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**DIGITAL ECONOMY PLATFORMS: FROM BILATERAL
MARKETS TO JOINT CONSUMPTION ECONOMY**

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Abstract

The rapid development of digital technologies has led to the emergence of a platform economy, the functioning of which does not fit into the postulates of the classical theory of the firm. Digital platforms are based on the theory of two-way markets. Digital platforms mediate between different groups of users, simplifying and stimulating their interaction with each other. With the emergence of platforms, transaction costs associated with finding a business partner in the market and assessing the possibility of interacting with him tend to zero. The functioning of digital platforms makes it possible to realize the possibilities of sharing goods and services by users, allowing more optimal use of available resources. Digital platform organizers are constantly evolving the user interface in order to increase the level of interaction between stakeholders. There are a large number of digital platforms operating on the market today. These include: advertising platforms, platforms for the exchange of value (goods, services), social networks, gaming platforms, industrial platforms, etc. The article presents the results provided when studying the dynamics of the Digital Economy based on platforms and Internet technologies. The advantages of using Digital Economy platforms, created to provide sellers and consumers with an interface for high-tech market interaction, are presented. The conditions and factors influencing the creation and development of platforms are analyzed, e.g. the Internet, mobile technologies, mobile devices, social networks that promote rational consumer behaviour in the process of market transactions. The opportunity to provide the parties of market interactions with a high-tech interface for transmitting digital content at zero transaction costs was presented by the authors as a key characteristic of modern platforms, as a basis for the transition from bilateral markets to a shared consumption economy.

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Keywords: Digital platforms, bilateral markets, rational behaviour, transaction costs, shared consumption economics



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1. Introduction

Virtual reality provided people with access to new opportunities for obtaining knowledge, information, satisfying their needs, and over time, this led to a change in the consumer himself and his behaviour in the market. Turning to the classical writings of the innovation theory (Shumpeter, 1982) we can argue that the global network, as a basic innovation, has opened access to “new combinations” (Shumpeter, 1982) and has become an incentive for pioneering entrepreneurs aimed to conduct business in a new format based on Internet platforms. Their real embodiment is actively declaring itself in the form of a platform economy and is currently forming the core of the fifth technological structure (Glaziev, 1993).

The basis of the platform economy is digital online-systems as a complex of devices and programs that provide digital space and the process of user interaction with complex standard solutions as a platform. The platform cannot be defined in terms of a standard (including familiar to researchers) market with buyers on one side and sellers on the other (Shastitko & Parshina, 2016).

The platforms include virtual trading platforms, a set of users, interaction intermediaries, software and network systems, a special type of business model for the company, as well as the company itself, the trading platform organized by the company, the technology and equipment system that ensures its operation (Kovalenko, 2016).

According to experts, the platform is the future of market Digital Economy (Gelishanov et al., 2018).

The objective prerequisites for the emergence of platforms in the economy are the conditions in which bilateral markets operate. Traditionally, these markets are represented by two parties - sellers and buyers. The organization of their market interactions is based on the following postulates of rational behaviour.

Market participants have rational business skills. Rationality allows you to create conditions for the efficient use of resources. The rational use of resources helps to remove restrictions on the time, place and amount of resources required for the production of material goods and customer satisfaction. As a result, rational behaviour and limited resources become the driving forces of economic dynamics.

However, traditional bilateral markets are no longer the dominant type of market interactions. Over the past 20-30 years, the Internet, mobile technologies, mobile devices and social networks have firmly entered the world practice. They provide new technological opportunities for organizing market interactions, change the business philosophy, business model and strategic decisions of firms, and form an economy of joint consumption.

2. Methods

Methods of comparative analysis, deductive inference, analysis of firm behavior in the context of changing technological conditions, microeconomic analysis of market dynamics were used to study the impact of digital technologies on the economy and the peculiarities of the functioning of digital platforms.

3. Results

International Telecommunication Union (ITU) analysts say that at the beginning of 2019, 3.9 billion people, or 51.2% of the world's population, regularly use the Internet. It is expected that in 2020 the number of Internet users will exceed 4.1 billion people. More than 65% of users prefer access to the Internet using mobile devices. The number of mobile connections in 2019 exceeded 5.3 billion, and 96% of the world's population have the ability to access mobile communications.

As a result of the spread of Internet technologies, the volume of online sales on a global scale exceeds \$ 2.36 trillion per year. Every year, this figure is growing on average by 16 - 18%, while global trade is increasing annually by 2.1 - 3.3%.

