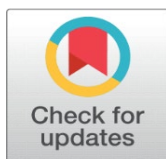


# MODEL OF CONSUMER BEHAVIOR WHEN APPLYING AI AT EVERY POINT OF CONSUMER CONTACT

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## ABSTRACT

The article outlines the basic aspects needed to study the consumer behavior. The first of them is related to existing sources of information on consumer behavior that use modern technologies. For this purpose, both online and physical sources of information using AI are presented. The second aspect is about the factors that influence consumer behavior. The third question is related to the role of AI technology for consumer experience in the purchase process. These three aspects are set as the framework needed to build the presented model of consumer behavior when applying AI at every point of consumer contact.

**Keywords:** Consumer Behavior, Purchase Decision Making, Artificial Intelligence, Point of Consumer Contact

## 1. INTRODUCTION

Consumer behavior is an important scientific field of great social importance. A number of authors [Kardes et al. \(2011\)](#), [Galalae & Voicu \(2013\)](#) consider it to be an applied social science that is based on theories and concepts from psychology, sociology, anthropology, economics and statistics [Kardes et al. \(2011\)](#). The multidisciplinary nature of this science allows for the in-depth, multi-layered and comprehensive study and interpretation of behavioral characteristics and attitudes.

From a marketing perspective, consumer behavior entails all consumer activities associated with the purchase, use, and disposal of goods and services,

including the consumer's emotional, mental, and behavioral responses that precede, determine, or follow these activities [Kardes et al. \(2011\)](#).

In marketing, consumer behavior occupies a key and fundamental place. This stems from the fact that the attention of marketers is focused on studying the consumer and his needs, desires, and behavior. On this basis, prerequisites and opportunities are created to reach it more successfully. In addition, the modern consumer expects to get a seamless and exciting experience in his consumer journey. In order to meet these challenges, it is necessary to be familiar the following aspects important for the study of consumer behavior:

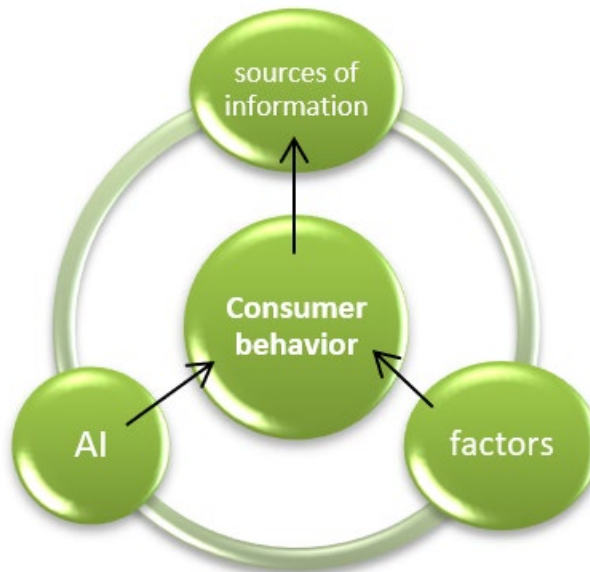
- Which sources of information about consumer behavior using modern technologies exist;
- Which factors influence consumer behavior;
- What is the role of AI technology for user experience in the purchase process.

For the purpose of the article, the questions posed will be outlined as a framework that is needed to build a model of user behavior when applying AI at every point of consumer contact.

## 2. METHODOLOGY

The methodology for the development of a model of consumer behavior when applying the possibilities of cutting-edge technologies like AI should have the following structure, illustrated on [Figure 1](#):

**Figure 1**



**Figure 1** Methodology for Developing a Model of Consumer Behavior

The model should be based on three steps:

**1 step:** To be aware of the sources of information about consumer behavior, so to be able to use them to study it;

**2 step:** To identify the factors that influence the consumer behavior;

**3 step:** To be familiar with the possibilities of the technology of AI so to apply it in every point of the consumer contact.

## 2.1. SOURCES OF INFORMATION ABOUT CONSUMER BEHAVIOR

The opportunities provided by the Internet and AI technology to study consumer behavior are significant. This creates conditions for its better acquaintance and for creating a consumer persona. On this basis, it is also possible to reach a segment of one consumer.

Sources of online information can be the following:

### 1) *Marketing research*

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. Depending on how they are implemented, they can be online and offline.

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.

Some of the main advantages of an online research are:

- 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 [Roopa & Rani \(2012\)](#).

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.

