Use Of AI-Based Chatbot In Online Marketing Research Of Consumer Behavior Through A Questionnaire

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Abstract:
Modern technologies provide various opportunities for conducting an online marketing research. The object of consideration in the article are the online questionnaires, which find the most widespread application in practice. The most commonly used web-based tools for conducting an online marketing research using a questionnaire are described. More detailed attention is paid to the chatbot as a modern tool with the potential to be applied for marketing purposes and more specifically in marketing research. The results of an online survey of AI-Based Chatbot applications that can be used for marketing research are presented and an analysis of the opportunities they offer is made.
Key Word*: Chatbot, Online research, Consumer behavior, Questionnaire*

I. Introduction

Every research is a systematic and objective investigation of a subject or problem in order to discover relevant information or principles [1]. The same applies for the marketing researches. The definition given by The European Society for Opinion and Marketing Research (ESOMAR) is:

„Marketing research is a key element within the total field of marketing information. It links the consumer, customer and public to the marketer through information which is used to identify and define marketing opportunities and problems; to generate, refine and evaluate marketing actions; and to improve understanding of marketing as a process and of the ways in which specific marketing activities can be made more effective" [2].

As the definition shows, marketing researches play a fundamental role in marketing activity. This stems from the fact that they are the basis of management decisions, which makes them a key element of marketing.

Marketing research has become an important and constant systematic part of modern marketing since the emergence and application of the marketing concept in practice. From this point on, the attention of marketers is focused on studying the consumers and their needs. This fact makes consumer surveys a leading by their importance and nature marketing research.

Marketers strive to adapt to modern conditions and to the expectations and attitudes of consumers. This is related not only to the management of the tools of the marketing mix, the management of relationships with customers and the building of a long-term relationship with them, but also to the way of conducting marketing research. With the advent of the Internet and the subsequent widespread of digitalization, an opportunity has been created to use this technology to conduct marketing research for scientific and practical purposes. This method of gathering information has been applied in a number of researches studying consumer behavior such as [3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13].

The possibilities that the Internet provides for conducting online marketing research are significant. This can be accomplished through means such as:
* Online questionnaires;
* Online focus groups;
* Experiment in an online environment.

Of the three, online questionnaires are the most widely used for conducting empirical representative research on consumer behavior. For this reason, it is this tool that is of interest to the article.

An upswing in recent years has also been observed in the use of cutting-edge technologies to meet the high consumer demands for experiences at every point of the consumer journey. These include artificial intelligence, robotics, sensor technology, mixed reality, the Internet of Things and blockchain. Most of them have been in development for decades, but their more substantial application in marketing practice started in recent years. This process is expected to continue in the coming years. Among all modern technological advances, artificial intelligence has the greatest potential for marketing transformation [14, 15]. Even more, it is expected to change both marketing strategies and consumer behavior itself [16]. To some extent, this process has started in digital marketing by applying the technology in segmentation, content creation, predictive

analytics, personalization, Internet ads, forecast sales, dynamic pricing and marketing research, as well. One of the AI-based tools that can also serve as a tool for conducting online research is the chatbot.

The scientific literature on the issues of chatbot application in marketing is still scarce, as this is a new direction that is being formed. In practice, however, the use of chatbots for marketing purposes is becoming more frequent. Its application can be found in various aspects of marketing activity such as Customer Relationship Management, serves as a channel for receiving orders, is available 24/7, means of obtaining information, easily integrated to various social networks, Messenger, etc. It is interesting to explore the possibilities it provides as a means for conducting online marketing research.

The outlined trends that are of interest to the article pose two main questions for consideration:
1. To present the web-based tools for conducting online marketing research through a questionnaire
2. To explore the possibilities of AI-based chatbot applications for conducting online marketing research

II. Web-Based Tools For Conducting Online Marketing Research Through A Questionnaire

The first question posed for consideration in the article is to present the web-based tools for conducting online marketing research through a questionnaire.

The online questionnaire can be defined as a method for registering primary information from respondents using the Internet. By its nature, the online questionnaire has the same characteristics as its classical counterpart. The main difference is that it takes place in an online environment.

The principle of compiling the questionnaire is based on the "question-answer" method. Both open and closed questions can be included in the questionnaire. Different measurement scales such as nominal, ordinal, interval and rank are used to measure the answer given by the respondent in the closed type questions. Its preparation must correspond to the purpose of research. Hence the need to determine in advance the parameters that will be investigated.

Advantages of an online questionnaire:
➢ Low costs;
➢ 24-hour support;
➢ Speed of implementation;
➢ Possibility of visiting from a computer, laptop, mobile device, tablet through the Global Internet network;
➢ Flexible options for entering a question, type of response, facilitating the process of statistical processing;
➢ A wide range of respondents may be observed.

