirical study of consumers and a survey of insurance professionals. The results show that chatbots and AI offer various use cases in the insurance industry, such as sales support, lead generation, online insurance contracting, customer service, claims management, personalisation of insurance offers, customer retention, cross-selling, insurance policy management, risk prevention and consulting, and integration of smart devices and IoT. The research allows for increasing awareness of customer attitudes toward the use of chatbot technology and can lead to an increase in the effectiveness of communication in the insurance business.

Keywords: digitalization; Chatbot technologies; information and communication technology (ICT); insurance; communication; sales; artificial intelligence (AI)

Reference to this paper should be made as follows: Fichter, A., Anguelov, K. 2024. Information communication promoting insurance sales: use of chatbot technologies. *Entrepreneurship and Sustainability Issues*, 11(4), 10-30. [http://doi.org/10.9770/jesi.2024.11.4\(1\)](http://doi.org/10.9770/jesi.2024.11.4(1))

JEL Classifications: G22, M15, O33

1. Introduction

Chatbots are becoming an integral part of the digital transformation of many industries, including the insurance sector. This change is mainly due to continuous advances in artificial intelligence (AI) and machine learning (ML) technologies, which have made chatbots increasingly sophisticated and capable of understanding and responding to customer inquiries precisely and quickly. Chatbots have emerged as a valuable tool in the insurance industry, serving various functions ranging from sales and customer service to claims management and risk assessment. Their ability to operate around the clock, handle multiple inquiries simultaneously and provide immediate responses greatly improves operational efficiency, customer engagement and satisfaction.

Insurance chatbots are typically programmed to answer frequently asked questions, help customers choose appropriate insurance policies, guide them through the purchase process and even manage claims. They assist customers with complex insurance terminology and terms by making information easier to understand. Chatbots also play an important role in insurance, generating leads and providing sales support. They can engage potential customers visiting the company's website or social media platforms, provide basic information about insurance

products and respond to inquiries. In this way, they can collect contact data and pass those leads on to the sales team, improving the company's ability to convert leads into actual customers.

Additionally, insurance chatbots are a policy management tool. They can help customers manage their policies, make changes and access contract details. This self-service feature provides customers with a convenient and easy way to manage their insurance policies without the need to contact customer service or fill out complex forms.

Chatbots also play a crucial role in risk prevention and advisory services. They can inform customers of potential risks and suggest preventative measures, helping mitigate damage and reduce long-term costs.

Integrating chatbots with smart devices and the Internet of Things (IoT) offers additional possibilities. By analysing data from connected devices such as smart homes, vehicles or wearables, chatbots can provide more accurate insurance quotes and inform customers of potential risks or areas for improvement.

However, successfully deploying chatbots in the insurance industry comes with challenges, including ensuring data privacy and security, managing customer expectations, and maintaining a balance between automated and human interactions. Therefore, insurance companies must develop comprehensive strategies to use chatbots while addressing these potential issues effectively.

Empirical research into the usability of chatbots in the insurance industry has scientific and practical importance for several reasons. From a scientific perspective, it contributes to understanding how artificial intelligence, machine learning and communication technologies transform traditional industries such as insurance. It examines the impact of these technologies on customer behaviour, business processes and overall industry dynamics. This knowledge can be instrumental in shaping further research and development in this area.

From a scientific and applied perspective, the study provides new knowledge to help insurance companies optimise their operations, improve customer service and increase sales. Given the competitive nature of the insurance market, companies must use innovative solutions like chatbots to stay ahead. Therefore, understanding how to effectively and efficiently use the technological capabilities of chatbots for communication and sales is critical.

2. Theoretical background

2.1. Application of artificial intelligence, including chatbots in the insurance sector

The primary discussion on the different applications of AI in various aspects that improve the organisations' overall performance, including its connection with customers, is vivid and very fruitful nowadays. The subject is actual for both practitioners and scholars. As one of the leading sectors of the economy, the insurance sector is also an actual field for applying Artificial Intelligence (AI). For instance, Pisoni and Díaz-Rodríguez (2023) propose a new approach for insurance based on AI. From the point of view of employees of an organisation, Gupta, Ghardallou, Pandey, and Sahu (2022) explore the adoption of AI in the insurance industry. Authors argue that the support of top managers and the company's financial stability positively affect the adoption of AI in the organisation.

Bermúdez, Anaya and Belles-Sampera (2023) reveal the benefits of using explainable AI techniques in life insurance products. Nuruzzaman and Hussain (2020) focus on the application of chatbots and develop specific chatbots designed purposely for the insurance industry's needs. Authors admit that chatbots offer businesses an enhanced method to engage with their customers, ultimately boosting customer satisfaction. For customers, they offer a more efficient and convenient means of getting their queries addressed, eliminating the need to wait on hold over the phone or exchange multiple emails.

Based on the importance and impact on business, chatbots as a tool for direct connection between an organisation and its different publics (especially with their customers) are the subject of a scientific and practical discussion itself. Alagarsamy and Mehroliya (2023) explore four major banking chatbots and conclude that trust in chatbots has a notable and positive effect on user satisfaction, attitude, and behavioural intention, providing strong support for their influence in these areas.

Interesting researches dedicated to different aspects of using AI in insurance sector are developed by Mullins, Holland and Cunneen (2021) and Tugui et al. (2022) explore the ethical point of view in using big data analytics for customers; Cosma and Rimo (2024), Chang (2023) and Ma and Ren (2023) pay attention on the new technologies and Insurtech; Bednarz and Manwaring (2022), explore the impact of gathering external data on consumer insurance contracts; Schrijver, Sarmah and El-hajj (2024) and Maiano et al. (2023) study the application of data mining in the fight against automobile insurance frauds; Ellili et al. (2023), propose a bibliometric review on the application of big data in insurance sector; Lange et al. (2023), study the choice for the right modern build automation tools for an insurance company etc.

2.2. Chatbot as a modern tool of communication between organisation and customer

In the line of communication between an organisation and its customers, trust has to be considered one of the critical elements in this relationship. Huang, Markovitch, and Stough (2024) explore the role of trust. They argue that their experiments support existing industry surveys, indicating that chatbots generally have low consumer trust, which hinders their widespread acceptance and sustained usage. To address this trust issue, improving AI chatbots' problem-solving and relational abilities could be a promising long-term solution. However, they suggest that marketing strategies, like trust priming and optimisation of the collaboration between chatbots and human agents, could enhance service experiences compared to relying solely on either live agents or chatbots (ibid). One of the proposed solutions, including gaining customer trust, is suggested by Rese and Tränkner (2024), who found that the goal of the chatbot is to offer accurate recipe suggestions after a brief conversation, minimising the need for extensive input from the user. Given these results, they suggest enhancing the capabilities of task-oriented chatbots by incorporating features that support their ability to assist users. According to scholars, this could involve optimising the use of common phrases and responding appropriately to related topics and non-request interactions (ibid). Janson (2023) examined how two anthropomorphic design elements impact social presence, satisfaction, trust, and empathy towards a chatbot. The author argues that both anthropomorphic design elements significantly affect social presence. In addition, the scholar admits that social presence plays a crucial role in shaping trusting beliefs, empathy, and satisfaction and also acts as a mediator for both anthropomorphic design elements in influencing satisfaction with a chatbot.

2.3. Anthropomorphism in Chatbots

Xie, Liang, Zhou and Jiang (2024) deal with one interesting aspect of using chatbots in communication with customers. Usually, one of the biggest disadvantages of AI technologies is the lack of expressed feelings and different kinds of emotions. The authors explore customers' satisfaction levels from the chatbot's expressed humour. They found out that the effectiveness of humour expressed by chatbots in enhancing service satisfaction depends on several factors, including the bot's competence, ability to entertain, and its perceived social presence (ibid). In this line of consideration, Zhang et al. (2024) propose research also devoted to emotional expression by AI. According to them, when chatbots convey concern for customers, they can enhance customer satisfaction by minimising instances where expectations are not met. Specifically, scholars reveal that factors such as the customer's objectives, how human-like the chatbot's appearance is, and the relationship between the customer and the chatbot can influence how emotional expressions impact expectancy violations (ibid).

Zogaj, Mähner, Yang and Tscheulin (2023) explore the impact of chatbot anthropomorphism and gender on customers' behaviour. They argue that the process of making chatbots more human-like has a positive effect on how consumers perceive the similarity between themselves and the chatbot (self-congruence). This, in turn, according to scholars, enhances consumers' intentions to make purchases. Authors recommend that brands planning to integrate chatbots into their online retail platforms should incorporate anthropomorphic design elements. Understanding customers' self-concepts is crucial for determining the appropriate design cues for chatbots. Anthropomorphism and the ability to interact are the focus of the research developed by Sun, Chen and Sundar

(2024). According to them, when messages exchanged with a chatbot are highly interactive, it tends to cultivate favourable attitudes towards the chatbot itself and the advertisement it represents. This positive reception is often achieved by reducing any disappointment or surprise (violated expectancy) users might experience (ibid). Deeply researching the effects and impact of the anthropomorphic design of chatbots on customers, Lu, Min, Jiang and Chen (2024) concluded that when chatbots are designed with anthropomorphic features, it positively impacts users' expectations for both practical and emotional aspects. Furthermore, the authors admit that employing an anthropomorphic communication style enhances users' emotional expectations regarding service (ibid).

