

# Applying Consumer Behavior Theory integrated with Supply Chain Strategy in the Context of the Digital Transformation of the Economy

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**Abstract-** The article deals with the study of the consumer behavior by considering the supply chain strategy in the context of a rapid digital transformation. The urgency and significance of the identified problem for science and practice are stipulated, on the one hand, by objective economic laws and major trends of the modern era, and on the other, by the problems of developing a model of the digital consumer's responsible behavior. The purpose of this research is the development of ideas about factors (determinants) influencing consumer behavior in the context of digital transformation, which at present is acquiring not only a socio-economic, but also a considerable ethical significance. The theoretical and methodological principles of the systemic and interdisciplinary approaches allowed us to identify two main groups of consumer behavior models: the conservative "homo economicus" model and models based on T. Veblen's ideas adapted to the socio-economic reality of the 20<sup>th</sup>-21<sup>st</sup> centuries. The capabilities of the modern digital economy make full use of consumer effects described by Veblen and not just "nudge" the consumer to make the targeted decision, but form a new type of consumers online, who are integrated into various communities and do not have information barriers.

**Keywords-** Digital economy, consumer behavior, effects of consumption, club consumption, collaborative consumption, supply chain strategy.

## 1. Introduction

Rapid digitalization is becoming one of the most important factors affecting consumers' economic behavior. On the one hand, technologies expand consumption opportunities, enabling access to the widest range of goods and services, on the other hand, they complicate life and change it. Digital technologies are changing patterns of communication between people, as well as between people and organizations. It is becoming easier to establish and maintain contacts, instantly interacting with each other at any distance. A new type of consumer integrated into various communities and having no information barriers is being formed. The life cycle of new consumer ideas is

becoming shorter; societies united by common preferences are getting mobile and dynamic. Currently, the category of "consumer behavior", being in the spectrum of cross-scientific studies, covers a fairly wide range of phenomena and processes. Being a debatable category, and attracting the attention of scientists investigating various spheres of human activity, consumer behavior still remains an insufficiently studied phenomenon, especially considering the changes that are characteristic of the current stage of socio-economic development. The breakthrough development of digital technologies, the revolution in the info sphere, the acceleration of economic globalization – all these processes have a strong impact on a person, forming a new system of his preferences as a consumer in modern society, a behavior model influenced by the digital economy determinants. By contributing to the solution of the above-mentioned problem, the authors of this article try to treat the theory of consumer behavior through the prism of the influence of new technologies and the digitalization process of modern society. The development of the proposed subject of study will enable to improve the competitiveness of the economy by finding a consumption model that harmoniously combines the use of the achievements of the digital economy both to ensure economic development and neutralize externalities provoked by the era of "mass consumption".

## 2. Materials and Methods

Taking into account the specifics of the research subject, this article used the theoretical and methodological principles of an interdisciplinary approach including philosophical, historical, economic, socio-cultural and behavioral prerequisites in the analysis that influence the formation of a consumer behavior model. The systematic approach made it possible to logically coherently present the diverse and interacting theories and institutions, which taken together provide an opportunity to identify "key"

problems within the framework of the issues under study. In accordance with this approach, defined as the methodological basis of the research, the following principles were applied:

- The principle of limited rationality (on the one part, the consumer has access to a huge amount of information, which increases the likelihood of finding the very information which is most important for him. On the other part, it is a huge amount of information that makes it difficult to search and select relevant data);
- optimization of consumer preferences (the set of benefits involved in the consumer choice in the digital age has expanded significantly (for example, network benefits), primarily owing to structural changes in the post-industrial economy);
- general principles of moving to a new type of economic development, through the influence of digital technologies.

