

С.Сейфуллин атындағы Қазақ агротехникалық зерттеу университетінің экономикалық факультетінің 60 жылдығына арналған «**Жаңа болмыс жағдайында экономика және қоғам**» Халықаралық ғылыми-практикалық конференциясының **материалдары**, 25 мамыр 2023 жыл, II бөлім= **Материалы** Международной научно-практической конференции «**Экономика и общество в условиях новой реальности**», посвящённой 60-летию экономического факультета Казахского агротехнического исследовательского университета имени С.Сейфуллина, 25 мая 2023 год, II часть = **Materials** of the International scientific and practical conference «**Economy and Society in a new reality**» dedicated to the 60th anniversary of the Faculty of Economics of the S. Seifullin Kazakh Agrotechnical Research University, May 25, 2023, II part. – 2023. – Ч.2. – P.364-369.

THE ESSENCE OF DIGITAL PLATFORMS IN THE ECONOMY

UDC 338.583

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Currently, digital platforms capable of modernizing entire industries and various types of socio-economic activities are becoming drivers of innovation, economic growth and competition. However, to date, the academic literature on digital platforms has largely focused on business, while their developmental implications remain understudied. This is partly due to the fact that digital platforms are a complex subject of research due to their lack of conceptual definition, their distribution in different regions and industries, as well as their close relationship with institutions, actors and digital technologies.

According to the established scientific background on the topic of the platform economy, the prerequisites for the creation of digital platforms were the development of ICT and the globalization of the Internet. At the same time, the motives for creating these platforms are diverse. For example, the motives for the emergence of e-commerce platforms like Aliexpress were similar to the motives for the emergence of marketplaces millennia ago: lower logistics costs; increasing competition and customer awareness; increase in demand and intensity of trade.

The main advantage of using digital platforms in trade was the formation of direct sales channels, i.e. exclusion of intermediaries in the process of distribution of goods (Fig. 1).

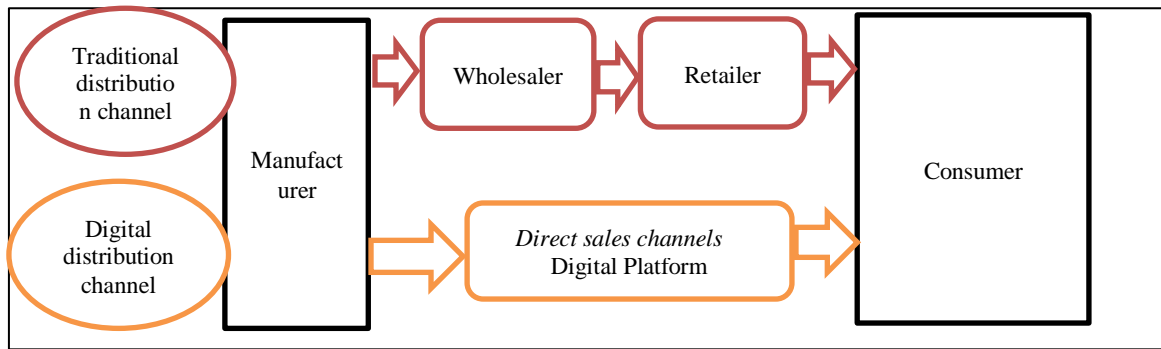


Figure 1. The structure of the process of distribution of goods in the traditional and digital economy

The digitalization sector is a major driver of the emergence of digital platforms. Sensors extract data from computers, from smartphones, from IoT sensors and build a parallel virtual map of the world. Artificial intelligence allows you to automate the management of a large amount of data extracted from reality. Platforms create new market opportunities by attracting new entrants and attracting "new workforce" (car driver, homeowner, etc.) or by mobilizing "new" capital, which often has a devastating effect on existing markets and operators, be they tax companies, hotels, financial institutions, traditional product or content distributors. Digital platforms refer to mechanisms that bring together multiple parties to interact (buyers and sellers or potential customers and advertisers).

There is no common understanding of what a digital platform is, especially since it can cover many different and unrelated areas. The EU Commission refrains from proposing a reasonable definition [1]. Instead, she lists some common characteristics of digital platforms:

- they are able to create and shape new markets, challenge traditional ones and organize new forms of participation or business based on the collection, processing and editing of large amounts of data;
- they operate in multilateral markets, but with varying degrees of control over direct interactions between user groups;
- they benefit from “network effects”, where the value of a service increases with the number of users;
- they often rely on ICT to instantly and effortlessly connect with their users;
- They play a key role in digital value creation, in particular by capturing significant value (including through data accumulation).

Parker et al. define it as “... a business based on providing value-creating interactions between external producers and customers. The platform provides an open, collaborative infrastructure for these interactions and sets the conditions for their management” [2].

The first researchers of digital platforms D. Evans and R. Schmalense characterize the economic essence of digital platforms as follows: “A digital platform has two or more groups of customers who need something from each other, but cannot independently benefit from interaction. It is a digital “catalyst” that facilitates the interaction between them that creates value” [3].

Digital platforms can act both as intermediaries and as infrastructure. They are intermediaries in the sense that they connect different groups of people. For example, Facebook connects users, advertisers, developers, companies and others, while InDriver connects passengers and drivers. Many platforms also serve as infrastructure that different parties can rely on. For example, users can create profile pages on Facebook, and software developers can create apps for the Apple App Store.