The effectiveness of chatbots in online shopping is explored by Fu, Mouakket and Sun (2023). Scholars reveal that the readiness traits of customers, such as optimism and innovativeness, along with the human-like attributes of chatbots like empathy and social presence, tend to foster trust among customers towards the chatbot technology. However, when customers perceive chatbots as too human-like (anthropomorphism), it diminishes their trust. The authors also emphasise that customers' trust in chatbots significantly impacts their willingness to adopt this new technology (ibid).

The effects and impact of using emojis by chatbots in the communication process to get as close as possible to human conversation is comprehensively explored by Yu and Zhao (2024). They conducted three experiments to examine how emojis impact interactions with chatbots. The findings show that emojis make chatbots seem warmer but don't necessarily make them appear more competent. However, this warmth-enhancing effect increases overall satisfaction with the service, especially when the chatbots are used for enjoyable tasks and are programmed in advance rather than highly autonomous (ibid).

2. 4. The level of acceptance, satisfaction and further improvements of Chatbots

Acceptance and level of satisfaction, which are the proper indicators for the effectiveness of communication between chatbots and humans in customer-organisation relationships, are also essential to the overall development of AI and generative chatbots. Zhu, Zhang and Liang (2023) studied the relationship between chatbot response style and the level of customer satisfaction. Scholars revealed that when chatbots address service issues, providing specific responses enhances customer satisfaction more effectively than abstract responses. The accuracy of empathetic understanding plays a significant role in mediating the connection between chatbot response styles and customer satisfaction. In cases where responses are abstract, enhancing the chatbots' cuteness can mitigate the negative impact of reduced empathetic accuracy on customer satisfaction (ibid). Sarraf, Kar and Janssen (2024) admit that chatbots are significantly revolutionising the customer service sector. With the emergence of AI-powered chatbots such as ChatGPT, companies increasingly integrate them into their customer service strategies to enhance overall support quality. However, there needs to be a notable oversight in optimising the user experience aspect of these interactions (ibid). Meng, Li, Shi and Huang (2023) also try to propose new ideas for further acceptance of chatbots. They reveal that using a double-sided message approach boosts customers' inclination to engage with AI chatbots, with perceived authenticity playing a pivotal role as a mediator in this process. Additionally, authors admit that customers' attitudes toward interacting with AI chatbots can be influenced by the types of demands they have—whether they're making complaints or inquiries (ibid).

Men, Zhou, Jin and Thelen (2023) proposed interesting research dedicated to one specific aspect of the chatbot for the organisation – the possibility of strengthening the connection between the public and the organisation via chatbot social conversation. Their findings affirm that engaging in social conversations with chatbots can significantly influence how the organisation deploying them is perceived and the outcomes of relationships between the organisation and the public. Moreover, the perceived corporate character directly impacts the quality of these relationships, highlighting the potential of employing AI-driven social chatbots for enhancing public relations efforts (ibid). Conversely, Zheng et al. (2023) admit that chatbots sometimes make mistakes during conversations, providing inappropriate responses that can compromise the confidentiality of product and marketing details. According to scholars, this can lead to decreased business profitability and create cost-related challenges. The authors suggest using advanced AI models built on deep learning principles to enhance chatbot performance. They introduce a multiheaded deep neural network model designed to rectify logical and fuzzy errors commonly encountered in retrieval-based chatbot models (ibid).

Li, Li, Chen and Chang (2024) focus on further developing the possibilities of acceptance of chatbots, including in the line of communication between business organisations – and customers. After conducting six scenario-based studies and an interview, the authors discovered that when humans collaborate with AI, they can leverage their abilities to enhance AI systems' credibility and effectiveness, thereby promoting greater acceptance of chatbots. However, this positive effect was not evident when the AI's capabilities were evident or when the human experience with the service was negative (ibid). Wang, Li, Fu and Jin (2023) also admit that consumers tend to have more negative emotional experiences when engaging with chatbot services compared to human interactions. Consequently, this leads to a decrease in trust towards chatbot services despite no discernible difference in the solutions provided by chatbots and humans. According to scholars, this suggests that for chatbot designers or providers, mitigating negative consumer emotions towards chatbots is equally, if not more, crucial than merely enhancing algorithm accuracy (ibid).

In summary of the literature review, the application of generative AI-based chatbots will be further improved in the next few years with the rapid development of new technologies and innovations. Companies willing to be customer-oriented, including in the insurance sector, have to be ready and open to this new challenge.

3. Methodology of the research

The study's main objective is to determine which factors contribute to a particularly effective communication model. The theses are based on the assumption that customer behaviour has changed as a result of the new media because new communication channels have emerged. The change in consumer behaviour has an impact on the entire consulting process. Methodologically, the aim is to examine the theoretical considerations qualitatively and quantitatively.

Thesis of the research:

Communications between companies and their customers based on chatbots with artificial intelligence enable shortening the relationship between them, and their combination with other appropriate means of communication would increase company efficiency and customer satisfaction

Hypotheses

1. There are correlations between the scales of the Universal Theory of Acceptance and Use of Technology (UTAUT) model and the intention to use chatbots.
2. There are correlations between the scales of the Universal Theory of Acceptance and Use of Technology (UTAUT) model and the current use of chatbots.
3. There are correlations between the general attitude towards chatbots on the one hand and the intention to use them or their current use on the other.
4. There are gender-specific differences with regard to the use of chatbots. Men use chatbots more frequently than women.
5. There are age-specific correlations with regard to the use of chatbots. The probability of using chatbots decreases with increasing age.
6. There is a difference in the correlation between the general attitude towards chatbots and the attitude towards the suitability of chatbots for simple or more complicated concerns.

The qualitative research

Expert interviews are a significant component, purposed to gather nuanced insights from professionals in the field. These interviews inform surveys administered to insurance agents and customers, adding practical depth to the study. The choice of a mixed-method approach with open and closed questions in the interviews enables the collection of rich data while still ensuring comparability. This research design accords with the guidance of leading scholars like Mayring, who advocates for the flexibility and closeness to the subject that qualitative research offers. However, it is also critically aware of the potential for bias and manipulation in qualitative methods, and thus also incorporates quantitative data, analysed through statistical programs like SPSS and Excel, for objectivity.

To further the reliability and validity of the research, the study undergoes pretesting phases that are aimed at refining the research instruments, ensuring that the questionnaires are not too long, redundant, or incomprehensible. Online distribution of the questionnaires facilitates broad participation and eases data transfer to statistical programs for analysis. Ultimately, the study is not just a theoretical exercise; it also seeks to offer practical solutions informed by real-world expertise and feedback, thereby contributing to communication in the insurance business.

The quantitative empirical research

The quantitative empirical research adopts a cross-sectional study design to address the research questions through quantitative analysis. Data collection was conducted through an online survey, which was open for participation for three weeks in May 2022. The questionnaire was hosted on Uniprk's online survey portal, which uses EFS-Survey software. Participants received the survey link directly via email or WhatsApp, which was also shared on social media platforms.

The first part of the questionnaire focuses on collecting demographic and sample-relevant information such as age, gender and educational background of the respondents. After ensuring that participants were aware of data protection regulations, they were assured of the anonymity of their responses. The estimated time required to complete the survey was between 10 and 15 minutes. The survey explored respondents' attitudes towards using chatbots in the context of buying insurance. Items were similarly structured to gather information on the general need for communication processes when purchasing insurance and previous experience and confidence in using chatbots.

The Universal Theory of Acceptance and Use of Technology (UTAUT) model was used to measure chatbot acceptance, with 20 items on a five-point Likert scale. Scores could range from 20 to 100 points. The scale was adapted but inspired by a study by Anderson, Schwager, and Kerns (2006). It included subscales such as performance expectancy, effort expectancy, social influence, facilitating conditions, behavioural intention, and actual use. In addition, the control variable 'experience with digital technology' was included to account for influences in the use of digital technologies and to allow for a more nuanced evaluation of hypotheses.

The acceptance of chatbots within the framework of the UTAUT model was surveyed with the aid of 20 items, whereby the respondents were provided with a five-point Likert scale with the answer poles (1) do not agree at all to (5) agree completely for their assessment. Accordingly, between 20 points and 100 points could be scored in determining the acceptance of chatbots. The scale used here was adapted but based on a study by Anderson, Schwager, and Kerns (2006). It contains the following subscales with the number of items listed:

1. Performance expectation (4 items)
2. Expenditure expectation (4 items)
3. Social influence (4 items)
4. Supportive environment (4 items)
5. Intention to use (2 items)
6. Actual usage (2 items)

The control variable "experience with digitality" was also surveyed in order to identify influences in the use of and experience with digital technologies. This procedure offers the opportunity to take into account differences in the use of digital technologies when testing the hypothesis.

The following questions provide insight into the elements of the UTAUT model and serve as sample items for the subscales:

Performance Expectation: I spend less time with a chatbot to get an answer to standard insurance policy questions than I do with a service representative.