Disadvantages include:
➢ Not applicable to all age groups;
➢ The lack of direct control when conducting the survey [17].

In the online environment, there are many opportunities to create questionnaires. This can be done through various tools, such as.:
❖ Social network;
❖ Messenger applications;
❖ E-mail;
❖ Existing site for other purposes;
❖ Creating a site;
❖ Apps;
❖ Chatbot.

Social networks
Social networks are interactive technologies which allow us to connect in Internet and to create and share content. As can be seen in Fig.1 social media users are 4.89 billion in 2023 and according to forecasts by 2027 their number is expected to increase. The most popular are Facebook, YouTube, WhatsApp, Instagram, as shown on Fig.2. This evidence of the wide range and usability of these applications makes them a powerful marketing tool for businesses. They may be used for various marketing purposes, including providing users with a questionnaire to complete.
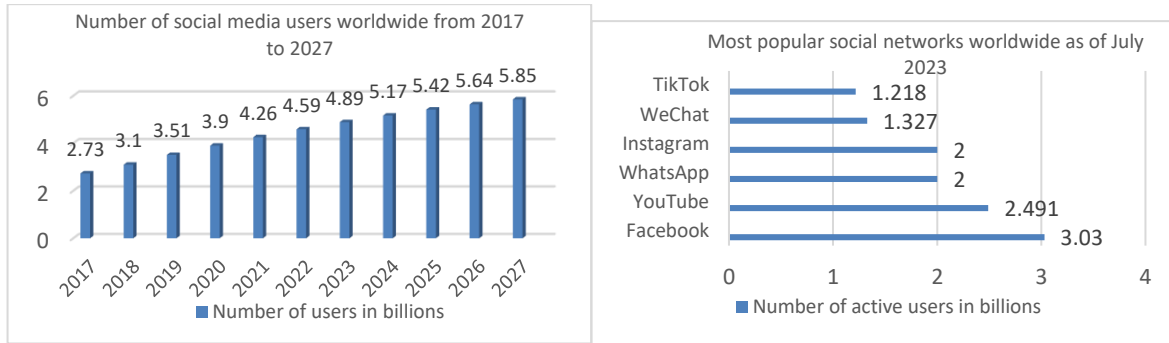
FIGURE 1. Number of social media users*
FIGURE 2. Most popular social networks*
*Source Statista.com

Messenger applications

Similar potential for marketing research through a questionnaire also has the communication applications. Figure 3 shows the most frequently used apps based on the number of monthly active users in January 2023. These platforms are designed to serve as a channel for communication between users in an online environment. Not only thoughts can be exchanged, but also files such as photos and videos. The opportunities they give users are to communicate, both by chatting in writing, and by making a call conversation and conducting a video conversation.
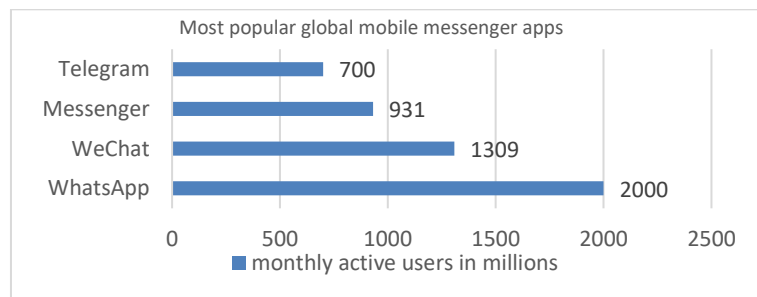
FIGURE 3. Most popular global mobile messenger apps*
*Source: Statista.com

E-mail

A means of communication enabling the sending and receiving of a letter through the Internet. In 2022, the number of global e-mail users amounted to 4.26 billion and is set to grow to 4.73 billion users in 2026, according to Statista.com. This makes the e-mail a possible channel for marketing research by sending a questionnaire or a link to complete a questionnaire to the respondents.

Existing site for other purposes

A possibility to provide a questionnaire for completion by the respondents is also within an existing site for other purposes. This option is practiced as it can be implemented using weblinks, web pop-ups or online panel.

Creating a site

One of the possible solutions to conduct an online marketing research is by creating a site. Google site is a tool that enables free and easy to create a website. This can be done for various purposes – personal page, business, event, project and others. The reason for its creation can also be for marketing research. In this case, the site will be used as a tool for gathering information, in which the respondents will complete the questionnaire.