### 3. Literature Review

The 20<sup>th</sup> century, by virtue of multiple economic and political conflicts, became a period when century-old traditions were put in question relating the study of economic agents' behavior. In particular, institutionalists have shown that along with the orthodox "homo economicus" model with its unlimited cognitive abilities of an individual, it makes sense to consider a real person whose behavior is limitedly rational, and his calculation abilities are finite. Bounded rationality is a feature of an economic agent who solves the problem of choice in the conditions of incomplete information and limited capacities for its processing. The presupposition of bounded rationality that underlies the institutional economics seems to us to be meaningful: since man, though he bears, unlike other living creatures on the Earth, the proud name *Homo Sapiens*, is not free in making decisions about his economic (and otherwise) behavior. And the key limitation is the complex of institutional features inherent in that civilization to which this individual belongs. "The use of products," wrote Marx, "is determined by the social conditions in which the consumers find themselves". That is, in our consumer behavior and our consumer habits, we are not at all demonstrating an absolute ratio, but a commitment to the ideas about ratio that are inherent in a given society. Today, for instance, in secular states, women wearing trousers and leading business negotiations with men cause no surprise or rejection. While some 100 years ago (and in some countries with orthodox

religious views even now) this was perceived as a nonsense and a challenge to society. Meanwhile, the consumption by women who receive an income that is separate and independent of their spouses' desire gives life to the widest range of economic sectors, ranging from cosmetology to mechanical engineering. Thus, our behavior always corresponds to the social system, stage of economic development, a certain socio-economic structure, which, so to speak, subordinate it to the social conditions in which consumers find themselves. Arguing in this vein, A. Marshall substantiated the need to define the content of the term "vital means of subsistence", proposing to understand it as things that satisfy those needs which must be unconditionally satisfied. At the same time, he shares the point of view of Marx, believing that the needs of people change over time, and what seemed yesterday to be a luxury today refers to "vital means of subsistence": "any estimate of the amount of vital means of subsistence must relate to a given place and time", including "some education and entertainment" [1]. However, the acknowledged weakness of the classical and neoclassical model of development is a high level of abstraction, which makes these models poorly representative in changing conditions. According to R. Thaler's ironic comment, "people behaved as they please, but not in the same way as mythical species who dwell exclusively in the models of classical economic theory" [2]. Owing to T. Veblen's Theory of the Leisure Class, the value of psychological, social, religious factors that have a direct impact on the economic decisions made by individuals was comprehended, and it was shown that these decisions, in fact, often undermine the individual's well-being, rather than strengthen it. In fact, the categories introduced by Veblen in the analysis such as "jealousy rivalry", "conspicuous consumption", "conspicuous leisure" formed the basis of marketing and modern behavioral economics. "When accumulated goods have in this way once become the accepted badge of efficiency, the possession of wealth presently assumes the character of an independent and definitive basis of esteem." [3]. In other words, consumer behavior is dictated by the desire to demonstrate superiority over his "tribesmen", neighbors, members of the social group to which this individual belongs. At the same time, "an individual will never be so satisfied with the result of his envious comparison, so that in the struggle for prestige he will not be willing to put himself even higher than his rivals" [3]. From the above it can be concluded that "no approach to a definitive attainment is possible", and that is why manipulating consumer's behavior can be

endless, because there is always someone who is “higher-faster-stronger”.

Veblen’s ideas were analyzed in detail by H. Along with conspicuous consumption, emphasizing the high cost of the product (which Leibenstein called the “Veblen effect”), he identified the “snob effect”, in which uniqueness becomes the main motivating factor for consumption. The snob effect is characterized by the following dependence: the more consumers of a given product, the less snob is ready to consume it. That is, the spread of goods among the “mere mortals” leads to a decrease in its consumption by snobs, which is a kind of paraphrase of Leibenstein’s own words, “separating from the majority”. The effect of the taboo is to not buy the goods that others do not buy or consume. A prominent representative of institutionalism [4] in his work *Economics and the Public Purpose* turns to the study of the problem of consumption more than once. In particular, analyzing contemporary society, he notes that desires are now formed not only on the basis of vital needs, but taking into account the “beliefs” imposed on people or, in other words, advertising. “All forms of consumer persuasion affirm that the consumption of goods is the greatest source of pleasure, the highest measure of human achievement. They make consumption the foundation of human happiness. However effective this management, – the author argues, – the resulting consumption is less reliable than that derived from individual discovery based on pressing need for food, shelter, medicine or clothing” [4]. Later, in his work *The Economics of Innocent Fraud: The Truth for Our Time*, [4] formulated his idea more accurately regarding the factors that determine consumer behavior: “No significant manufacturer introduces a new product without cultivating the consumer demand for it. Or forgoes efforts to influence and sustain the demand for an existing product. Here enters the world of advertising and salesmanship, of television, of consumer manipulation. Thus an impairment of consumer and market sovereignty” [5]. Thus, Galbraith indicates that consumer demand is increasingly focused not only on “vital means of subsistence”, but also a lot of things completely unnecessary, but imposed by a meticulous system of skillful inculcation (advertising). As we see, the revival in the study of problems of consumer behavior was observed in the middle of the last century. This is primarily due to the fact that by that time the most developed states had already entered a phase, called as “a mass consumer society” in economics. The relative income hypothesis was suggested in 1949 by the American economist J. Dusenberry [6], who rejected one of the fundamental