### **2) Data from means of communication**

This group includes data from:

- Website;
- Search engines;
- E-mail;
- Social media;
- Messengers;
- Apps;
- Chatbot

### **3) Internal company sources**

Information generated in the organization such as orders made, sales reports, customer information, etc. can serve as part of the analysis when building a marketing strategy.

## **2.2. SOURCES OF INFORMATION FROM THE PHYSICAL ENVIRONMENT USING AI**

Information about the user can also be obtained from his immediate interaction in a physical store. AI can:

- analyze data captured by video cameras in the store;
- from sensors in smart stores;
- the beacons;
- of bracelets with radio frequency tracking technologies;
- geofencing;
- intelligent trial and interactive showcase;
- other.

Multiple sources of information generate large datasets that must be used in a timely manner to make effective decisions. This has led to the emergence of data-based marketing. On the basis of this philosophy is the use of customer data to predict their needs, desires and future behaviors. On the one hand, it helps to develop personalized marketing strategies for the highest possible return on investment. On the other hand, it optimizes customer information to develop a marketing strategy. It involves using online and offline channels to collect complex data that is then analyzed to understand customers better [Rosario & Dias \(2023\)](#).

## **2.3. FACTORS AFFECTING CONSUMER BEHAVIOR**

The study of consumer behavior should also include the factors that influence it [Gajjar \(2013\)](#). The classical classification includes the following five groups [Dimova \(2013\)](#):

### **1) Cultural Factors**

Consumer behavior is deeply influenced by cultural factors such as: buyer culture, subculture, and social class.

### **2) Social Factors**

Social factors also impact the buying behavior of consumers. The important social factors are: reference groups, family, role and status

### **3) Personal Factors**

Personal factors can also affect the consumer behavior. Some of the important personal factors that influence the buying behavior are: lifestyle, economic situation, occupation, age, personality and self-concept.

### **4) Psychological Factors**

There are four important psychological factors affecting the consumer buying behavior. These are: perception, motivation, learning, beliefs, and attitudes.

### **5) Situational factors**

They cover consumer situations such as physical environment, social environment, purpose of purchase, time, and previous states.

To these five groups, technological factors should be added as a sixth group – technological factors.

### **6) Technological factors**

The consumer's interaction with new technologies and the impact this has on him is essential. The presence of smart devices and new technologies in the lives of modern generations is so significant that it leads to new consumer habits. This can significantly influence taste preferences and purchase attitudes.

## **2.4. ROLE OF AI TECHNOLOGY FOR CONSUMER EXPERIENCE IN THE PURCHASE PROCESS**

The modern consumer expects to get a seamless and exciting experience in his consumer journey. To do this, marketers need to know their customers well. On the other hand, they need to know and be able to apply the modern capabilities of new generation technologies such as AI at every point of contact.

Kotler outlines the following five ways that modern technology can help the consumer experience in the buying process [Kotler et al. \(2022\)](#).

### **1) Making more informed decisions based on big data**

This allows for more detailed customer profiling and higher level of personalization.

### **2) Predicting the results of marketing strategies and tactics**

Based on a forecast, certain patterns can be found based on an analysis of past periods to determine which marketing activity is effective.

### **3) Bringing the contextual digital experience to the offline space**

Thanks to the possibilities of AI technology, prerequisites are created for a digital experience not only in an online environment, but also in an offline one.

### **4) More opportunities to interact with consumers by adding value**

Many modern ways are being created for easier and better interaction with users, such as the use of chatbots, augmented reality technology, smart devices, and others.

### **5) Accelerating the growth of marketing productivity**

Need for flexibility and adaptation to dynamic user preferences.

In today's highly competitive market, manufacturers strive to offer not only a product that will satisfy the needs of the consumer better than that of competitors.

The battle for the consumer's attention is also about the experience he will have at every touchpoint in the process of making a decision to purchase a product. This is especially true for generations Y and Z, who are technologically oriented.

### **3. MODEL OF CONSUMER BEHAVIOR IN THE PURCHASE DECISION PROCESS**

AI creates many opportunities for interaction with the consumer at every point of contact. This contributes to a better experience and personalization in customer services and offers.

In general, the model of consumer behavior in the purchase decision process can be divided into three main stages. For the purpose of the article, a summary of user contact points using AI will be made for each of the stages.

