

The Role of Supply Chain Management in Competitiveness of Information and Communication Technologies

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Abstract— The article analyzes the state of international and domestic competitiveness of US companies in the field of information and communication technologies, focuses on key segments of the US national competitiveness in ICT based on the supply chain management (SCM); the issues of confrontation with the companies of China and Japan in this field are considered; the issues related to the support of the national competitiveness of the USA by the government on the federal and local levels to enhance the national competitiveness of the United States as a sphere that is also related to ensuring national security of the country in the current conditions of forming a polycentric configuration of the world community are analyzed.

Keywords— *competitiveness, supply chain management, unfair competition, state support and state regulation.*

1. Introduction

The competitiveness of the national economy is the most important condition for the progress of development in the world economy; it acts as the engine of any economy. In modern conditions, the competitiveness of companies is associated not only with the effectiveness of management, but also with the optimization of costs and the introduction of artificial intelligence, the development of new information technologies, which accordingly reduces real jobs, and therefore assumes a more active role of the state, including at the local level (at the certain states) with regard to the intensification of the policy of creating new jobs and a more constructive integrated approach to this problem.

2. Analysis of Literature

The fundamental theory for determining the international and national competitiveness based on the SCM of the national economy is the work "The Competitive Advantage of Nations" [1], updated later [2] and with reference to the US this is the Harvard High School US study "Competitiveness:

A Matter of National Security", [3], which indicates that the weaknesses of the US national economy for national security are: weak macroeconomic policies, the K-12 education system, inefficient state regulation, tax policy and legal regulation. The US universities, regulation of legal responsibility, innovations and their implementation, the development of a cluster system, effective management of companies, and capital markets, all of these serve as positive factors ensuring the growth of the competitiveness of the US economy.

In the context of the transition of the world community to polycentrism, the author's study of the competitiveness of national economies [4] is of interest. This study proved that multipolarity implies an increase in the importance of states in regulating international cooperation. At the same time, the importance of state regulation is emphasized to ensure the goals of national security, the progress of development and mitigate the social disproportionality inherent in the market model of management. At present, when there are significant changes in the US economic strategy against the period until 2016, the development of the field of information and communication technologies is seen as a key direction in ensuring the national competitiveness of the United States in the world economy [5].

3. Study

The report of the World Economic Forum 2018 "On Global Competitiveness 2017-2018" states that economic growth in modern conditions should be focused on the tasks of improving the well-being of the population of all countries. In other words, growth should be oriented towards the development of human capital, and by its nature it becomes multidimensional from the point of view of an attempt to measure it. These include issues of fairness for the overwhelming number of people, environmental sustainability, and the development of information and communication technologies as

a tool to ensure the implementation of the above-mentioned components.

In this new context, competitiveness remains an important indicator reflecting the real state of affairs in the development of human-centered economic progress, creating the resources needed to improve well-being, including improving the quality of education, health and safety. Globally, the Global Competitiveness Index (GCI) is based on monitoring of nearly 140 countries. It assesses factors and institutions that can be a determinant of a long-term growth and economic prosperity.

In 2017-2018 [6] the GCI index points to three main problems that are primarily hampering the development of innovation and digitization of national development. These problems are:

- financial vulnerability as a threat to the competitiveness of the economy and its ability to finance innovation and technological new solutions;
- developing economies are ahead of developed countries in the field of innovations, and the problem is to make their innovations more accessible to other countries;
- in the conditions of the Fourth Industrial Revolution, flexibility of the labor market and increased protection of workers for the growth of national competitiveness are needed.

So, according to the Global Competitiveness Index 2017-2018, Switzerland is on the first place, the USA is on the 2nd, Germany is on the 5th, China is on the 28th place, and Russia is on the 43. The Information and Communication Technologies (ICT) sector, which includes a wide range of goods and services from electronic components up to telecommunication services, will continue to develop dynamically. It is expected that in 2018 the sector's revenues will grow by 4.4% (in contrast to 4.3% in 2017) [7].

In 2018, the following factors are expected to be the main factors of the growth of incomes of the ICT sector companies.

First, it is the internet-trading (Internet of Things (IoT)) and the development of 5G networks, which will stimulate the growth of the telecommunications industry in 2018. Currently, all major telecommunications companies in the world are channeling funds for the deployment of the 5G network as early as in 2018.

Secondly, these are block-based technologies, the development of which invests significant amounts of IT budgets from companies operating in a wide range of fields, from finance to health.

And the third factor is expected to be artificial intelligence (AI), which will become part of almost all new releases of IT products in 2018, although in many cases it will be a marketing move for a more modern version of an already existing product.