According to the information agency RosBiznesConsulting (RBC), a significant increase in these indicators is also expected in Russia. If in 2018 the volume of online trade exceeded 1.29 trillion rubles and amounted to 4.07% of the retail turnover, then by 2024 the volume is expected to increase to 2.78 trillion rubles and 8.5% of the turnover, respectively Tadviser (2020).

These statistics allow us to state that Internet technologies are unparalleled in covering consumer audience. Therefore, the area of economic interests of business is digital business processes carried out on electronic platforms, which replace the organization of traditional markets. The process of market transformation is happening everywhere. Stock exchanges and supermarkets are being replaced by high-tech tools and electronic platform maintenance technologies (Weyl & White, 2014). Based on electronic platforms, world leaders such as Amazon, Apple, Google, Microsoft, Facebook, Uber, Airbnb, Visa, PayPal and others are developing business. In the Russian economy, these are Sberbank, MTS, Yandex, Tinkoff.ru, Lamoda.ru, WildBerries.ru, etc.

The platforms bring together users who intend to create a system of interactions among themselves. At the same time, one part of the users intend to offer, and another part - to present a demand for goods, services, works, and the platform allows you to combine the efforts and interests of users. As a result, traditional supermarkets have been replaced by e-commerce platforms such as Amazon, which foster market interactions between sellers and buyers in retail markets. Interactions between developers and users of operating systems are supported by platforms such as Google and Microsoft. The creators of mobile devices and applications are connected with users by platforms such as Apple. The needs of lending organizations and banking customers are combined by financial platforms such as Sberbank and Tinkoffbank, etc.

A feature of this type of market user interactions is that they occur on the basis of an implicit contract. The value of the contract is enhanced by the technical conditions that the platform creates (Armstrong, 2006). The platform guarantees the expected result and at the same time solves the problem of safe interactions, on the one hand; on the other hand, it provides customers with a "friendly" interface (Bilton, 2013; Zhu & Furr, 2016). For example, the PayPal platform, literally translated from English - "buddy helping to pay", is the largest debit electronic payment system that allows customers to pay bills and purchases, send and receive money transfers around the world, making this transaction convenient, accessible and easy.

Amazon's electronic platform, which occupies a leading position in the digital services market, is one of the most popular online sales sites in the world. Amazon's economic performance can be represented by the following characteristics. In 2017, the company earned more than \$ 140 billion solely on online sales, which is more than any other retailer in the world. In 2018, Amazon surpassed Microsoft in terms of market capitalization, and in January 2019 it became the most expensive public company in the world: Amazon's capitalization exceeded \$ 796 billion, Microsoft cost about \$ 783 billion (Vc.ru, 2020).

Amazon's strategic management focuses on meeting customer needs and desires. The desire to be "the most customer-oriented company" (Panmore Institute, 2020) is realized in the fact that everything is subordinated to the main idea - consumer comfort, and this has become the company's development strategy.

For ease of use, an ecosystem has been created inside the Amazon platform that allows a potential customer to navigate the site easily and get the necessary access to a product, information or other service without leaving the system. To do this, all services are interconnected and presented in a single control system.

Decision to provide Amazon's electronic platform and services to independent third-party merchants to reach their target audience became an innovation. These offers can be used by everyone who wants to start a business on the Internet by placing goods for sale, and more than 6 million independent sellers are currently working with the company. To work with third-party sellers, Amazon has developed a special Fulfillment by Amazon (FBA) program (Sales Hub, 2020) that works as a special paid service and allows third-party sellers to use Amazon's entire infrastructure and storage facilities.

The result of this innovation is that since 2017 the share of goods sold on the Amazon site by third parties has exceeded Amazon's own sales. To maintain this flow of goods, Amazon provided jobs for approximately 230 thousand people, automated warehouses around the world and equipped them with more than 100 thousand robots.

Since Amazon pays great attention to security management, sellers undergo rigorous checks, and the e-commerce platform monitors the quality of each product and guarantees the safety of purchases, which prevents customer fraud. Amazon itself accepts the payment from the client, it also transfers money to the recipient's card and works with return issues Fulfillment by Amazon (Sales Hub, 2020). So on the electronic platform of the company Amazon implements innovative digital technology Blockchain, which makes it possible to create digital images on its platform, record transactions, verify the authenticity of information about the origin of the goods, their quality, etc (Plotnikov et al., 2019).