#### **3.1. PRE-PURCHASE STAGE**

In the first stage, a need arises, a state of discomfort that the user wants to satisfy. Therefore, it should seek information that can be obtained through various sources. Depending on what stimulus a need arises or manifests, we can distinguish between:

##### **1) Based on personal impulse**

The possibilities of searching for information from sources using AI are:

- **Text search**

The user has the opportunity to search for information on the Internet by entering text. Using a search engine, the user enters a keyword or search phrase and based on that, the most relevant results are generated on the results page. An opportunity for text search through chat is to use one of the most modern ways of communicating with businesses - through a chatbot. The user can communicate through a chatbot on the website of the organization itself or in a means of communication such as a messenger or through a social network. Another possibility to use a chatbot is for making orders.

- **Voice-enabled search**

In this case the user can use a voice command to search over the Internet in a website, or in an app. One case is to initiate a voice search in the search engine like Google. Another possibility is to use voice assistants like Apple Siri, Amazon Alexa, Microsoft Cortana. These smart speakers are activated by a voice command from the user. What makes them a marketing tool is that based on the user's inquiries, they learn a lot about his habits and behavior.

- **Visual Search**

Google allows users to search for content by image. This option is very convenient especially in cases where we do not know and cannot explain something that has intrigued us and by taking a picture and its subsequent search to obtain the desired knowledge.

- **Smart devices**

Provide the opportunity for interaction through their display. They are in fact a kind of channel through which you can order food, transportation, or other type of service. For marketers, it is a way to promote products.

- **Augmented reality**

This technology provides a number of advantages in promoting a product – the ability to "test" it before buying, the interesting way to do this, engaging the smartphone in the experience that is an integral part of the lives of modern technological generations like Z. This is particularly relevant for online purchases as it reduces the consumer's sense of risk and uncertainty when making a purchase decision. A number of applications allow you to measure clothes, try on makeup, glasses, how a piece of furniture will look in the home, etc.

The same five can be used in the second group of stimuli.

## 2) *Marketing incentive*

- **Recommendation systems**

Apps such as Netflix, Amazon and YouTube collect information about a user's preferences and on this basis provide them with recommendations that are most relevant. On Netflix based on general characteristics (genre, actor, etc.) of the watched movies and series, similar ones are offered. Amazon makes suggestions based on information about previous purchases and traders' ratings. YouTube offers multimedia content based on what the user has viewed so far.

- **Online advertising**

Based on the information the user has searched on the Internet or the sites he has viewed, he receives a related set of advertisements. They may appear on a number of sites that he will later visit, such as social networks like Facebook. In this way, he receives information about various offers at the time of searching for a product.

- **Content and advertising text**

Content-AI and machine learning tools can analyze current content trends in a segment. They can also research social media accounts to determine what type of content works best for that audience.

With the advent of technologies such as generative AI, a prerequisite is created for the generation of advertising text that is most relevant to the segment of users to which it is directed.

- **Direct marketing**

Sending a personalized message, offer through channels such as e-mail or a means of communication such as messenger.

- **Influencer Marketing**

Through natural language processing (NLP), AI can scan the content posted by a popular personality to assess whether it matches the company's brand style and whether its followers have the same demographic characteristics as the target audience. It is now possible to predict the success of an influencer's campaign before it even starts. AI can use NLP to analyze how the campaign will affect the brand image and calculate the volume of engagement it will generate.

- **Outdoor advertising**

The selection of the most suitable location for placing a billboard can be done based on the analysis of arrays of information about the location of customers such as usual route and preferences.

### **3) Purchase stage**

In the purchase stage, the user has the opportunity to compare options and to choose a product to purchase. With the help of AI, this can be done both online and offline:

#### **1) Offline**

- **Sensors**

A system of connected sensors can be used at the point of sale. Stores equipped with sensors like beacons communicate with nearby smartphones. In this way, the location of the customer can be determined, as well as his path in the store. This creates a valuable opportunity to send him a personalized message while he is in the store. Stores equipped with sensors based on Internet of things technology are also called "smart". They can map the real user path. On the basis of analysis, possible adjustments in the layout of the store or shelves can be made.

- **Bracelets with radio frequency tracking technologies**

An example of using this type of device is in the Disney theme park. The bracelet is in constant contact with the thousands of sensors located in the park. This gives continuous information about visitors' movements, behavior and preferences. Based on this, personalized offers can be made and the service and experience can be improved. In addition to this information, the wristband also serves as a multi-functional device for the user, as it can be used for payment and entry [Kotler et al. \(2022\)](#).

- **Geofencing**

It is based on using the geolocation via GPS in the customer's smartphone. In this way, the company can direct traffic to stores from nearby locations by sending promotional offers. It is also possible to draw a border around a given geographical point and distribute a targeted message to people within the defined parameter [Kotler et al. \(2022\)](#).