Effort expectation: When buying an insurance policy, I can use a chatbot without assistance.

Social influence: The topic of chatbots is present in my everyday work among people.

Supportive environment: It's important to me that I can use a chatbot when buying insurance via my smartphone.

Intention of use: I intend to use a chatbot when purchasing insurance in the next 12 months.

Actual use: I'm sure I'll be using a chatbot when I purchase an insurance policy in the next 12 months.

The control variable 'experience with digitality' was collected in order to also determine influences in the use of or experience with other digital technologies. This provided the opportunity to consider general differences in the use of digital technologies when testing the hypotheses.

The data collected was analysed using SPSS, version 28. After exporting the data from the survey portal and importing it into the statistical software, the dataset was checked for missing or irrational values. First, descriptive statistics were calculated. Due to the predominantly nominal or ordinal level of the variables, frequency analyses were carried out. The internal consistency of the scales was then assessed using Cronbach's alpha, which gives an indication of the reliability of the scale. A total of N=133 participants took part in the study. The youngest participant was 19 years old, and the oldest was 67 years old at the time of the survey.

The interview process is illustrated in Figure 1 shown:

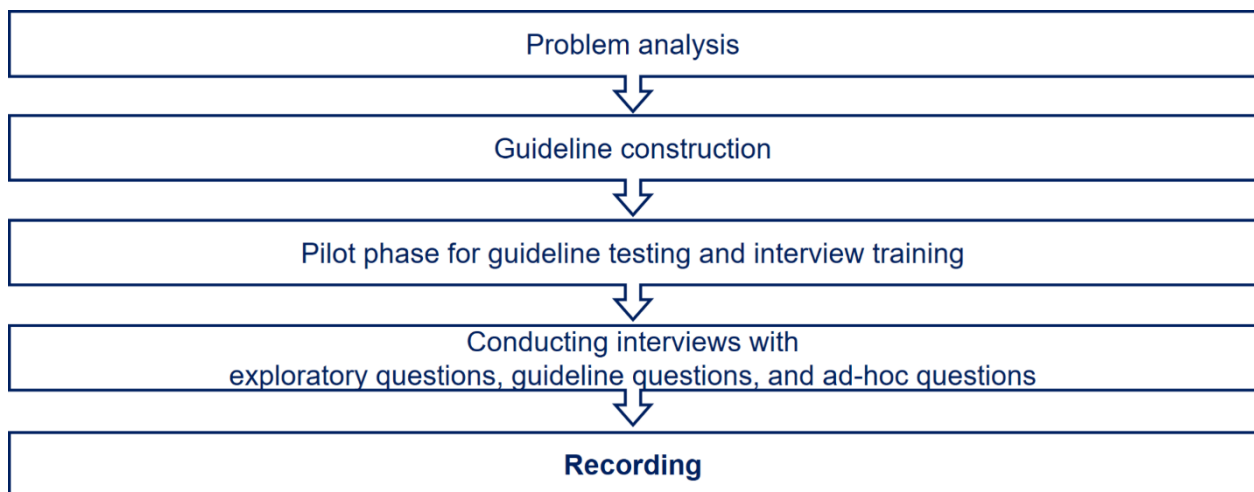


Figure 1. Interview procedure

The interviews are evaluated using qualitative content analysis. In this method, the data is evaluated empirically, and the context of the communication is considered with regard to the thesis. Figure 2 outlines the process.

Starting from the definition of the data area, the actual situation is considered and the material is processed. The analysis is then consolidated in its orientation and the question is approached in a differentiated manner. The analysis technique is determined and the definition of the variables is formed. By three categories, the analysis steps are divided, and after the examination of these, the interpretation is begun.

Starting from the definition of the data area, the actual situation is considered and the material is processed. The analysis is then consolidated in its orientation and the question is approached in a differentiated manner. The analysis technique is determined and the definition of the variables is formed. By three categories the analysis steps are divided and after the examination of these the interpretation is approached.

This empirical research work corresponds to a cross-sectional study, whereby the research questions are to be answered with the help of a quantitative study. The data collection was done through an online survey, which was accessible for participation during a period of 3 weeks in May 2022. As a survey platform, the questionnaire was entered into the virtual survey portal of the provider Unipark, which uses the survey software EFS-Survey.

The link was sent to the participants directly via email or WhatsApp. Furthermore, the link was shared via social media.

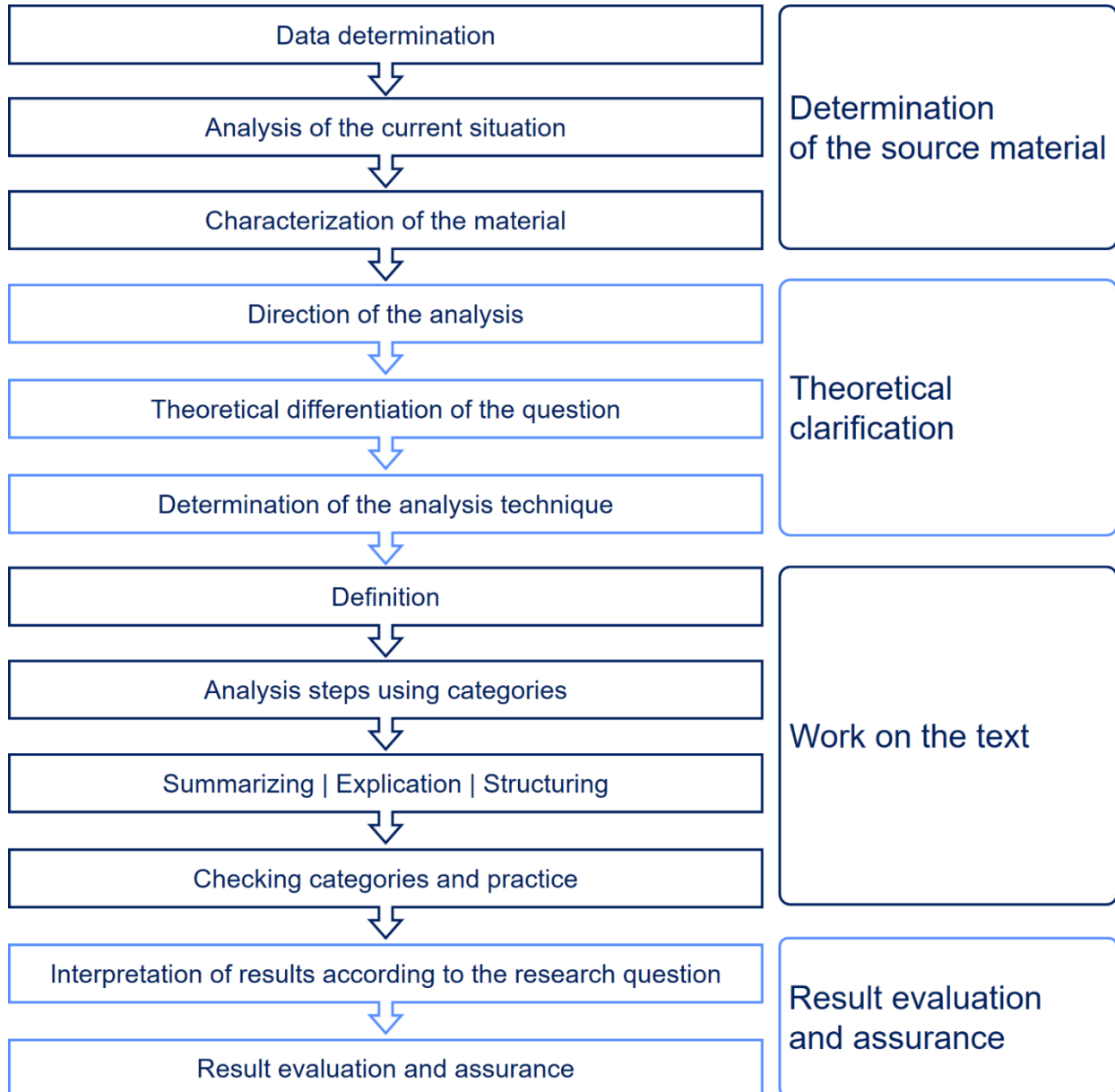


Figure 2. Empirical approach

Evaluation methods

The data was analysed using the statistical program SPSS, version 28. After exporting the data from the survey portal, the data was imported into the statistical software. As an inclusion criterion for participation in the survey, prior experience in dealing with chatbots was required. For this reason, an item was implemented in the questionnaire to determine past experience with chatbots. If the item 'experience with chatbots' was answered in the negative, the respondent was excluded from further data analysis.

Following the examination of the data set, the descriptive statistics were first evaluated. Due to the predominantly nominal or ordinal scale variables, frequency analyses were calculated. For age, the descriptive statistical parameters suitable for interval-scaled variables, such as the mean, the standard deviation, and the minimum

and maximum, were determined. The scaling of the scales Performance Expectancy, Effort Expectancy, Social Influence, Supportive Conditions, Intention to Use, and Actual Use was done by summing up the items. Furthermore, the internal consistency of the scales was determined. The consistency measure Cronbach's alpha was used for this purpose.