concepts that determine consumer behavior: instead of assuming that household expenditures are determined directly by its income, he put forward a hypothesis that the purchase of his closest neighbors would influence the consumer’s decision. The essence of the relative income hypothesis strongly correlates with Veblen’s work and consists in the following: the individual’s consumption today depends on his current income in comparison with his neighbors and his own income in the past. In the Dusenberry model, all consumers spend money in order to “be on equal footing” with those who have higher incomes. Dusenberry called the desire to “be no worse” the demonstration effect and believes that it is the desire to achieve this, as they say now, the “wow effect” that drives consumer behavior. It is important for people how much they will be appreciated and perceived by others. The acquisition of things complements the created image. In the second half of the 20<sup>th</sup> century, a particular area of economic research was formed, including social, cognitive and emotional factors in the analysis of consumer behavior, known as behavioral economics. The works of the pioneers of behavioral economics [7, 8, 9], which demonstrated the applicability of the behavioral approach to economic models, have received wide public resonance. Later, this hypothesis was confirmed and experimentally proven in the works [10, 11, 12]. The result of his long-term scientific research was the work *Nudge: Improving Decisions About Health, Wealth, and Happiness* [13], which shows how “nudging” can guide people’s behavior in the right direction. In other words, the hypothesis of behavioral nudging became the basis of specific measures for modeling the consumers’ economic behavior.