- **Smart Trials**

In these, the consumer can enjoy a digital experience in a physical store and specifically in a trial. This is possible thanks to a digital mirror using radio frequency identification technology. For example, Oak Labs is making smart mirrors for trials in clothing stores with a display that can read labels on clothes and show images of the items on the screen. By touching the mirror, customers view different colors and sizes of a garment, ask a store employee to bring them a fitting number, can ask for a stylist's opinion and even complete their purchase through the screen. Buyers can even adjust the lighting in the room. Even if they do not make a purchase, customers can send a video recording of the entire session to their smartphone.

- **Interactive showcase**

This is a glass showcase - touch-responsive multimedia that interacts with the person, responding to his sensory commands through pre-prepared graphic images. Several users can interact with it simultaneously. With its help, the customer can view the products he is interested in. For example, Adidas use an interactive window display in a store in Nuremberg, through which products can be viewed and orders can be made.

- **Facial recognition technology**

It is expressed in recognizing the demographic profile and identifying each face once it is recorded in the database. The technology is able to capture people's



feelings, emotions and even fears by analyzing the images of people's faces recorded in a video or live camera. Tech giant Amazon has rolled out updates to its facial recognition tool that include improving the accuracy and functionality of face analysis, such as recognizing gender, emotions, and approximate age. In addition, they improved the accuracy of identifying all seven emotions: happiness, sadness, anger, surprise, outrage, calm and confusion, and added a new emotion: fear.

This is useful for monitoring consumer response to products and promotions. Disney conducts similar monitoring during theatrical screenings of its films to analyze audience reaction. This information enables personalized offers to be made [7].

In China, facial recognition is used to pay for purchases, speed up ID checks when traveling, and fine unruly pedestrians. Faces are even scanned in the toilets of some tourist sites when receiving toilet paper to limit its overuse.

In the US, the technology is used in multiple stadiums.

In England it is used at gas stations. Based on this, personalized offers are sent while the user is waiting to be served.

The technology is also used in:

- online marketing research such as online focus groups or on a website that allows users to track their gaze;
- a biometric payment system where, through facial recognition, the customer will confirm payment for a product just by standing in front of a cashier;
- digital billboards that can identify emotional state and demographic profile.
- **Voice Analysis**

Specific voice properties such as tone, timbre, speed, pauses can be analyzed to assess the user's feelings. This technology is particularly useful in telephone services and call centers.

- **Robot for Service**

A number of companies around the world have started using robots in customer service, incl. in Bulgaria. In November 2019, for the first time in Europe, a hotel "appointed" a robot to serve hotel guests. The innovator in the hotel industry is Best Western Premier Sofia Airport. The functions of the robot, whose name is "Roomy", are related to the services "Room Service" and escort to the room.

The first robot waiters and cleaners make their debut on the Bulgarian Black Sea coast in the restaurant of the Tyulenovo Hotel. Robot waiters and one cleaning robot are used in the hotel's restaurant. For each of them there is a corresponding waiter who coordinates their activities. The machines have different modes of operation, but the most commonly used are food delivery and guest accommodation. With delivery mode, the robot can be programmed to carry food or empty plates to various locations, while with accommodation mode, it can take guests to their table, the bar or show them where the toilet is. Robots can also work on different floors, but they need an elevator.

The first robot waiter in Plovdiv serves the customers of the Speciale pizzeria. The electronic assistant Bella serves, waits, sings in several languages, communicates with people in the restaurant. Bella can be petted behind the ear, causing her to purr. A serving robot is also used in the Tea & Eat 1999 confectionery in Sofia.

## 2) *Online*

### **Product**

- **Customization options**

Personalization is one of the most important elements in a marketing strategy to satisfy customer requirements. By placing an online order for a number of products, the user has the opportunity to customize the product according to his wishes in terms of color, size, inscription.

- **Recommendation for a complementary product to the order**

In the online ordering process, the user may receive an offer to purchase another product in addition to the one he is ordering. The offer that is given is for a product that is related to purchases. It may be complementary to it or connected in its use. e.g. GSM and screen protector.

### **Price**

- **Dynamic pricing**

Dynamic pricing is a method that allows businesses to change the prices of their products or services in real time based on multiple variables. This method is widely used in e-commerce. Dynamic pricing uses algorithms and big data to analyze factors such as time of day, seasonal trends, inventory and even weather conditions to determine the optimal price.

- Preset criteria can be:
- How many items the customer buys?
- How often does he visit your store?
- Is there an individual discount enabled?
- What is the value of its purchase?
- What is the history of this user - how has he interacted with your store so far, how many purchases he has made, etc.