There is no exact specification as to what level Cronbach's alpha should be in the context of scientific research. For group studies, a Cronbach's alpha of 0.7 is generally assumed. A Cronbach's alpha < 0.7 corresponds to insufficient reliability, while a Cronbach's alpha between 0.7 to 0.8 corresponds to good reliability. Cronbach's alpha between 0.8 and 0.9 corresponds to very good reliability, while a value above 0.9 indicates excellent internal consistency.

Subsequently, the items of the scales were summed up, resulting in the scales already described. Although a sample size > 30 subjects can be assumed to have a normal distribution of data based on the central limit theorem, the distribution of the scales was examined using a Shapiro-Wilk test, as looking at the pattern of responses by subjects can provide valuable evidence of irrational results.

4. Survey Results and Discussion

The extent to which the respondents had already had experience with digital communication when purchasing insurance policies was surveyed. The evaluation showed that, with 54.0%, the majority had little experience with digital communication tools when buying insurance policies, while 26.0% had some experience with digital communication tools. Further data on experiences with digital communication tools can be seen in Figure 3.

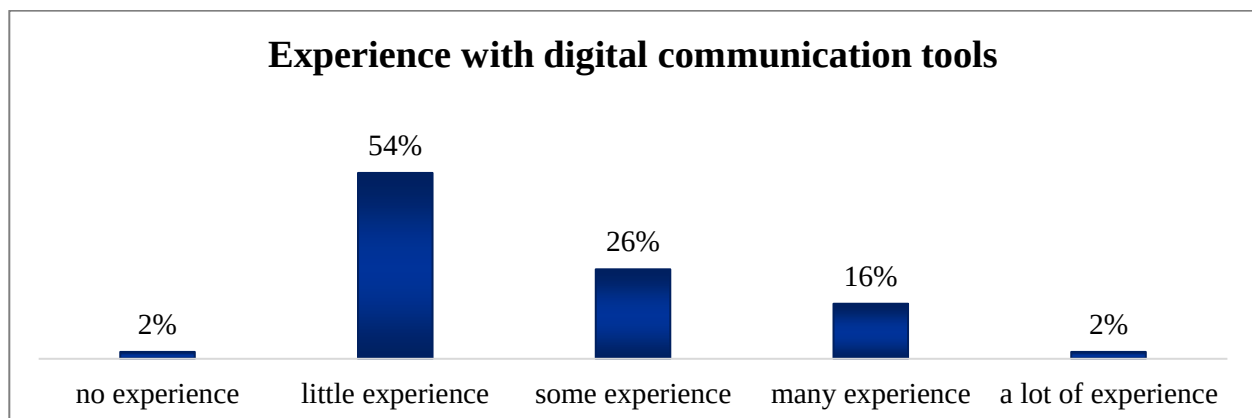


Figure 3. Experiences with digital communication tools in the purchase of insurance policies.
Source: own research

In addition, the study participants were asked about the importance of trust in the competence of the insurance employee. Here, the analysis showed that 36.0% of the respondents tended to agree that trust in the competence of the insurance employee was of high importance. In comparison, another 36.0% of the respondents answered this question with 'partly, partly'. Further information on the importance of trust in the competence of the insurance employee can be found in Figure 4.

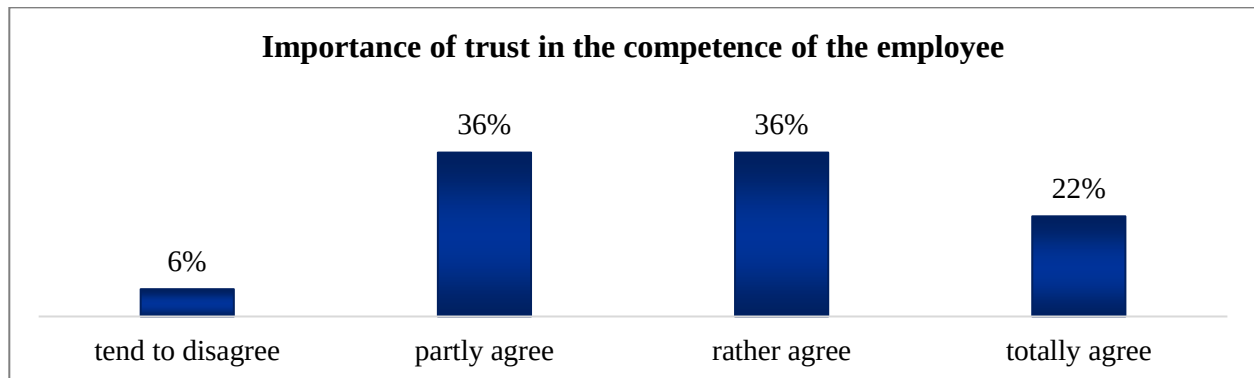


Figure 4. Attitude of high importance with regard to trust in the competence of the insurance employee.

Source: own research

Furthermore, it was determined to what extent the respondents agreed with the statement, "Customer proximity to the insurance employee is very important to me. The data analysis showed that most respondents, 38.0%, fully or rather agreed with this statement. 22.0 % chose the neutral answer option 'partly, partly' (Figure 5).

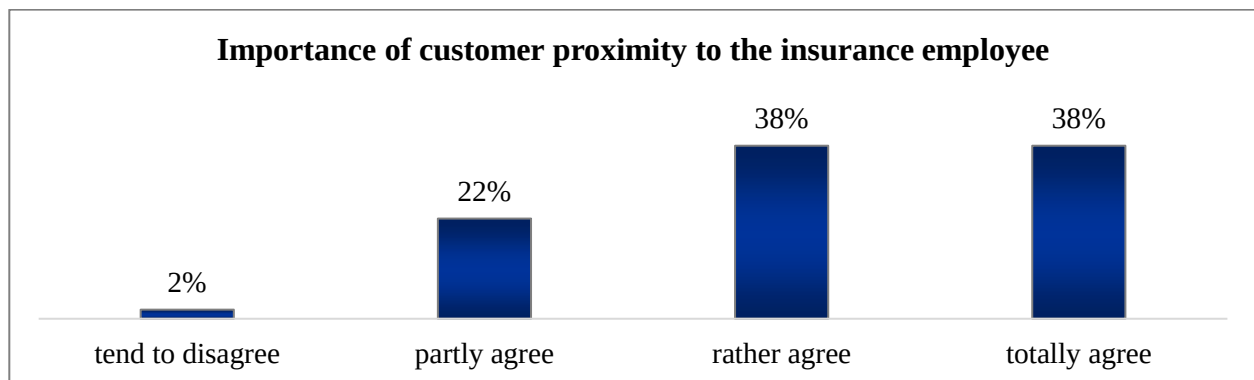


Figure 5. Attitude towards the importance of the insurance employee's proximity to the customer

Source: own research

The subjects were also asked about their experiences regarding chatbots when purchasing insurance policies. No experience with chatbots when purchasing insurance policies resulted in the exclusion of the respondent from the data analysis. 66.0% of respondents reported having little experience with chatbots when purchasing insurance policies, while another 34.0% reported having some experience with chatbots.

80 % of the respondents would prefer chatbots to a human for simple concerns, while 20 % would prefer to entrust a human with simple concerns. Complicated concerns would have 22.0 % of respondents prefer to entrust to a chatbot, while 78.0 % prefer to entrust a human.

The general attitude towards chatbots was surveyed using a scale from (1) very negative to (6) very positive (Figure 6).

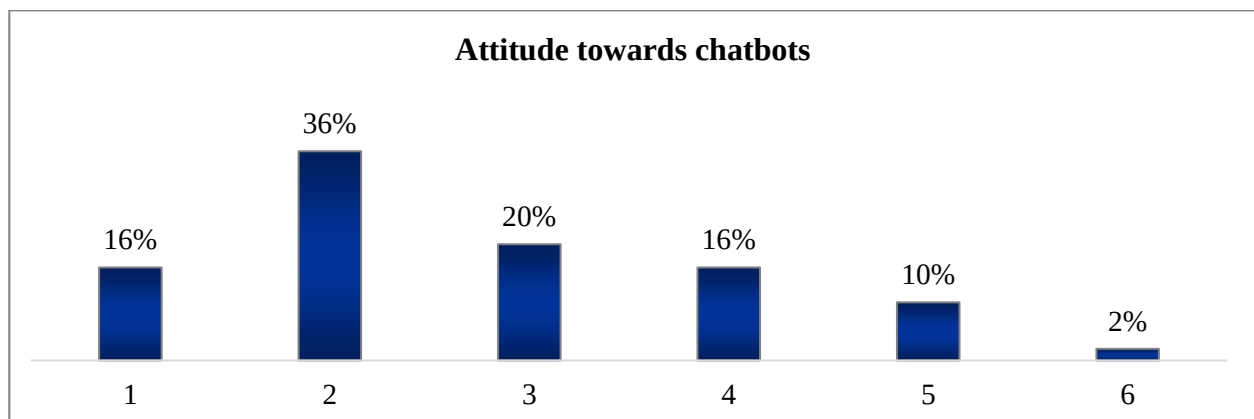


Figure 6. The general attitude towards chatbots
Source: own research

4.1. Confirmation of hypotheses

Hypothesis 1

There are correlations between the scales of the UTAUT model and the intention to use chatbots.

