

Transformation of the service industry in digital economy

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Abstract — Digital economy affects all aspects of human life, causing significant changes in the business environment for companies, reducing the effectiveness of traditional forms and methods of managing business and at the same time providing new opportunities for development in modern conditions. The future in competition of companies in service industry will be determined by new organizational mechanisms of connecting the possibilities of digital technologies and human creativity. The article shows the impact of digitalization on the activities of companies in service industry and the inevitability of business transformation based on digital technologies; the possibilities for creating new business models of companies' activities; the mechanisms of service model of business, sharing economy, which provide new dividends for business in service industry.

Keywords — digital economy, services industry, business transformation, digital platforms, cloud IT-technologies, service model of business, sharing economy, uberization, crowd technologies.

I. INTRODUCTION

The rapid development over the last ten years of digital technologies fundamentally changes the nature of the productive forces and market relations in the world, offers completely different forms and ways of development based on combining digital opportunities and human resources.

To date, the critical set of digital and information technologies has been created, which stipulates the transition to the new stage in the development of productive forces (Industry 4.0 - a new level of automation of all processes). [1].

The architecture of modern business is changing. The effect of digitalization blurs the boundaries of industries, changes the structure of markets and the behavior of companies, reduces the ability to produce unique products – so competitiveness is achieved by provided consumer value and quality of service.

The basis of capitalization is provided by digital resources, digital platforms, with the engagement of a minimum number of employees. Many companies provide "information products" with almost zero costs for storage, transportation and replication. For a number of areas of digital business, for example, Instagram, WhatsApp significant initial capital is not required. At the same time, the capitalization of the business of one billion dollars by WhatsApp was achieved in less than two years.

Digital technologies become the basis of completely new competitive advantages of companies and sources of profit, changing business, consumption patterns, interaction of market participants. The main direction of digital business

transformation is the creation of new business models based on the end-to-end digital processes both inside the enterprise and outside of it.

Analysts of the consulting company Boston Consulting Group (BCG) suggest that by 2035 the volume of the digital economy could reach 16 trillion dollars. For example, in China, according to researchers, more than 400 million jobs will appear in this sphere, of which more than 100 million will be created by the largest Internet company Alibaba Group. According to the Vice President of Alibaba Group Gao Hongbing, by 2035 the digital economy will outperform the manufacturing sector by volume and will leave up to a quarter of the total world economy [2].

II. TRANSFORMATION OF THE SERVICE INDUSTRY IN DIGITAL ECONOMY

Service sector began to develop dynamically from the second half of the twentieth century. Today this sector of the economy provides up to 75% of the contribution to GDP and 70% of employment in developed countries. However until recently, possible increase in efficiency of service enterprises was limited to the local nature of customer service.

The achieved level of development of the digital technologies had the most significant impact on the transformation of the service sector, allowing unlimited scaling of business and exponential decline in the value of creating demand and prices for services both in consumer services (transport, education, healthcare, tourism, etc.), and in the sector of interaction between market counterparties, also government and security services.

Over the past decades material production has been actively growing, consumption of goods has been stimulated, which has led to the excess of supply over demand, and as the result to the significant inefficiency of the global economy: the psychological obsolescence of objects today occurs much earlier than the physical one.

The consumption of services, in contrast to the consumption of goods, has no restrictions. In previous periods, the consumption of services and the growth of their diversity was restrained by the local nature of their consumption, and the locality of their supply due to demand restrictions below the effective level.

Digitalization changes the very nature of production and provision of services by introducing completely new technologies and service delivery platforms, providing digital formats for delivering services, eliminating intermediaries, revising the principles of interaction with customers, suppliers

and partners, the possibility of creating ecosystems and connecting to the infrastructure of partners and contractors, providing new payment schemes.

III. DIGITAL PLATFORMS – MAIN FORMAT FOR BUILDING MODERN BUSINESS MODELS IN SERVICE INDUSTRY

Today, digital platforms are an advanced format for building business models that allow implementing new internal and external functioning and changing business models of an enterprise.

Cross-border cooperation of economic entities based on digital platforms increases their competitiveness, provides completely new opportunities for development, but requires new thinking and readiness for change.

Digital platforms represent digital environment of direct interactions of a significant number of producers and consumers in a particular field of activity, ensuring a reduction in transaction costs due to digital technologies and changes in the division of labor. (Fig.1).