According to the global report on information and communication technologies, companies from China (1 exporter company and 2 producers companies), the USA (2 exporters and 1 producer) and Japan (3 manufacturers and the 4th largest exporter company) are the key companies in these markets.

As of 1.01.2018, the world's largest companies in the field of information and communication technology are in the field of electronic trade: Amazon (USA), Alibaba (China); in the field of production of computers and telephones - Apple (USA); in the field of content development - Baidu (China); in the field of communications (social networks) - Facebook (USA); in the field of search industry and content development - Google-Alphabet (USA); in the field of software development - Microsoft (USA); in the field of communication - Tencent (China); in the field of search industry and content development - Yandex (Russia). Thus, among the 9 largest firms in the field of ICT 5 are US companies, 3 - belong to the Chinese jurisdiction, and 1 - to Russia. At the same time, five or six years ago, US companies held the dominant position in the world.\

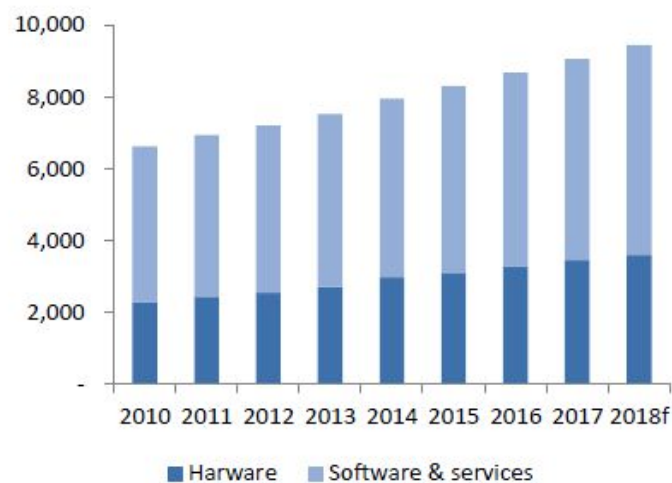
A study that was conducted in the United States on the potential of the information services and technology market indicates that in key foreign markets such as the European Union (EU), China, Russia, Brazil, India and Indonesia, special attention is paid to products and services, produced by national companies that are positioned on a global scale and evaluated from the perspective of global competitiveness, which undermines the position of American firms. China, India, Indonesia and Russia have begun to apply stricter intellectual property laws or to strengthen the application of national laws on registration, use and protection of intellectual property rights, including using local law enforcement agencies and national courts, which does not meet the interests of American companies.

In the same study, attention is focused on the fact that these countries in connection with the transition to digital content are trying to develop a single platform, thereby providing a new era for harmonization and synchronized development of national economies, which practically puts US companies in a position of loss leadership in the field of information and communication technologies. Significant competition to American companies is constituted by China and Russia.

In this regard, the fact that since the beginning of the coordination of the activities of the BRICS countries, the "independence" of these countries has increased in the part of defending national interests, including in the field of protection of intellectual property rights is important for the national competitiveness of the US. Thus, according to paragraph 58 of the Declaration adopted in Johannesburg in 2018, the BRICS countries are aimed at strengthening the partnership of states "in the field of digital technologies, industrialization, innovations, inclusiveness and investments in order to maximize opportunities and solve the challenges arising from the Fourth Industrial Revolution. The partnership aims to strengthen comparative advantages, to stimulate economic growth and to promote the economic transformation of the BRICS countries, to strengthen the sustainable potential of industrial production, to create networks of science parks and technology business incubators, and to support small and medium-sized enterprises in high-tech

sectors. Authors believe that the initiative to create the Science Parks Network, Technology Business Incubators and Small and Medium Enterprises of the BRICS countries is a promising step in this direction.

An important risk for the progressiveness of ICT development in the world community is the unpredictability of receiving income from the invested money. At the same time funds are especially needed at the stages of developing and adopting new technologies, and not always the liquidity of companies carefully controlled by the audit departments can be maintained at the proper level with the need to channel funds into promising innovative developments. Saturation of the world market with ICT products is a significant risk for all potential investors. In this regard, the cases of the emergence of products only partially modernized, but dynamically presented in the market as a new product with some unique properties that did not previously exist in previous versions are very often in the market of ICT. This can be traced to examples of putting mobile phones on sale, when marketing strategies and consumer expectations are ahead of real developer innovations. Marketing sales strategies are focused on stimulating a constant increase in the sales of manufactured products, as evidenced by the data presented in figure 1.