H1a (EL) Expected performance has a significant positive influence on the intention to use digital applications (chatbots) in customer communication. Pearson correlation analysis was calculated to test the hypothesis, with one-sided significance testing due to the directional formulation of the hypothesis. At $r = -.202$ and $p = .080$, the correlation test between performance expectancy and intention to use chatbots was not statistically significant. Accordingly, there was no correlation between performance expectancy and usage intention. The null hypothesis is retained.

H1b (EA) Expected effort has a significant positive impact on the intention to use digital applications (chatbots) in customer communication. Once again, a Pearson correlation analysis was calculated to test the hypothesis, and due to the directional formulation of the hypothesis, one-sided significance was tested here as well. At $r = -.362$ and $p = .005$, the correlation test between effort expectancy and chatbot usage intention was statistically significant. There was a negative correlation between effort expectancy and intention to use. Accordingly, as effort expectancy increases, the intention to use chatbots decreases. The effect was of medium strength at $r = |.362|$.

H1c (U) Supportive conditions have a significant positive impact on the intention to use digital applications (chatbots) in customer communications. Pearson correlation analysis was calculated to test the hypothesis, with one-sided significance testing due to the directional formulation of the hypothesis. At $r = .048$ and $p = .371$, the correlation test between the supporting conditions and the intention to use chatbots was not statistically significant. Accordingly, there was no correlation between the supporting conditions and the intention to use. The null hypothesis is retained.

H1d (SE) Social influence has a significant positive impact on the intention to use digital applications (chatbots) in customer communications. Once again, a Pearson correlation analysis was calculated to test the hypothesis, and due to the directional formulation of the hypothesis, one-sided significance was tested here as well. At $r = -.394$ and $p = .002$, the correlation test between social influence and chatbot usage intention was statistically significant. There was a negative correlation between social influence and intention to use. Accordingly, as social influence increases, the intention to use chatbots decreases. The effect was of medium strength at $r = .394|$. All correlations are shown in Table1.

Table 1. Correlation table (Pearson correlation), intention to use chatbots

	1	2	3	4	5
Performance Expectation	--				
Expenditure expectations	.831**	--			
Social_influence	.428**	.680**	--		
Under_frame	-.131	-.091	-.024	--	
Intention of use	-.202	-.362**	-.394**	.048	--

** Correlation is significant at the 0.01 level (1-sided).

Hypothesis 2

There are correlations between the scales of the UTAUT model and the current use of chatbots.

H2a (EA) Expected performance has a significant positive impact on the current use of digital applications (chatbots) in customer communication. Pearson correlation analysis was calculated to test the hypothesis, with one-sided significance testing due to the directional formulation of the hypothesis. At $r = -.247$ and $p = .042$, the correlation test between performance expectancy and current use of chatbots was statistically significant. However, there was a negative correlation between performance expectancy and the current use of chatbots. Accordingly, as performance expectancy increased, the current use of chatbots decreased. The null hypothesis is retained.

H2b (EL) The expected effort has a significant negative impact on the current use of digital applications (chatbots) in customer communication. Pearson correlation analysis was calculated to test the hypothesis, with one-sided significance testing due to the directional formulation of the hypothesis. At $r = -.248$ and $p = .042$, the correlation test between expected effort and current use of chatbots was statistically significant. There was a negative correlation between effort expectation and the current use of chatbots. Accordingly, as the expectation of effort increases, the current use of chatbots decreases. The null hypothesis is rejected.

H2c (EL) Supportive conditions have a significant positive impact on the current use of digital applications (chatbots) in customer communications. Pearson correlation analysis was calculated to test the hypothesis, with one-sided significance testing due to the directional formulation of the hypothesis. At $r = .085$ and $p = .278$, the correlation test between the supporting conditions and the current use of chatbots was not statistically significant. Accordingly, there was no correlation between the supporting conditions and the current use of chatbots. The null hypothesis is retained.

Table 2. Correlation table (Pearson correlation), Current use of chatbots

	1	2	3	4	5
Performance Expectation	--				
Expenditure expectations	.831**	--			
Social_influence	.428**	.680**	--		
Under_frame	-.131	-.091	-.024	--	
Current use	-.247*	-.248*	.085	-.236*	--

** The correlation is significant at the 0.01 level (1-sided).

* The correlation is significant at the 0.05 level (1-sided).

H2d (SE) Social influence has a significant positive impact on the current use of digital applications (chatbots) in customer communication. Once again, a Pearson correlation analysis was calculated to test the hypothesis, and due to the directional formulation of the hypothesis, one-sided significance was tested here as well. At $r =$

-.236 and $p = .049$, the correlation test between social influence and the current use of chatbots was statistically significant. However, there was a negative correlation between social influence and current use of chatbots. The null hypothesis is retained. The coefficients of all hypothesis tests (hypothesis 2 and sub-hypotheses) can be seen in Table 2.

Hypothesis 3

There are correlations between the general attitude towards chatbots on the one hand and the intention to use them or their current use on the other.

H3a With increasingly positive, general attitudes towards chatbots, the intention to use chatbots in customer communication increases. To test the hypothesis, a Spearman's rank correlation analysis was calculated, with a one-sided hypothesis test due to the directional formulation of the hypothesis. At $r_{SP} = -.169$ and $p = .121$, the correlation test between general attitude regarding chatbots and intention to use chatbots was not statistically significant. Accordingly, there was no correlation between the attitude regarding

H3b With increasingly positive, general attitudes regarding chatbots, the current use of chatbots in customer communication is rising. Once again, a Spearman rank correlation analysis was calculated to test the hypothesis, again testing one-sided for significance due to the directional formulation of the hypothesis.

At $r_{SP} = -.181$ and $p = .104$, the correlation test between general attitude regarding chatbots and current usage was not statistically significant. Accordingly, there was no correlation between the attitude regarding chatbots and the current use of chatbots in customer communication (cf. Table 13).

Table 1. Correlation table (Spearman correlation), General attitude towards chatbots, intention to use and current use

	1	2	3
General setting.	--		
Intention of use	-.169	--	
Current use	-.181	.191	--

Hypothesis 4

There are gender-specific differences with regard to the use of chatbots. Men use chatbots more frequently than women.

Levene's test for variance homogeneity was not statistically significant at $F(48) = 2.081$ and $p = .156$, so it could be assumed that variance homogeneity was present. At $t(48) = -0.582$ and $p = .282$, testing the difference was not statistically significant. Accordingly, men did not use chatbots more frequently than women. The null hypothesis is retained.

Hypothesis 5

There are age-specific correlations with regard to the use of chatbots. The probability of using chatbots decreases with increasing age.

Pearson's product-moment correlation analysis was used to test the hypothesis. At $r = .274$ and $p = .027$, testing of this relationship was statistically significant. The correlation was positive. Accordingly, the use of chatbots increases with age. The null hypothesis is retained.

Hypothesis 6

There is a difference in the correlation between the general attitude towards chatbots and the attitude towards the suitability of chatbots for simple or more complicated concerns.

This hypothesis is first tested using a rank correlation analysis according to Spearman. Subsequently, both correlation coefficients are tested for significant differences using a Fisher-z test. At $r_{SP} = .038$ and $p = .795$, testing the relationship between general attitudes toward chatbots and attitudes regarding the suitability of chatbots

for simple concerns was not statistically significant. At $r_{SP} = .047$ and $p = .748$, testing the relationship between general attitudes toward chatbots and attitudes regarding the suitability of chatbots for more complicated concerns was not statistically significant.

The difference in these correlations was not statistically significant at $z = 0.044$ and $p = .965$. Accordingly, there was no difference with respect to the relationship between general attitude and attitude about whether and to what extent chatbots are suitable for simple or more complicated concerns. The null hypothesis is retained.

Finally, multiple linear regression analysis was used to illustrate the extent to which the predictors (1) performance expectancy, (2) effort expectancy, (3) social influence, (4) supportive environment, and (5) current use of chatbots can predict the criterion intention to use chatbots. The calculation of a regression model is subject to the following conditions, which must be checked in advance (Bortz, Döring, 2006):

- The data set must be free of outliers. Values that are three standard deviations from the mean of the corresponding scale are considered outliers.
- There must be independence between the residuals and the variables.
- There must be independence between the variables.
- Multicollinearity between variables must be excluded.
- The residuals must conform to a normal distribution.
- The variance of the residuals must be constant for all values of the predictors (homoscedasticity).