Apps

One of the most commonly used and available online survey tools is Google Forms [8, 9, 10, 11, 12, 13]. This application enables the easy creation of an online questionnaire with a number of options when creating it [18]. Among them are the different type of questions, choosing the answer scale, the ability to store answers in a convenient format for subsequent statistical processing, adding images or video, customizing the view of the form. The respondent is required to have a Google account in order to complete the Google Forms

survey. From a financial point of view, there is no cost required for the right to use it, since Google Forms is free.

All the survey tools described so far are used in practice, but they have one common disadvantage – the lack of human interaction when conducting the survey.

Efforts in the development of new generation technologies in recent years have been aimed at replicating different human capabilities. One of them is artificial intelligence, which focuses on human thinking.

Chatbot

A chatbot is emerged as an effective tool to address the user queries in automated, most appropriate and accurate way [19]. Chatbot is an artificially intelligent conversational agent that simulates human-like conversation that, for example, allow users to type questions (i.e., queries) and, in return, generates meaningful answers to these questions [20]. Chatbot is an artificial intelligence-supported service tool that communicates with users over messaging apps, websites, mobile apps or over the phone [20].

The very idea of using the chatbot for marketing purposes stems from the fact that it is programmed to interact with the user as a real person. Its main distinguishing feature is that it has capabilities closer to human than other means for communication with the user. This advantage can also be applied when conducting a survey. For this reason, it has the opportunity to provide a response to the respondent during the completion of the survey. Another option is to decide based on a given answer whether to ask the next question or to skip it.

The main disadvantage of the other types of online questionnaires is precisely the reduced ability to interact while filling out the questionnaire. This is the main advantage of the chatbot, which far exceeds the current web-based applications.

III. Survey Of AI-Based Chatbot Applications For Conducting Marketing Research
Method of Research

The research objective set in the article is to investigate the possibilities of AI-based chatbot applications for conducting marketing research. To realize this goal, an online survey of AI-based applications that can be used for marketing purposes was conducted. The research was accomplished in the following stages, graphically illustrated on Fig.4:
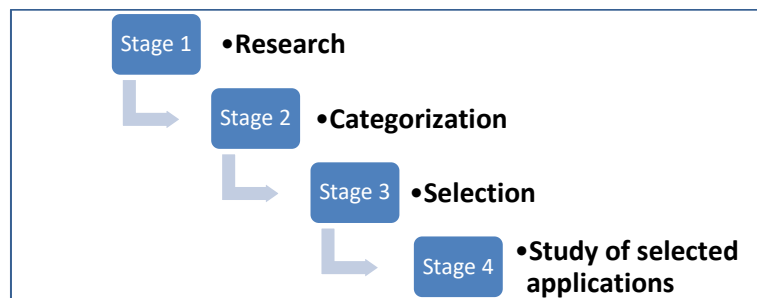

FIGURE 4. Stages of research
Stage 1: Research

At this stage, an online survey of AI-based applications was conducted. As a result, 120 AI-based applications that can be used for marketing purposes were discovered.

Stage 2: Categorization

The 120 applications are divided in different categories, based on the purpose of use into: Design, Video, Writing, Communication and Integration within the Marketing function.

Stage 3: Selection

At the third stage, the applications were selected according to two criteria:
☐ Criteria 1 – to be a chatbot;
☐ Criteria 2– to be able to be used for marketing research

As a result, it was found that 11 of them provide the most opportunities for conducting extensive online marketing research, presented in Fig. 5.
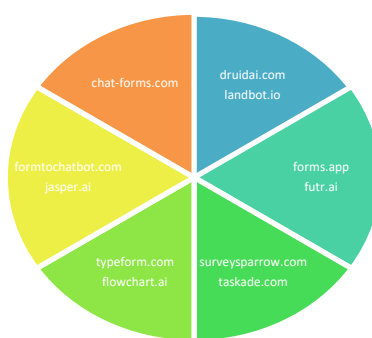
FIGURE 5. AI-based chatbot apps for marketing research

Stage 4: Study of selected applications
        In this stage the study is focused on studying the possibilities that the chatbots give for conducting marketing research.

As a result, the following common and important functions of the applications have been identified:
- Possibility of free testing;
- Functional units that the applications include are respondents, words or questions;
- Chatbot converter or chatbot from scratch;
- Integration with messengers, social network and site;
- Greater opportunities for interaction with the user during the implementation of the marketing research;
- Ease of use;
- Price packages;
- Way to login.

Analysis of Results, Conclusions and Future Directions
Analyzing the opportunities offered by the selected applications is made for the following important criteria:
Product
Among the main opportunities offered by the application itself as a product are the following:
Possibility of free testing
        Apps provide a limited free trial period with limited capabilities. This option involves using a certain base package of number of words, number of questions or number of respondents. For some of the applications, testing also covers integration with social networks, sites and messengers.