Amazon is a global leader in e-commerce in the areas of artificial intelligence and outer space. Amazon Web Services (AWS) is a commercial public cloud hosted in several data centers around the world, grouped into "regions" by geography, within which there are several zones of availability of hosted services. As for 2019, there are 60 access zones in 20 regions that provide rental servers and virtual storage resources. Among other services, AWS provides access to platforms by providing cloud databases, cloud middleware, cloud serverless computing, software development tools (ProfitWorks, 2020). Social networks, such as the Russian social networks Facebook and VKontakte, which are relevant for those users who need to stay up to date with the news of business partners and friends at any time, can be classified as a special category of electronic platforms. Users of mobile devices and applications form networks of social

interactions. Communication on social networks from mobile devices offers unlimited possibilities for users.

However, the role of social networks as platforms is wider than just personal contacts, since they allow for a short time to solve the search problem in the widest range of interests. Social networks as platforms make it possible to solve the problem of identifying and choosing a business partner to buy or sell a product and to choose who meets expectations best (Parker et al., 2016). It is important for business and consumers to understand how, without violating personal space, to achieve the goal for all participants in social interactions. So social networks as platforms of mobile technologies, mobile devices and applications become the driver of the growth of the Digital Economy.

The most important advantage of the platforms is the ability to transmit digital content at any distance at any time and at practically zero transaction costs. As access to information on the product offer becomes unlimited, this fundamentally changes the behaviour of consumers in market transactions, affects the change in the role and value of costs associated with market interactions.

Opportunities for access to information, as an undoubted advantage of platforms, pose a problem, which consists of how to focus the customer's attention on the product in the most proper way and reduce the time spent on choosing it from the many options offered.

4. Acknowledgement and Discussion

We see the problem of market interactions in the following: the costs associated with finding a business partner and convincing him of a reliability of the relationships are replaced by the costs of choosing a business partner. Platforms, as intermediaries of unlimited choice, are becoming the focus of the business process.

As the role and importance of exchange costs decreases (including logistics, customs and other costs associated with moving the product and involving new business partners in the business process), the role and importance of costs allowing you to make the "right" choice increase. As a result, the demand for platform-based business models is growing.

Platform-based business models allow you to:

- a. provide information to users for a rational choice both on the demand side and on the supply side;
- b. make a rating of participants in bilateral markets;
- c. create an information database for intermediaries on the quality of the product and the reputation of business partners according to the criteria of reliability and compliance with mutual preferences.

Thus, the platforms facilitate the transition from the economy of bilateral markets in which producers seek consumers in the open market to a shared consumption economy based on mutually beneficial relationships without direct contact. The platform allows you to find conditions under which the resources and potential of participants can be used optimally, including the fact that the parties get the opportunity to use resources in transactions that were not previously used or are not used regularly.

Such opportunities are presented most clearly by platforms that orient consumers to rent rather than purchase. For example, Rentalcars.com platform, connecting consumers-tenants with the largest car rental brands, such as Avis, Eurocar, Bent Motors and others; Litres.ru electronic library platform, offering traffic for reading books, rather than buying books on traditional paper or in PDF format.

In the business processes of the Digital Economy, the previously traditional form of supply and demand in the market is changing. A feature of market interactions is virtuality, refusal from direct contact, transactions through intermediary platforms. The earlier traditional form of organization of bilateral markets is being replaced by the economy of joint consumption.

In order for the parties of this type of interaction to find each other and make the “right” choice of a business partner, not only platforms are needed. It is necessary to help the parties understand what benefits they get by abandoning traditional market interactions and moving to a business model using platforms. The user, in order not to get lost in the flows of information and enormous data, must have confidence in the intermediary (platform) and be sure of the completeness and reliability of the information provided. The user must be sure that his personal data will be used correctly and guaranteed to be protected from being transferred to third parties. The problem of ethics of interactions is becoming a priority.

The platform, as a rule, has various options for conveying important information to the participants in the transaction. For this, information channels in the form of advertising, reviews in the media, demonstration of new products at exhibitions and in stores, keywords in search engines, etc. can be used.

The key role of the platform is to bring interested parties to the interaction and for this to provide an interface that makes the interaction of the parties as convenient as possible, staying in touch with the business partner for as long as it takes to complete the transaction.

The prospects of the study are related to the possibility of obtaining a systematic understanding of the key trends in scientific and technological development and horizons of social progress.

5. Conclusions

Thus, platforms, mobile technologies, mobile tools, social networks as vehicles for the achievements of scientific and technological progress and the advantages of business models created on the basis of platforms allow us to bring human activities closer to rational behaviour.

The platforms provide transaction subjects with reliable and relevant information about the product, business partners, and create technological opportunities for organizing market interactions based on the model of bilateral markets.

Platforms change the business philosophy, business model and strategic decisions of firms, as well as initiate market interactions according to the model of shared consumption economics.

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