First, the data set was checked for outliers. The check of the normal distribution of the residuals of the dependent variables showed that they were normally distributed (see also Figure7):

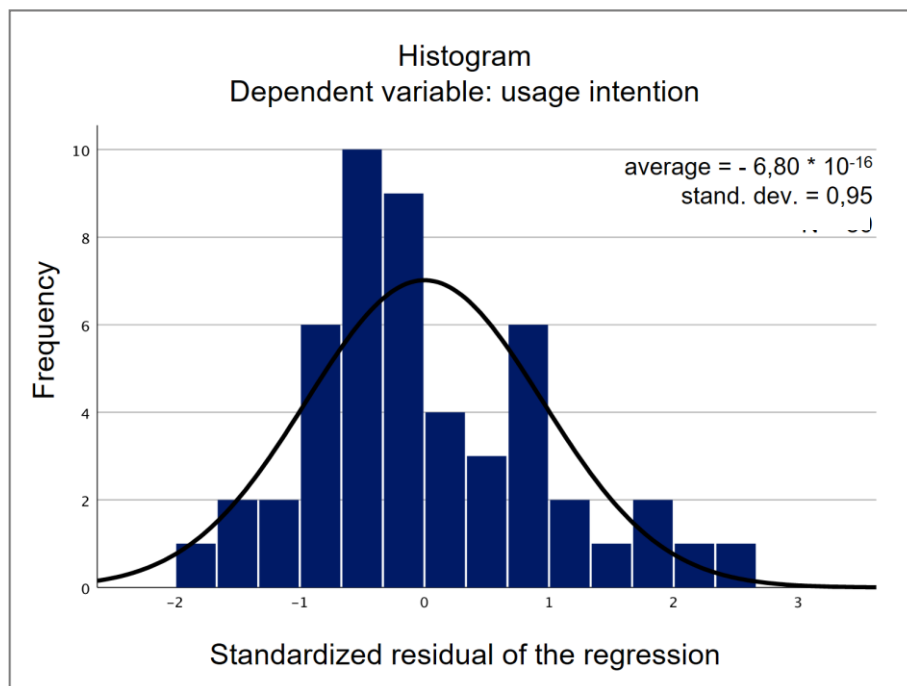


Figure 7. Normal distribution of the residuals as a normal distribution histogram

The residuals were linearly related to the dependent variable usage intensity, as can be seen from the corresponding diagram (P-P diagram) (see also Figure 8).

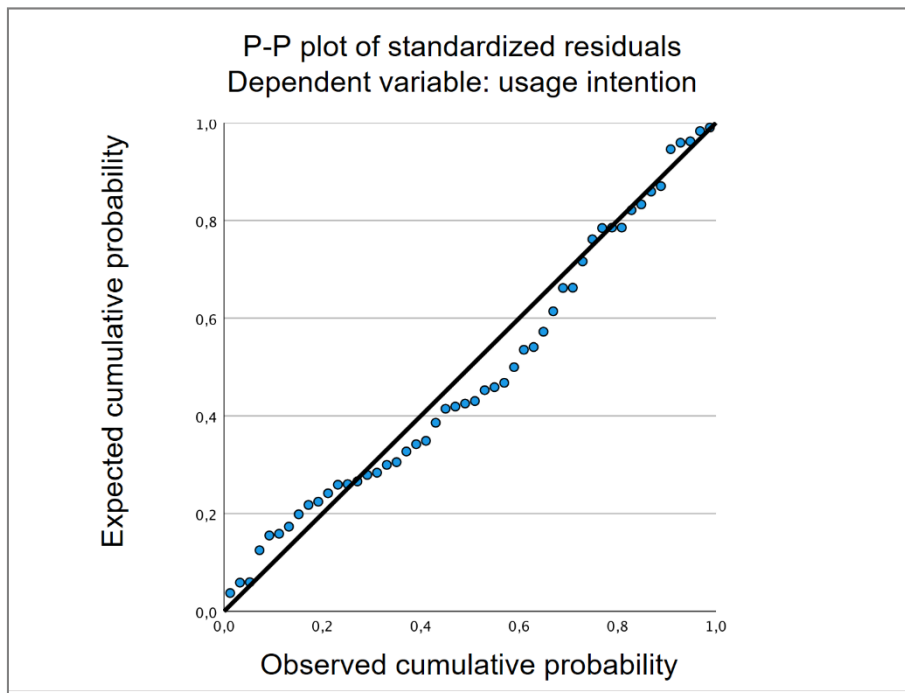


Figure 8. Linearity of the residuals as PP diagram

The residuals of the independent variables scatter over the entire range of the dependent variable usage intensity so that homoscedasticity was not violated either (see Figure 9):

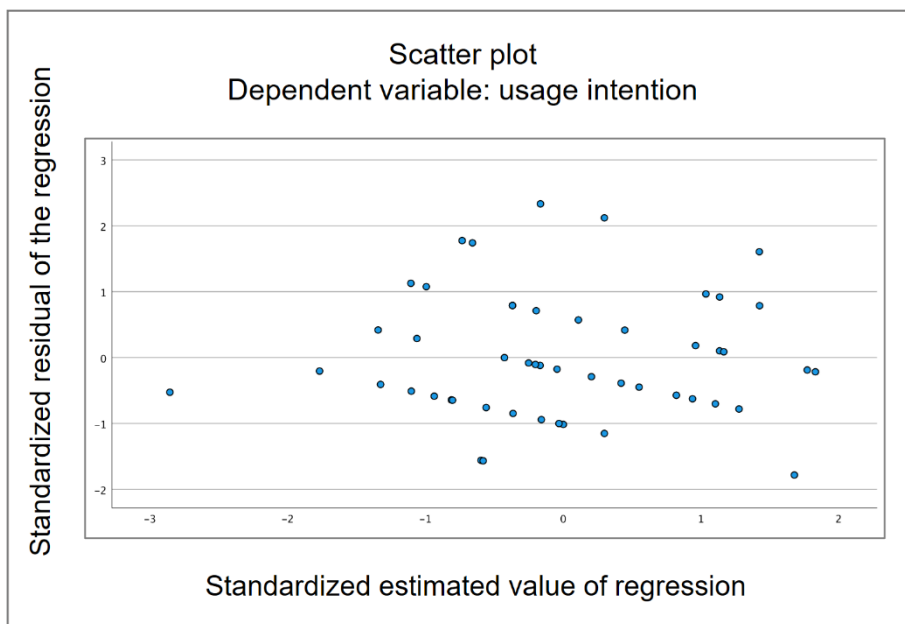


Figure 9. Scatter plot for the detection of homoscedasticity

The Durbin-Watson statistic was used to test the independence of the residuals. A positive autocorrelation exists when this test statistic takes values close to 0, while values close to 4 may indicate a negative autocorrelation. In the optimal case, the results of this test statistic are close to the value 2. In the present case, the result of the Durbin-Watson statistic was 2.184, so an autocorrelation could not be assumed. The independence of the residuals was therefore given for the present data (according to Bortz, Döring, 2006).

Possible multicollinearity between the predictors can be revealed by interpreting the values of the variance inflation factor (VIF). According to Bortz and Döring (2006), a value greater than 10 indicates the presence of multicollinearity, with the highest value in this test being 5.540, so it can be assumed that there was no multicollinearity between the predictors.

The regression model selected here was not statistically significant $F(5, 44) = 2.051$; $p = .090$. None of the predictors selected here was able to make a significant contribution to explaining the variance in the criterion intention to use.

4.2. Interpretation of the results

There was no link between performance expectations and the supportive environment in the context of chatbot use on the one hand and chatbot usage intention on the other. However, with decreasing effort expectations regarding using chatbots, the intention to use them increased. With decreasing social influences regarding chatbots, the intention to use them also increased.

There was no correlation between the supportive environment in terms of chatbot use and actual chatbot use. As performance expectations regarding chatbots decreased, current usage of chatbots increased. Also, as effort expectations regarding chatbot use decreased, the current use of chatbots increased. Finally, as social influences decreased, the current use of chatbots increased.

There was no correlation between the general attitude towards chatbots on the one hand and the intention to use or the current use of chatbots on the other.

It was also impossible to show any difference in the current use of chatbots between men and women. The use of chatbots increased with age. Possible correlations between the attitude towards chatbots and the perceived suitability of chatbots for simple concerns or more complicated concerns did not differ significantly from each other.

The predictors of performance expectancy, effort expectancy, social support in using chatbots or support on the environment, and current use of chatbots could not predict the intention to use chatbots in customer communication.

Another potential issue is the self-selection of participants who may already have some experience or opinion on the topic of chatbots and digital insurance policies, which could influence the results. Data collection took place via online surveys distributed through email, WhatsApp, and social media, which may mean that the sample is not representative of the entire population, especially those less tech-savvy.

The operationalisation of the constructs was done using self-developed items and an adapted scale based on a previous study. This could affect the validity and reliability of the measurements, especially if the developed items were not sufficiently validated. In addition, some constructs, such as chatbot acceptance, were measured using Likert scales, which, while helpful in capturing attitudes and opinions, may still be susceptible to bias and subjective interpretation.

Finally, the control variable experience with digital was collected to account for differences in the use of digital technologies. However, this variable may not cover all possible factors influencing participants' behaviour and attitudes toward chatbots and digital insurance policies.