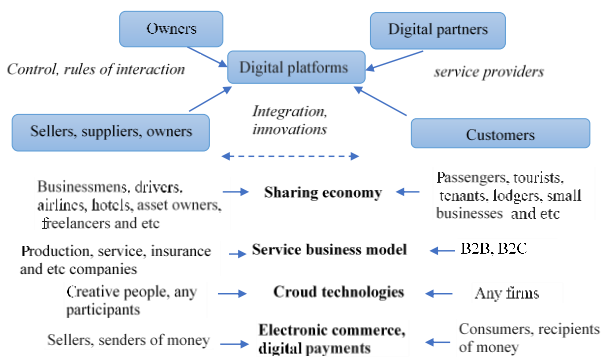


Figure 1. Public digital business platforms – main format for building modern business models

Digital platforms (cloud services) act as virtual markets, create digital infrastructure for markets, connect various manufacturers and suppliers without intermediaries with consumers, customers, recipients, provide flexibility of resources on demand (such as storage, computing, information applications, etc.), provide continuous optimization of relations between participants, result in a new model of market control. By creating or connecting to a digital platform, it is possible to sell both final products and individual units or parts, as well as sell hours of using your product, rent idle assets, and sell time of unoccupied employees. The combination of internal digitalization and digital platform capabilities allows the market to offer completely new resources and services.

The platform format can also be successfully used for the internal digital platform, serving as the basis for effective restructuring of the company's internal structure and relationships, effective coordination of business processes between departments, joint modeling of new business processes and solutions, and creation of innovations.

Today, the main dividends from the use of this technology are received by the owners of the platforms, their main holders are large corporations. This is an expensive model, which for small and medium-sized businesses can be accessed through the Internet, cloud technologies, or co-creation.

IV. SERVICE MODEL OF BUSINESS

Improving the competitiveness of companies in the modern economy lies in the direction of increasing the consumer value of products.

Digital economy allows to provide consumer with not a physical object, but its “digitized” functions. The introduction of controlled sensors, tags allows you to remotely transfer information to a computer and to control individual processes and the entire cycle. The control of devices necessary for obtaining these functions is executed by programs and algorithms (is actually transmitted from human management to automation), and the devices themselves are combined into unlimitedly scalable virtual resource pools.

Modern controlled sensors, according to some estimates, will increase their number in the nearest future - from several billion to a trillion. Measurement and control of the functioning of products and installations in on-line will offer customers new consumer value in the form of service for finished product based on the ecosystem of business partners used in the technical operation of the finished product.

For example, truck fleets are now more interested in tire manufacturers' proposals for paying each thousand kilometers of their mileage than in the periodic acquisition of new tires.

Michelin Company has moved to a new market segment and sells equipping the tires with sensors and mileage in kilometers, not tires. Tires, equipped with sensors, as a part of service are distributed free. In the process of using, the sensors installed on the tires send data on the operating conditions and tire state to the platform, and then to the service company, which assesses the possibility of a breakdown. Cargo fleets through the platform receive online advice, proactive maintenance. The client pays for mileage, tire change, and partner companies (service, insurance, etc.) carry out tracking of the change point.

Complex service provided by Michelin (the combination of sensors and analytical data) enables truck fleets to monitor the driver's work, fuel consumption and tire wear.

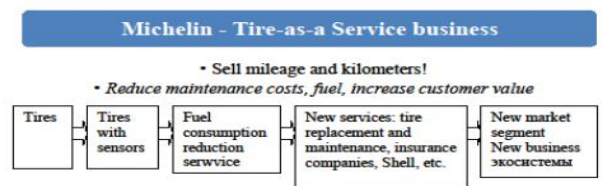


Figure 2. Michelin – Tire as a Service business model

Rolls Royce company sells not aircraft turbines (they are free of charge), but turbine hours in the air - all turbines are equipped with sensors that monitor their condition.

John Deere company offers precision farming instead of tractors. Based on the cumulative information on the location of a particular field, soil chemistry (samples taken by farmers), weather (weather stations), soil moisture (field probe), field exploration (drones) - mobile applications optimizes all processing activities, increasing yields.

V. SHARING ECONOMY, UBERIZATION

The emergence of modern communication tools and digital platforms-aggregators, access to which can be provided from the smartphone, have united people, assets and information, and created new ways of consuming goods and

services based on the access of companies and people to each other's resources, without intermediaries, through distributed network. Thus, contacts in a virtual network are established almost free of charge.

The new business model was called the economy of joint use, sharing economy, as it is not based on the possession of assets, but on temporary access to them, rent, barter [3]. For the consumer it is often more profitable to pay for temporary access to the product than to own it.

Media Strategy Specialist Tom Goodwin notes: "The world's largest taxi company, Uber, is not the owner of vehicles. The most popular media owner in the world Facebook does not create content. The most expensive retailer Alibaba does not have a stock of goods. The world's largest provider of temporary residence services Airbnb is not the owner of real estate" [4].

The sharing economy is also known as a cooperative economy or peer-to-peer economy. One of the pioneers in the sharing economy, Ms. Robin Chase, Founder and CEO of Buzcar, co-founder and former CEO of Zipcar has the formula for the sharing economy: *Idle resources + platform + public participation = the sharing economy*. [5].