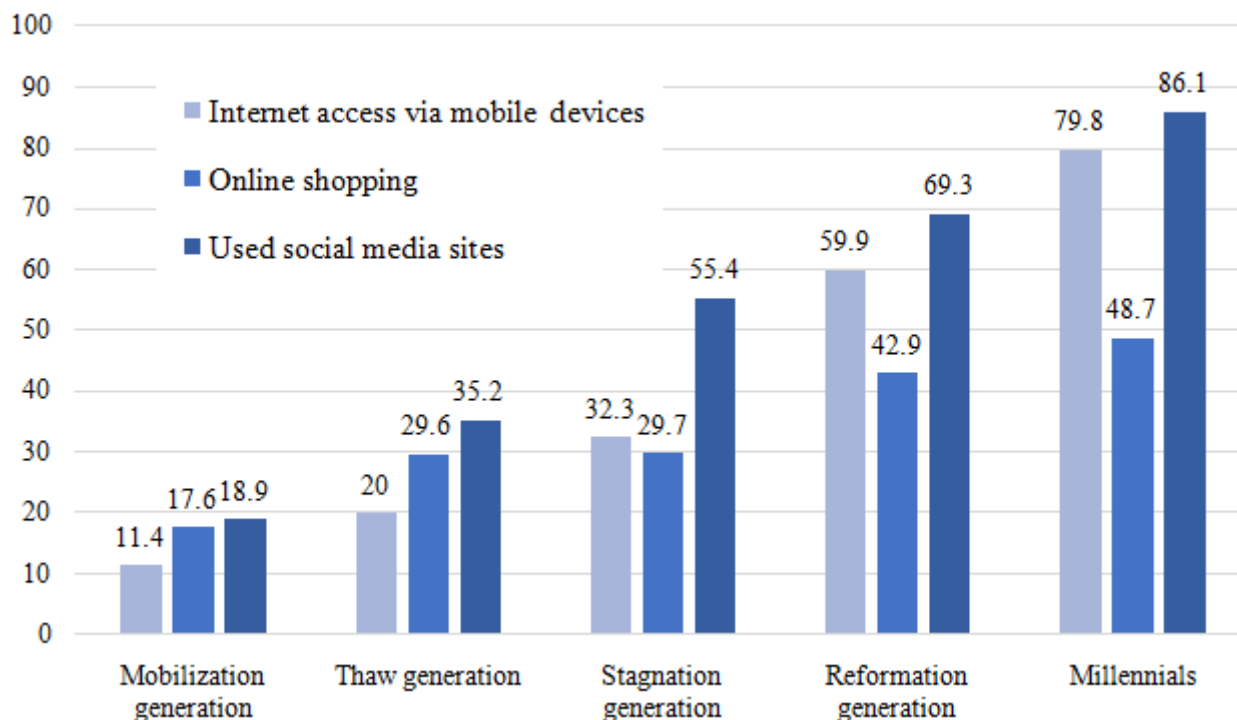
#### 4. Results

Retrospective analysis and systematization of various views on the evolution of the theory of consumer behavior make it possible to consider it as an integral element of economic development and a necessary condition for improving the level and quality of population life. However, today, in conditions of total informatization and digitalization, while studying economic behavior, it is impossible to eliminate the influence of technological progress (the use of smartphones, their special applications, the Internet, social networks, electronic media) on consumer’s decision-making. The digital economy became the reality that was generally shown in the works [14] and [15]. Accordingly, it is important to identify those specific factors (determinants) that determine the structure and volumes of consumption in modern

economy, generated primarily by the development of information processing and generation technologies.

First of all, it is necessary to mention the fact that the possession of technologies for processing large data arrays, the development of artificial intelligence, robotics allows providing the physical consumption of goods and services with various digital services, forming the profile of each consumer considering the amount of the content he consumes, that explains the difference in consumption rate increase between owners of digital technologies and those who do not have them [16, 17, 18,19]. As E. [20] notes, “the network digital space is under the influence of arrays of corporate data arrays technologically created and accumulated – stacks (vertically integrated social networks) that companies like Google, Apple, Facebook, Amazon, Microsoft possess. They also create divisions whose purpose is to analyze the large volumes of social digital data available to them by their activity ... stack technologies provide scientists with more empirical, analytical and logical capabilities” [20]. In other words, digital technologies make up a very detailed portrait of the consumer through data obtained from e-mail, instant messengers, social networks, the frequency and nature of online purchases, online games, recommending certain goods, films, books, like-minded groups, “friends” essentially implementing in practice the “nudging” described by Thaler. Profile data in social networks, in conjunction with the data of search services, caused an increase in the popularity of recommendation services, the main product of which are recommendations. Thus, search and advisory services can be considered as goods-compliments of the information society, where the former provide access to information, and the latter – makes its choice due to subjective, purely individual criteria [21]. In addition, it is important to note the increasing role of social networks in the process of consumer choice, the formation of “club consumption”. The current culture of social networks is literally permeated by the race for the “ideal” that always slips away. But how much will we buy goods and services to get closer to this ideal, how much will it take us to reach the goals of those who are the “opinion leaders”? Most often, the “opinion leader” is some kind of a well-known media person, however, it is not uncommon for an unknown blogger, who makes topical posts, to gain a large number of subscribers and become one of the influential people. Moreover, all his

subscribers become “clubmates” to whom he translates his values, habits, and peculiarities of consumption. Each such blogger forms a personal social network. As noted [22], receiving information from each other, individuals can change their opinion on any issue, including consumer behavior [22]. Thanks to data processing technologies used in the digital economy, one can easily find out who exactly this individual considers to be a role model due to his subscriptions and likes on social networks and often viewed content. According to [23], an associate professor at Stanford University, a psychologist and a specialist in Big data, “ten likes are enough for the system to better recognize your personality than your colleague at work, and a computer will know more about you than your spouse according to 230-240 likes”[23]. Within this context, the works [21, 24] are of particular interest, suggesting that an individual’s behavior is determined by his desire to “find likeminded people” or to belong to a certain “club” of people, which is achieved through a collaborative filtering system. The practical implementation of this hypothesis is embodied in reducing the costs of finding information about how and what to consume, owing to the systematization of data on the preferences of individual’s teammates. One of the factors determining consumer choice is also wide access to information. Currently, the consumer has far more opportunities in terms of maximizing the value of consumed goods by maximizing the customization of the offer and automatically sifting uninteresting options. The market is becoming consumer-oriented to a much greater degree than in the industrial economy.Reducing transaction costs in the sale and purchase process, achieved thanks to the possibilities of digital technologies, creates prerequisites for shifting consumption from the long-term period to the short-term one. Information can be upgraded until the offer becomes interesting to the client and gets to the point. Each consumer receives highly accurate recommendations of what and where to buy, and simply clicking the “pay” button in the lower right corner of the screen is enough to complete a transaction. It is worth noting that an important indicator of consumer behavior in the digital reality is the use of the Internet to buy goods and services online. According to the Russian Monitoring the Economic and Health Situation by the National Research University Higher School of Economics [25], in general the share of online buyers is steadily increasing.