4.3. Qualitative analysis

The interviews with various experts show that communication is extremely important in selling insurance policies. Trust, clarity and authenticity are decisive factors in achieving successful deals. Insurance terms and conditions are complex; communicating this information is crucial to sales success. Transparency and

comprehensibility are important for retaining customers in the long term. However, the importance of communication also depends on the type of insurance. While simple insurance policies, such as motor vehicle insurance, can be taken out online, products that require explanation, such as occupational disability insurance, require personal consultation. The experts emphasise that digital and analogue communication channels are necessary to reach the "hybrid customer." Customers prefer different forms of communication depending on their age and needs. Email and WhatsApp are often preferred communication channels, while video chats play a subordinate role. Reachability and responding to customer needs are essential success factors in selling insurance policies. Some experts emphasise the importance of stories and references to convince customers and stress the importance of online presence. Overall, it is clear that communication is seen as essential in selling insurance policies and is crucial to sales success.

The results of the interviews also show that the choice of communication channels in the insurance industry depends on the target group and the customer profile. In general, personal contact is seen as particularly important, especially for older customers and for the conclusion of contracts. However, younger customers, the "digital natives," are more familiar with digital solutions and communication channels such as apps, emails and WhatsApp. Communication should be transparent, understandable and customer-specific. It is important to respond to customer wishes and offer different communication channels. Customer satisfaction plays a crucial role, as does the ability to adapt to the customer and be flexible. Interviewees also consider the differences between B2B and B2C customers, with video calls being used more frequently in the current situation, especially in the B2B sector. Customer expectations in terms of communication include quick and easy accessibility, value-added information, trust-building, and direct added value in advertising. The insurance industry is seen as split between digitally affine and non-digital representatives. Some interviewees expect changes in the market in the next few years, such as a boom in insurance sales on Instagram and YouTube or a slump in the life insurance market.

The interviewees described the need for digital customer communication in insurance policy sales as important in responding promptly to customer inquiries and keeping up with the times. However, acceptance varies depending on the age of the customers and the type of products. Younger customers are more open to digital communication, while older customers prefer personal contact. For complex products, many customers prefer the face-to-face communication channel. The Corona pandemic has reinforced the trend toward digital communication. Many interviewees use digital communication tools such as email, WhatsApp, Zoom, Skype and online presence. Some see benefits in digitising signatures, while others express concerns about privacy and trust. The acceptance of digital customer communication in insurance policy sales depends on established and widely used communication options. Some interviewees emphasise the importance of transparency, benefits, and speed in improving adoption. Others mention the use of apps and support staff to ensure quick responses. Interviewees' experiences with digital sales are mixed. Some succeed with newsletters and social media, while others receive little response to such activities. Some separate personal and professional communications, especially when using Facebook and WhatsApp. Overall, most interviewees see the need for digital customer communication in insurance policy sales, although the level of acceptance and preferred forms of communication vary by customer group and product.

In the interviews with various experts, different opinions and experiences were gathered regarding using chatbots in customer communication and insurance policy sales. Some interviewees recognise the value of chatbots as helpful tools for quick and straightforward responses to customer inquiries and for generating customer information. However, they also stress the importance of data protection and the possibility of combining chatbots and live chats. Other experts believe that chatbots need to be more user-friendly and often do not provide the desired answers because the many different wording options limit them. Some interviewees believe that well-programmed chatbots and the availability of live service staff are important to ensure that the product is available in the first place. Some interviewees have no experience with chatbots and, therefore, cannot judge their usefulness in digital communication. However, they note that customers generally accept digital communication tools and adapt to the customer's needs. Other experts are aware of chatbots as a possibility for digital customer communication but do not offer them because they believe that chatbots cannot replace humans and that many customers still prefer personal contact. Some interview participants have already had positive

experiences with chatbots, especially in the area of insurance policy sales. They can imagine that it would be possible to conclude an insurance policy via a chatbot and consider this a positive development. On the other hand, other experts are sceptical and do not believe that chatbots can provide adequate communication, as insurance policies are too complex and face-to-face conversation remains essential. Some interviewees see chatbots as applicable for initial contact and answering simple questions, but they believe exclusive chatbot communication is inappropriate because insurance is complex. Other interviewees have had negative experiences with chatbots and consider them ineffective and frustrating for the customer. They do not believe chatbots will ever be smart enough to work well in the insurance space. Overall, the interviews show a mixed picture regarding the role of chatbots in customer communication and insurance policy sales. While some experts recognise the benefits and opportunities of chatbots, others are sceptical and prefer face-to-face contact. The future development of chatbots and their integration into customer communication will continue to be of great interest.

In the interviews, the acceptance of digital communication tools in digital sales of insurance policies was described as having increased through Corona. Managers play a crucial role by paving the way and sharing the enthusiasm. Employees must be trained to convey competence in the digital domain and reduce fears. Customers need to experience competence and transparency, while insurance companies need to become more transparent and authentic. However, the acceptance of digital forms of communication depends on the acceptance of society as a whole and varies depending on the age of the customers. Some interviewees suggest increasing adoption through incentives, such as bonuses for digital signatures and targeted communication of available digital tools. It is emphasised that digital forms of communication should be designed to be simple, understandable, clear and user-friendly. Sales reps and executives can help by demonstrating the options, promoting them, and taking customer feedback into account. Security and trust with regard to digital signatures should be strengthened by using simple software and communicating the benefits of digital communication. To increase acceptance among older customers, sales staff should pay attention to transparency and security in digital processes and not neglect personal contact. Some interviewees rate the acceptance of digital customer communication as rather low, as many customers prefer personal contact and perceive insurance as a complex topic. Managers can support their employees by creating the framework conditions for digital communication and improving the company's IT infrastructure. Overall, it is clear that acceptance of digital communication in the insurance business is higher among younger customers than older ones and that trust, transparency, and security are decisive factors. Sales staff and managers can help improve acceptance by educating customers about the benefits, offering simple and user-friendly solutions, and responding to individual needs.

5. Conclusion and recommendations

The presented research proves the main thesis: Communications between companies and their customers based on chatbots with artificial intelligence enable shortening the relationship between them, and their combination with other appropriate means of communication would increase company efficiency and customer satisfaction. The research provides guidelines for using chatbot technology in communication with insurance services clients.

This research examines the role of chatbots and artificial intelligence (AI) in insurance companies' sales and communications. It analyses quantitative and qualitative data to understand the impact of digitalisation and chatbots on customer behaviour and companies.

The interviews with experts from the insurance industry show that communication is a decisive factor in the successful sale of insurance policies. Trust, clarity and authenticity are essential, while transparency and comprehensibility are necessary for long-term customer retention. The choice of communication channels depends on the target group and customer profile, with younger customers preferring digital solutions while older customers value personal contact. The Corona pandemic has reinforced the trend toward digital communication. Opinions on using chatbots in customer communication and insurance policy sales are mixed. Some experts recognise the value of chatbots, while others are sceptical and prefer personal contact. The acceptance of digital communication tools has increased due to Corona, but managers, employees and customers need to be trained

to convey competence in the digital domain and reduce fears. Digital communication should be simple, understandable and user-friendly to increase acceptance.

The results show that chatbots and AI offer various use cases in the insurance industry, such as sales support, lead generation, online insurance contracting, customer service, claims management, personalisation of insurance offers, customer retention, cross-selling, insurance policy management, risk prevention and consulting, and integration of smart devices and IoT.

The study of customer and communication levels shows that customer behaviour is influenced by various factors described by transaction theory, exchange theory, motivation theory, and trust concept. Intermediaries play a critical role in influencing the buying and communication process. They can apply advice and advisor strategies to manage conflicts of interest between customers and sellers.

The analysis of expert interviews and quantitative data highlights the importance of communication in insurance policy sales and the role of communication channels, especially in digital sales. The study shows that integrating chatbots and AI into the sales and communication process allows insurance companies to increase efficiency and customer loyalty while reducing costs.