Sources: Oxford Economics, Euler Hermes

Figure 1. The volume of real sales of ICT (billion US dollars)

Source: the report of the Alliance - A Company of Allianz, Euler Hermes SA, Sevres Research, 2018,

At the same time, network equipment is a highly competitive market with stable expected growth. The development of the Internet network requires equipment for making technological new decisions related to large data and cloud computing. The segment of services is a huge demand caused by the digitalization of the economy, but its growth is constrained by price pressure.

Digitalization plays a special role in the development of ICT. According to the report prepared by the Council on International Business of the USA "Competitiveness and Innovation" it is stated that the main source of innovations and technologies is the private sector, and for it, it is necessary to provide easy access to the markets, resources and human resources possessing the talent of developers in the field of ICT.

4. On the Internal Competitiveness of the United States

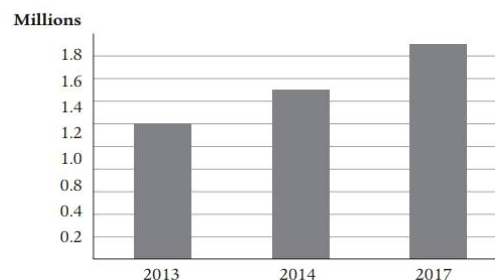
Competition in a market economy is the main driver of the economy, it encourages enterprises to innovate in order to outpace other firms, maintain low prices to attract customers, and pay enough wages not to lose employees.

When enterprises compete for customers, prices fall, and economic growth rises. When enterprises employ employees, competing with each other, there is a rise in wages, and consequently an increase in the standard of living of workers. In this case, non-productive firms are replaced by innovative firms, the economy becomes more efficient. In other words, in a market economy, competition ensures an efficient allocation of resources. However, in the conditions of a market

economy, it can also be the fact that companies striving to provide and maintain their market power can spend significant resources that de facto do not bring any benefit to the national economy, but allow the firm to maintain high profits. According to the experts of the Brookings Institution [8], over the past few decades there are signs of a decline in the dynamism of development and competition in the economy, including in the field of ICT in the United States. For example, in the US in the ICT sector in the highly risky and innovative segment, only two companies act as exporters of goods and services, and one is a real producer, for comparison, in China there are 1 exporter and 2 producers respectively, and in Japan - 3 manufacturers and 4 exporters. At the same time, Russia, Sweden and Israel are acting as potential competitors, significantly intensifying their activities in the segments that traditionally are the field of activity of American companies.

Artificial intelligence is also an important component of developments in the field of ICT in the United States. The use of robotics is expanding around the world. About 5.4 million units were sold in 2015, and this figure doubled in 2016 to more than 10 million units. The best samples in the USA took place in production, construction, rescue operations and personal security. The use of industrial robots in factories also expanded. Figure 2 shows the number of these devices operating globally; it can be seen from the figure, that there has been a significant increase in the past few years. For example, in 2013, it is estimated that 1.2 million industrial robots were used. In 2014, this indicator increased to about 1.5 million units and in 2017, it increased to 1.9 million units.

Figure 1-1 Number of Industrial Robots around the World



Source: Alison Sander and Meldon Wolfgang, "The Rise of Robotics," Boston Consulting Group, August 27, 2014. The 2017 numbers are projected figures.

In particular, for example, E. Puzder, the former CEO of CKE Restaurants, the parent company of Hardee's (USA), highly appreciated digital devices over human use. Evaluating AI, he said that "they are always polite, they always grow in their qualifications, they never rest, they are not late, there is never a case of discrimination on racial, sexual or other grounds.", and they do not demand salary increase. For example, "a computer booth does not need to pay \$ 15 an hour to take orders". McDonald's has announced plans to install "digital kiosks for orders" instead of cashiers in 2,500 American restaurants and in 14,000 kiosks receiving mobile orders. Based on these technologies, market analysts in 2017 increased their growth forecasts in 2018 for the firm from 2 to 3 percent [9-12]. Similar actions of the company Amazon, which replaces the cashiers in their new stores. Instead of hiring people, Amazon Go allows customers to register in the store using an application for smartphones and buy the necessary things. Sensors track the goods that people want to buy and charge from their accounts. This innovation is important for total employment in the US, as retailers and cashiers account for 6% of the US workforce or about 8 million jobs. And the introduction of cars and trucks without drivers into the logistics will lead to the loss of about 2.5 million jobs in the United States. [9] Thus, robots, autonomous vehicles, virtual reality, artificial intelligence (AI), machine learning, unmanned aerial vehicles and the Internet of things are rapidly moving forward and transforming enterprises, reducing real employment in the US and other countries. For millions of people working in the areas of food, retail and truck driving, AI replaces jobs.