Functional units that the applications include are chat, attendees or responses
        A survey can be planned based on the monthly number of chats, attendees or responses available to construct the questionnaire.

Chatbot converter or chatbot from scratch
        Some of the apps can be used as plugins to convert existing forms from Google Forms to chatbot like chat-forms.com and formtochatbot.com.
        Chatbot modeling can also be done from scratch as the chatbot building platform provides an easy-to-use graphical user interface.

Integration with messengers, social network and site
        The platforms offer a mechanism for integration with messengers, social networks and sites. This provides new channels to deliver the survey to the user for completion.

Greater opportunities for interaction with the user during the implementation of the marketing research
        The chatbot can respond to a request at the time of completing the survey if the user needs it. He can decide which questions to ask and not depending on the answer to the previous questions.

Ease of use

The applications offer an intuitive graphical user interface that can guide the survey developer in this process. They are designed for ease of use, both by the one who wants to conduct the research and by the participants in this process.

The results obtained for the studied applications according to their main capabilities are summarized in Table 1. As can be seen, the results indicate that all applications offer free testing, interaction with the user and ease of use. Differences can be found regarding the other criteria. In terms of what functional unit is offered, for 45.5% of applications the functional unit is chat, for 36.4% it is response, and for only one application – attendee.

Another metric studied is the chatbot type. In 72.8% of the applications it is From scratch. This result shows that most of the developments at the moment are concentrated in this direction.

Integration is key for this type of applications. It was found that 36.4% provide the possibility of integration with social networks, messengers, Google Analytics and Hubspot, e-mail and website, 18.2% with Cloud providers, SMS and Google Forms and 9.1% with other chatbots and SEO Mode.

Price

All applications offer several packages depending on the needs, which are affordable for both personal and business use. Subscriptions are monthly or yearly. The pricing of the package is based on the set of options included in it. For making a payment for obtaining a package, there is a limitation in some electronic payment systems.

Placement

In order to use the services of some of the applications, a work email is required. Some offer login with google account, social network account or registration. A serious obstacle is the accessibility according to the region, as in the study conducted from Bulgaria it was found that not all the applications give access to this part of the world.

TABLE 1. Results Obtained for the applications for Criteria Product

Apps	Product					
	Free testing	Functional units	Chatbot type	Integration	Interaction with the user	Ease of use
Druidai.com	yes	chat	From scratch	Social networks, Messengers, Cloud providers	yes	yes
Landbot.io	yes	chat	From scratch	Google Analytics, HubSpot	yes	yes
Futr.ai	yes	chat	From scratch	Social networks, messengers, e-mail, SMS, website	yes	yes
Forms.app	yes	responses	From scratch	Google Analytics, HubSpot Social networks, messengers, e-mail, website	yes	yes
Surveysparrow.com	yes	chat	From scratch	Google Analytics, HubSpot Social networks, messengers, e-mail, website	yes	yes
Taskade.com	yes	attendees	From scratch	Google Cloud integration	yes	yes
Flowcharts.ai	yes	responses	From scratch	SMS, e-mail, other chatbots	yes	yes
Typeform.com	yes	responses	Form converter	e-mail, Google Analytics, HubSpot, social networks	yes	yes
Formtochatbot.com	yes	responses	Form converter	Google forms	yes	yes
Jasper.ai	yes	chat	From scratch	Website, SEO Mode	yes	yes
Chat-forms.com	yes	responses	Form converter	Google Forms	yes	yes

The use of the applications that have been studied does not require special computer skills. They are designed for ease of use, both by the one who wants to conduct the research and by the participants in this process. Their analysis shows that they are oriented towards business goals. I believe that the same logic can be applied for scientific purposes. This will allow in the future to reach the young generations such as Z and Alpha, who live in a hectic everyday life, are attached to new technologies and their phone. It is necessary to look for ways to reach them more easily when marketing research is being carried out for scientific and practical

purposes. For these reasons, and because the new technology will eliminate some of the current problems such as the lack of human interaction in online research, it is important to work in this direction.

IV. Conclusion

Technological changes in recent years and the dynamics in the behavior of technologically oriented generations such as Z and Alpha have created a number of challenges, but also opportunities for marketers. The main challenges are related to the growing demands of consumers regarding the experience they expect to receive throughout the purchase decision process. To answer this, marketers need to be aware of the needs, attitudes and expectations of the consumer. One of the opportunities provided by modern technologies and in particular AI is found here, and it is related to the means of conducting online marketing research. The knowledge about the tools that can be used for this purpose and their capabilities will create the necessary prerequisites for a more effective study of consumer behavior.

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