Based on the benefits noted in the literature, the OECD has defined the economic role of online platforms as follows: 1) providing infrastructure; 2) collection, systematization, evaluation of information; 3) promotion of social communication and information exchange; 4) aggregation of supply and demand; 5) assistance to market processes; 6) providing trust [4].

A key factor driving the growth of the platform is associated with “network effects”, namely the benefits that users of the platform receive from the addition of additional users [5]. In a typical linear business model without network effects, the value of a business increases linearly with the number of customers. In a network business, value increases exponentially as the number of agents connected to the network increases. The task of the platform organizer is to attract as many users as possible from all sides. If two groups are mutually linked by cross-group externalities, there are positive indirect network effects on both sides of the market (eg Tinder, Amazon, eBay) [6]. The presence of network effects is an incentive for the rapid growth of successful platforms, as additional users make the platforms more attractive.

There are also negative indirect network effects: one type of economic agent in a network harms another type of agent. For example, customers are often annoyed by advertisements. From the advertiser's point of view, the more advertising, the fewer buyers, which is negatively assessed by the advertiser; from the point of view of the buyer, the more buyers, *ceteris paribus*, the more advertising, which is evaluated negatively by the buyer. The platform solves the problem of externalities between advertisers and consumers by using content to bribe people to view ads. Indirect network effects are a key aspect of multi-sided platforms, which involve "balancing" two sides to maximize the value of the platform for each. The platform is of no value to either party if the other party is not on it.

While digital platforms can be deployed across a variety of economic activities and sectors, digital data collection is an essential element of their business models. Digital platforms can facilitate value-creating interactions between different parties of the platform as producers and consumers of various goods and services. But, in essence, their effective functioning depends on digital data, and the main source of their value creation is the wise use of this data. Large digital platform companies see their data pools and processing capacity as a key competitive advantage. Thus, how specific firms derive value from such data is key to understanding and influencing the process of value creation in the digital economy.

The strength of platform business models stems in part from their ability to enable firms to achieve economies of scale faster. Instead of being the owner of specific goods, services, or labor, the platform often works by "creating a new marketplace" for transactions by various parties. Without owning fixed assets (taxi drivers) and employees (taxi drivers), they invest little in human and physical assets, allowing for faster expansion at low cost. Platform firms are also aggregators and users of big data, as platform ownership allows them to collect rich data generated by user interactions from all sides of the platform.

The impressive growth in the market capitalization of companies owning digital platforms exceeds several trillion US dollars in total. So, as of August 2021, Amazon's capitalization amounted to \$1.73 trillion. USA, Alphabet - 1.93 trillion. US dollars, social network Facebook - 1.07 trillion trillion dollars. USA [7]. According to the Morningstar Analytical Agency, Google search engine occupies 90% of the global Internet search, and its share in the global online advertising market is 41%. Facebook holds 59% of the social networking market and 30% of the online advertising market. Amazon's market share in US retail sales is 40% [8]. This market concentration increases the risks associated with the growing influence of global digital platforms on national economies and poses a threat to healthy competition at local levels. Thus, there is a growing consensus that some form of regulation is required to keep the Internet open and competitive.

It is essential for developing countries to develop the productive capacity of the digital economy. This is due not only to the creation of digital platforms, but also to the promotion of digital entrepreneurship and the digitalization of existing firms. Few countries have managed to create a dynamic platform ecosystem like that of China and the US. Some developing countries have developed specific policies for the development of local platforms. For example, Ethiopia prohibits access to foreign taxi booking platforms, and in their absence, a number of alternative local services have appeared [9]. Therefore, depending on the regulatory environment and market conditions, local digital platforms can be a viable option in developing countries, but tend to run into problems if they aim to scale up. It is advisable to provide direct state support for the e-commerce market, digital payments, and microfinance. The state may also seek to support the creation of regional innovation platforms and ecosystems. The challenge is to identify innovative pathways with long-term potential and work towards building a shared, open and efficient digital infrastructure. This partly involves a wider integration of existing proprietary systems, for example by setting requirements for mobile operators to open up and/or improve application program interfaces within the country. The development of entrepreneurship in digital and related sectors is of key importance. The greatest potential may lie with digital products that are difficult to replicate elsewhere, that are needed in a given location, and that can be transported or reproduced in a particular location at relatively low cost.

Digital platforms are focused on creating value by enabling direct interaction between multiple groups of third-party users. They increase the efficiency of business processes, eliminate traditional intermediaries, thereby ensuring effective interaction between economic agents and reducing transaction costs, reduce the

role of geographical and other factors, and by achieving network effects form completely new ways of creating value.

The study showed that the growth of digital platforms as a result of technological progress is closely related to their increasing ability to collect and analyze digital data. In turn, digital data has become a key resource in economic processes, bringing value to all platform participants. This value increases with an increase in the number of interacting parties on the digital platform, and is reset to zero if one of these parties is absent from the platform.

Despite the benefits of the global expansion of digital platforms for consumers, the current trend of market concentration poses a threat to national economies in terms of limiting competition and generating large rents for global companies at the expense of users. Therefore, this area requires regulation at the level of supranational bodies. For countries that are lagging behind in the development of technologies, it is important to create conditions for the emergence of local digital platforms and apply restrictive measures to global digital platforms in order to level the competitive conditions in the local market.

This research has been funded by the Science Committee of the Ministry of Education and science of the Republic of Kazakhstan (Grant “Formation of institutional environment of electronic commerce market in Kazakhstan, its evaluation and development mechanism” No. AP14871419).

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