Dynamic prices can be applied in the following cases:

- The unit price of an item changes according to the number of products;
- When you buy a certain amount of product, you get one for free;
- Special price offers for loyal customers.

### **Placement**

- **Delivery**

The American company Wing, a subsidiary of Alphabet reached the milestone of 100,000 deliveries in August this year, becoming the largest drone delivery service to end users in the world. Meanwhile, Walmart and Wing start delivering online orders with drones. For two years, the two companies have been conducting tests in real conditions, gradually increasing their scale. During that time, more than 10,000 deliveries were made in seven states from 36 Walmart stores. Now Walmart and Wing are starting the official service as well. It will launch from two stores in Dallas, serving 60,000 households.

American company Zipline delivers vitamins, pizzas, and medical supplies. The company delivers critical medical supplies such as blood banks and vaccines to hard-to-reach places in Rwanda. Zipline offers Long Island hospital patients delivery of specialty prescription medications.

In Ireland, Manna makes 2,000-3,000 flights a day, delivering food, small items and medicine. The Irish company Manna has shown that drone delivery is 90%

cheaper than Uber Eats or other car-based delivery methods, and the environmental impact is 50 times more efficient.

### **Communications**

- **Quick communication at the time of placing the order via chatbot**

Inquiries may be related to clarifying information needed by the user about usage, product features, delivery issues, payment method, after-sales service, etc.

#### **4) Post-purchase stage**

Marketers' interest in customers who have made a purchase does not end with the purchase. Long-term business success requires building long-term relationships with customers, making them loyal and wanting to buy again. To achieve this, we must continue to care and interest about the customer after the purchase stage. The possibilities that AI provides for this purpose are related to:

- Sending personalized messages and offers by e-mail, messengers
- Making fast communication through chatbot

If additional information is needed after the purchase, the user can quickly contact the company via chatbot. Questions that can be addressed are related to service, need for spare parts, problem encountered while using the product and others.

- Analysis of user opinions after purchase

Reviews given by users who have purchased a product are a source of information about their satisfaction and evaluation of the product and the merchant.

- Predictive analysis

Predictive analytics enables companies to make predictions about the market. Through AI, data from past periods is analyzed to detect specific patterns, i.e. a predictive model is made. Predictions are made about whether the customer is likely to make a repeat purchase, which products they are likely to do so, etc.

Predictive analysis relies precisely on the system of data-driven marketing. Thanks to it, it is possible to determine the probability that users will perform certain activities in the future, as well as which ones are worth taking care of. Analytics also have a role to play in predicting customer response to related and upscale product offers.

Stepping on big data sets and predictive analytics, the model is driven from scratch and thus becomes a continuous process, the goal of which is the best customer service at every point of customer contact.

## **4. CONCLUSION**

The modern consumer expects to receive the best service and to be offered the most suitable products under the best conditions. Along with this, the user expects to be provided with a personalized experience. Artificial intelligence plays a key role in improving the user experience at every point of user contact. Knowing the opportunities that exist for this purpose at each stage of the buying decision will help businesses achieve a higher level of customer service, engagement and building long-lasting relationships with them.

## **CONFLICT OF INTERESTS**

None.

## **ACKNOWLEDGMENTS**

None.

## **REFERENCES**

- Dimova, N. (2013). Marketing Aspects of Emotional Purchase, Edition of NBU.
- Gajjar, N. B. (2013, April). Factors Affecting Consumer Behavior. *International Journal of Research in Humanities and Social Sciences*, 1(2).
- Galalae, C., & Voicu, A. (2013). Consumer Behavior Research: Jacquard Weaving in the Social Sciences, *Management Dynamics in the Knowledge Economy*, College of Management (NUPSPA) and Tritonic Books, 1(2), 277-292.
- Kardes, F., Cronley, M., & Cline, T. (2011). *Consumer Behavior*. South-Western, Cengage Learning, USA.
- Kotler, P., Kartajaya, H., & Setiawan, I. (2022). *Marketing 5.0: Technology for Humanity*. Locus Publishing Ltd.
- Roopa, S., & Rani, M. S. (2012). Questionnaire Designing for a Survey. *The Journal of Indian Orthodontic Society*, 46(4), 273-277. <https://doi.org/10.1177/0974909820120509S>
- Rosario, A.T., & Dias, J.C. (2023). How has Data-Driven Marketing Evolved: Challenges and Opportunities with Emerging Technologies. *International Journal of Information Management Data Insights*, 3(2), 1-14. <https://doi.org/10.1016/j.jjime.2023.100203>