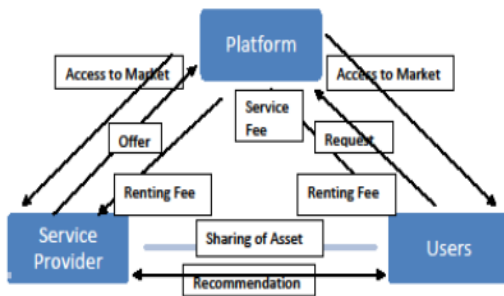


Figure 3. Business model of Uberization

In conditions when the production capacities of companies are used less than 20% [6], but at the same time, their own resources for development are sorely lacking, this business model proved to be very popular and crossed the borders of national markets.

The market size of the global sharing economy has increased from 186.9 billion US dollars in 2015 to 520 billion US dollars in 2018. The market size of the global sharing economy has increased from 186.9 billion US dollars in 2015 to 520 billion US dollars in 2018 [7]. The main share is occupied by Chinese economy: it has increased from 62.5 billion US dollars in 2015 to 230 billion US dollars in 2018.

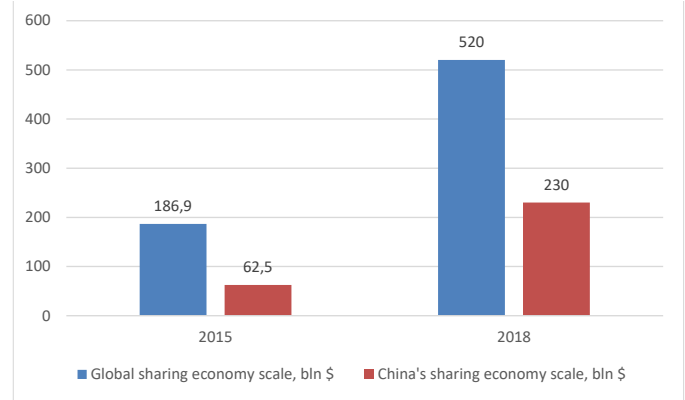


Figure 4. Increase in sharing economy [7].

The model of Uberization allows providing a scale effect in services, when the functions and services are unified, understandable, with many agents wishing to purchase services that can be combined replacing the management of automatic network services. In this way, independent interaction of independent market entities in real time on a certain market segment is provided. Direct distribution, automatic optimization through the interface provides equal opportunities for agents to access existing demand.

Today, the share economy is represented in all major areas of the service sector: shared Transportation, logistics, shared accommodation, shared work-space, shared Services (repair services, food delivery, cleaning, recruiting and employing specialists bypassing recruitment agencies, courier delivery, shared resources (cellular communications, aircraft sharing, private rental services of airplanes, parking spaces, rental of things, and others, shared knowledge, shared medical Services, shared Education etc.

These companies quickly and in a convenient way select opportunities for supply and demand, which allows them to gain an advantage over traditional business models. In addition, the "managing superstructure" of business is decreasing: banks, travel agencies, taxis, management companies, school administrations, etc.

A low threshold of entry into the business allows small businesses, including craftsmen, individuals, including part-time employees, to participate actively in it. And to ensure high efficiency of any business, for example, renting plastic boxes for moving from home to home.

There is a potential for the development of a new ecosystem of entrepreneurs who organize the sharing of what is already there, making profit from it.

Uberization fights with the selfishness of large companies, corruption, removes traditional problems of inefficiency, translates business into bases of interaction and partnership. There is a formation of global communities with values of neighborhood.

In [5] article problems of sharing economy are considered as following: excessive transaction costs (centralized platforms charge high commission fees for service matchmaking); the problem of trust; data leakage and abuse (centralized data storage mechanism can easily lead to data leakage and misuse). And as a complex solution of them, the use of Blockchain technology is suggested.

Solutions to the problems of the formation of sharing economy can be facilitated by the creation of associations of scoring companies following the example of Singapore, where created The Sharing Economy Association.

Five objectives of the association: 1) to be the regional hub for companies involved in the sharing or collaborative economy which is an emerging economic model of sharing of physical and non-physical resources that is empowered by technology and social networks. 2) To develop a vibrant and viable industry for members. 3) To promote sustainable living and community bonding. 4) To help members address challenges and explore opportunities with internal and external parties. 5) To raise public awareness on the sharing economy and make it part of culture [8].

The business models of Sharing economy, Uberization are built on collective ownership and replace the dominant philosophy of overconsumption, expanding the capabilities of each participant.

VI.SUMMARY

There is no alternative to digital business transformation. The main thing today is for companies to keep up, as the speed of digital changes is significant. The basis for the future success of modern companies is free enterprise with open access to assets, resources, technologies, based on an individual information architecture from digital platforms and a set of software applications. The development of information technologies allows to build completely new business models, remove the most acute problems of companies' inefficiency: remove hierarchy, translate market interactions into large horizontal networks and structures, effectively use the aggregate world resources and assets, avoid the crisis of overproduction, reduce costs.

Digitalization provides the consumer with the tools to create products and services with high customization.

The further development of companies is connected with the recognition and use of new opportunities for building new business models, creating new ecosystems based on the results of the digital economy, providing new ways to create, promote and consume goods and services.

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