References

- Alagarsamy, S., & Mehroliya, S. (2023), Exploring chatbot trust: Antecedents and behavioural outcomes. *Heliyon*, 9(5), e16074, ISSN 2405-8440. <https://doi.org/10.1016/j.heliyon.2023.e16074>
- Bednarz, Z., & Manwaring, K. (2022), Hidden depths: The effects of extrinsic data collection on consumer insurance contracts. *Computer Law & Security Review*, 45, 105667. ISSN 0267-3649. <https://doi.org/10.1016/j.clsr.2022.105667>
- Bermúdez, L., Anaya, D., & Belles-Sampera, J. (2023), Explainable AI for paid-up risk management in life insurance products. *Finance Research Letters*, 57, 104242. ISSN 1544-6123, <https://doi.org/10.1016/j.frl.2023.104242>
- Bortz, J., & Döring, N. (2006): Research methods and evaluation. For human and social scientists; with 87 tables. 4th, revised ed., [reprint]. Heidelberg: Springer-Medizin-Verl., eBook ISBN978-3-540-33306-7. <https://doi.org/10.1007/978-3-540-33306-7>
- Chang, V. Y.L. (2023). Do InsurTech startups disrupt the insurance industry?, *Finance Research Letters*, 57, 104220, ISSN 1544-6123. <https://doi.org/10.1016/j.frl.2023.104220>
- Cosma, S., & Rimo, G. (2024). Redefining Insurance through Technology: achievements and perspectives in Insurtech. *Research in International Business and Finance*, 102301, ISSN 0275-5319 <https://doi.org/10.1016/j.ribaf.2024.102301>
- Ellili, N. et al. (2023), The applications of big data in the insurance industry: A bibliometric and systematic review of relevant literature, *The Journal of Finance and Data Science*, 9, 100102, ISSN 2405-9188, <https://doi.org/10.1016/j.jfds.2023.100102>
- Fu, J., Mouakket, S., & Sun, Y. (2023), The role of chatbots' human-like characteristics in online shopping, *Electronic Commerce Research and Applications*, 61, 101304, ISSN 1567-4223. <https://doi.org/10.1016/j.elerap.2023.101304>
- Gupta, S., Ghardallou, W., Pandey, D.K., & Sahu, G.P. (2022). Artificial intelligence adoption in the insurance industry: Evidence using the technology–organisation–environment framework. *Research in International Business and Finance*, 63, 101757, ISSN 0275-5319. <https://doi.org/10.1016/j.ribaf.2022.101757>
- Huang, D., Markovitch, D. G., & Stough, R. A. (2024). Can chatbot customer service match human service agents on customer satisfaction? An investigation in the role of trust. *Journal of Retailing and Consumer Services*, 76, 103600. ISSN 0969-6989. <https://doi.org/10.1016/j.jretconser.2023.103600>
- Janson, A. (2023). How to leverage anthropomorphism for chatbot service interfaces: The interplay of communication style and personification. *Computers in Human Behavior*, 149, 107954, ISSN 0747-5632. <https://doi.org/10.1016/j.chb.2023.107954>
- Lange, M. et al. (2023), Modern Build Automation for an Insurance Company Tool Selection, *Procedia Computer Science*, 219, 736-743, ISSN 1877-0509. <https://doi.org/10.1016/j.procs.2023.01.346>

- Li, Y., Li, Y., Chen, Q., & Chang, Y. (2024), Humans as teammates: The signal of human–AI teaming enhances consumer acceptance of chatbots. *International Journal of Information Management*, 76, 102771. ISSN 0268-4012. <https://doi.org/10.1016/j.ijinfomgt.2024.102771>
- Lu, Z., Min, Q., Jiang, L., & Chen, Q. (2024), The effect of the anthropomorphic design of chatbots on customer switching intention when the chatbot service fails: An expectation perspective. *International Journal of Information Management*, 102767. ISSN 0268-4012. <https://doi.org/10.1016/j.ijinfomgt.2024.102767>
- Ma, Y. L., & Ren, Y. (2023). InsurTech—Promise, threat or hype? Insights from stock market reaction to InsurTech innovation. *Pacific-Basin Finance Journal*, 80, 102059. ISSN 0927-538X. <https://doi.org/10.1016/j.pacfin.2023.102059>
- Maiano, L. et al. (2023), A deep-learning-based antifraud system for car-insurance claims. *Expert Systems with Applications*, 231, 120644. ISSN 0957-4174, <https://doi.org/10.1016/j.eswa.2023.120644>
- Men, L. R., Zhou, A., Jin, J., & Thelen, P. (2023). Shaping corporate character via chatbot social conversation: Impact on organisation-public relational outcomes. *Public Relations Review*, 49(5), 102385. ISSN 0363-8111, <https://doi.org/10.1016/j.pubrev.2023.102385>
- Meng, L.M., Li, T., Shi, X.C., & Huang, X. (2023), Double-sided messages improve the acceptance of chatbots. *Annals of Tourism Research*, 102, 103644, ISSN 0160-7383. <https://doi.org/10.1016/j.annals.2023.103644>
- Mullins, M., Holland, C. P., & Cunneen, M. (2021). Creating ethics guidelines for artificial intelligence and big data analytics customers: The case of the consumer European insurance market. *Patterns*, 2(10), 100362, ISSN 2666-3899. <https://doi.org/10.1016/j.pat-ter.2021.100362>
- Nuruzzaman, M., & Hussain, O.K. (2020). IntelliBot: A Dialogue-based chatbot for the insurance industry. *Knowledge-Based Systems*, 196, 105810, ISSN 0950-7051. <https://doi.org/10.1016/j.knosys.2020.105810>
- Pisoni, G., & Díaz-Rodríguez, N. (2023). Responsible and human centric AI-based insurance advisors. *Information Processing & Management*, 60(3), 103273, ISSN 0306-4573. <https://doi.org/10.1016/j.ipm.2023.103273>
- Rese, A., & Tränkner, P. (2024), Perceived conversational ability of task-based chatbots – Which conversational elements influence the success of text-based dialogues? *International Journal of Information Management*, 74, 102699, ISSN 0268-4012, <https://doi.org/10.1016/j.ijinfomgt.2023.102699>
- Sarraf, S., Kar, A. K., & Janssen, M. (2024). How do system and user characteristics, along with anthropomorphism, impact cognitive absorption of chatbots – Introducing SUCCAST through a mixed methods study. *Decision Support Systems*, 178, 114132, ISSN 0167-9236. <https://doi.org/10.1016/j.dss.2023.114132>
- Schrijver, G., Sarmah, D. K., & El-hajj, M. (2024), Automobile insurance fraud detection using data mining: A systematic literature review. *Intelligent Systems with Applications*, 21, 200340. ISSN 2667-3053. <https://doi.org/10.1016/j.iswa.2024.200340>
- Sun, Y., Chen, L., & Sundar, S. (2024). Chatbot ads with a human touch: A test of anthropomorphism, interactivity, and narrativity. *Journal of Business Research*, 172, 114403, ISSN 0148-2963, <https://doi.org/10.1016/j.jbusres.2023.114403>
- Tugui, A., Jeflea, F-V., Opariuc, C., Filipeanu, D., & Agheorghiesei, D-T. (2022). Societal Transformations in Romanian Society: Humanity's Interaction with Artificial Intelligence towards the Technological Singularity. *Transformations in Business & Economics*, Vol. 21, No 2A (56A), pp.435-461.
- Wang, C., Li, Y., Fu, W., & Jin, J. (2023), Whether to trust chatbots: Applying the event-related approach to understand consumers' emotional experiences in interactions with chatbots in e-commerce. *Journal of Retailing and Consumer Services*, 73, 103325, ISSN 0969-6989, <https://doi.org/10.1016/j.jretconser.2023.103325>
- Xie, Y., Liang, C., Zhou, P., & Jiang, L. (2024), Exploring the influence mechanism of chatbot-expressed humor on service satisfaction in online customer service. *Journal of Retailing and Consumer Services*, 76, 103599, ISSN 0969-6989, <https://doi.org/10.1016/j.jretconser.2023.103599>
- Yu, S., & Zhao, L. (2024). Emojifying chatbot interactions: An exploration of emoji utilisation in human-chatbot communications, *Telematics and Informatics*, 86, 102071, ISSN 0736-5853. <https://doi.org/10.1016/j.tele.2023.102071>
- Zhang, J. Chen, Q., Lu, J., Wang, X., Liu, L., & Feng, Y. (2024), Emotional expression by artificial intelligence chatbots to improve customer satisfaction: Underlying mechanism and boundary conditions. *Tourism Management*, 100, 104835. ISSN 0261-5177, <https://doi.org/10.1016/j.tourman.2023.104835>
- Zheng, S., Yahya, Z., Wang, L., Zhang, R., & Hoshyar, A. N. (2023), Multiheaded deep learning chatbot for increasing production and marketing. *Information Processing & Management*, 60(5), 103446, ISSN 0306-4573. <https://doi.org/10.1016/j.ipm.2023.103446>

Zhu, Y., Zhang, J., & Liang, J. (2023), Concrete or abstract: How chatbot response styles influence customer satisfaction, *Electronic Commerce Research and Applications*, 62, 101317, ISSN 1567-4223, <https://doi.org/10.1016/j.elerap.2023.101317>

Zogaj, A., Mähner, P. M., Yang, L., & Tscheulin, D. K. (2023), It's a Match! The effects of chatbot anthropomorphisation and chatbot gender on consumer behavior. *Journal of Business Research*, 155, Part A, 113412, ISSN 0148-2963, <https://doi.org/10.1016/j>

Data Availability Statement: More primary data be obtained from the corresponding author on a reasonable request.

Author Contributions: The authors contribute equally. All authors have read and agreed to the published version of the manuscript.

Alexander FICHTER is a Ph.D. student in the Department of Management and Business Information Technologies, Technical university of Sofia, Bulgaria. Research interests: Strategic Management, Digitalisation and reengineering of processes.

ORCID ID: <https://orcid.org/0000-0003-3745-4551>

Kiril ANGUELOV is a Professor Sc.Dr. in the Department of Management and Business Information Technologies, Technical university of Sofia, Bulgaria. Research interests: IT Management, Strategic Management, Digitalisation and reengineering of processes, and Supply Chain Management.

ORCID ID: <https://orcid.org/0000-0002-4460-133X>

Copyright © 2024 by author(s) and Vsi Entrepreneurship and Sustainability Center
This work is licensed under the Creative Commons Attribution International License (CC BY).
<http://creativecommons.org/licenses/by/4.0/>