**Figure 1.** Waystouse the Internet over the past 12 months, by generations, 15 years and older, in% of Internet users, 2016 [25]

In 2003–2016 this share increased from 12.6 to 42.1% of Internet users among the respondents of RLMS-HSE, who are over 14 years old. Even in the oldest (mobilization) generation, in 2016, 18% of Internet users resorted to this practice (0.7% of all respondents). In the next two generations, as many as 30% of respondents, shop online. As for the reformation generation, another jump up to 43% is traced, while for millennials this share reaches 49% (45% of all respondents) – the increase is not so great, but it is statistically significant. Another phenomenon of the modern economy is collaborative consumption, the so-called sharing economy (Eng. “share” means “to divide”). The term “sharing economy” is used to describe an economic model based on the collaborative use of goods and services, barter and rent instead of ownership. From large marketplaces, such as eBay and Amazon, to less common ones, such as the travel-sharing system (Airbnb) and car sharing (Zipcar or RelayRides), sharing consumption rethinks not only what people acquire, but also the way they consume it. Housing (renting), travel services (Airbnb service as a market leader), transport (Uber, Gett, Yandex Taxi, etc. to share rides and rent cars), food (sharing dinner), tourism products (sharing purchases, rent from private home owners), sharing Wi-Fi top the list of goods and services that people are most likely to share. Having connected to a business by sharing, for instance, a car, the client receives mobility services without buying the product itself, and it is highly differentiated by car type, price, and other individual demands [26].

Consequently, in the modern context of the digital economy, consumer behavior enables to virtually structure the socio-economic reality, interpreting and positioning any processes, events, phenomena with the help of the appropriate labels, shifting the average Internet user’s attention through the viral distribution of hashtags, memes, launching challenges in the right direction, shaping consumer preferences in the network space and actualizing certain benefits. All this becomes the manipulative technology of influencing decision making, with the help of which stakeholders promote values, stereotypes, myths, symbols into mass consciousness to retain or gain power, influence, and profit [27].

## 5. Discussion

In modern theoretical and empirical research there is no unanimity on identifying the determinants of consumer behavior in the digital economy. Generally speaking, theories describing consumer behavior can be divided into two groups:

- the first group goes back to the conservative model of “homoeconomicus”, believing that when making decisions individuals show exceptional rationality, minimizing the costs associated with consumption;
- the second group presents the development of T. Veblen’s ideas adapted to the socio-economic reality of the 20<sup>th</sup>-21<sup>st</sup> centuries. Both approaches do not provide an explicit answer to the question about the influence

of digital technologies on consumer behavior. However, the conducted study allows concluding that the modern digital economy makes full use of consumer effects described by Veblen and interpreted by Leibenstein. The potential of digital technologies enable to not just “nudge” the consumer to make the targeted decision, but to build an online behavior [28, 29].

## 6. Conclusion

The theoretical and methodological analysis of the problem presented in the paper have scientific and practical value [30, 31]. Firstly, it allows deeper understanding of the features and patterns of consumer behavior, the determinants caused by the impact of digital technologies, respectively, may further provide a scientific insight into supply chain strategy. Secondly, the study of conceptual aspects in the consumer behavior research creates the necessary theoretical basis for developing basic guidelines on the formation of the digital consumer’s socially responsible behavior, adequate to modern global challenges and development trends, as well as the adaptation of the business community to the transformation of consumer demand in a digital economy.

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