According to the research of RBC Global Asset Management, the reason for such extended use is that the cost of robots has significantly decreased. Previously, it was believed that "the high cost of industrial robots limited their use in several high-wage industries, such as the automotive industry. However, in recent years, the average cost of robots has decreased, and in a number of key industries in Asia, the cost of robots and unit costs for low-wage labor are almost equal. Robots are now a viable alternative to labor [13-17].

As an illustration, the activities of a warehouse in California, which implemented robots costing from 30 000 to 40 000 US dollars per unit can be

viewed. It is established that robots can "process from 30% to 50% of items that are sent by vessels every day, about half of the working time that is required by the worker". [9, 18-20]

The US technology companies develop a new financial model that facilitates the introduction of robotics, which will accordingly affect the prospects for employment of low-skilled workers. A robot is expected to be launched, which can perform the tasks currently performed by people with secondary school education or lower at a cost of only \$ 20,000. And this work is going on all over the world. Robots are cheap, efficient and reliable employees and become routine, while they have the knowledge and skills that graduates of secondary school do not have

At the same time, the efforts of the US and other countries to increase the minimum wage and provide benefits for workers (people) in the form of compensating for the wage gap between the robot and the individual has declined even more. For example, economists in [6] found that "an increase in the minimum wage significantly reduces the share of automation, and the performance of jobs by low-skilled workers increases the likelihood that these jobs will be automated and workers will become unemployed. The Agency for Advanced Defense Research Projects (USA) conducted a competition of robots that could effectively operate in hazardous conditions. They were given eight tasks, including "driving a vehicle, opening a door, operating a portable drill, turning the valve and climbing the ladder" [9, 21]. The goal was to purchase equipment that could work in damaged nuclear reactors or in natural disasters where human activities are too dangerous. And robots actually prevailed against the use of human labor.

Researchers of AI in the USA note that automated devices improve the educational process of students. So, a 10-year-old American schoolgirl named Payton Walton uses a "virtual" robot to participate in classes, while she receives cancer therapy 250 miles away from her school. The robot has an iPad screen in the classroom that allows "to join the school lesson, talk to the teachers and "go to her class "(with her face in real time on the computer screen). The two-way communication interface allows the girl to continue her education during the course of radiotherapy and helps her maintaining a normal connection with her class, receiving treatment at the same time [22-24].

Today, the United States is moving from the industrial to the digital economy, and managing the national economy, not taking into account the national interests of the US, to make "America great again" represents a serious barrier to the enhanced development. In particular, the issue of the practice of creating new real jobs, revising the social contract and expanding models of lifelong learning is acute.

In connection with the foregoing, authors believe that it is possible to conclude that in the United States the problem of ensuring social justice and social partnership is quite acute in the face of increasing replacement of human labor by robotics. In some cases, new technologies clearly exacerbate existing social problems in the US. At the same time, financial benefits from technological innovation, as a rule, received a small number of people, which significantly increased economic inequality. Instead of weakening the entrenched hierarchy and empowering ordinary people, the wealth generated by the technological revolution increased the income gap and made it difficult to transition to advanced mobility in socially vulnerable groups. At the technological and electronic levels, new products appear that can change society and the economy. With the advent of faster networks, mobile applications and a voice interface, mathematical calculations become ubiquitous and integrated into daily activities [24-26].

Robots are just one of the manifestations of new technologies. In combination with AI and the Internet of things, digital innovation accelerates the changes and allows the development of many new products.

Computers no longer need human instructions for taking certain measures, but they can evaluate situations and make decisions using self-learning algorithms. They can act autonomously and learn from previous decisions or from the experience of other machines.

At the same time, the evolution of the digital economy is changing business operations and the ways which many people make a living. Outsourcing has become a common phenomenon, and in the economy of joint use there is a greater dependence on temporary employees who do not receive benefits. Expanding the role of robots and automated tools, shifting operations of restaurants, enterprises of the real sector and warehouses affect

the demand and quality of work of company managers. Communications and their changes are accelerating, which leads to the closure of traditionally operating enterprises in the United States.

Digital technologies turn computers into higher levels of complexity. Instead of demanding direct personal actions of a person, remote devices automatically control the purity of water and warn people about the problems that have arisen. Monitoring instruments on cars react to vehicles on the neighboring lane, are capable today to take steps to avoid collision. Such automation translates the calculations from the reactive to the active position and puts the robotic machines in conditions of independent actions.

5. State Regulation to Ensure National Interests of the United States

The tax policy is one of the tools that can raise the competitiveness of companies in the field of ICT in the United States. Specifically, it is envisaged to protect and promote cross-border trade and investment, in particular based on the predictability of the fiscal environment. Secondly, the US tax authorities strive to ensure the accelerated implementation of the results of projects developed by US companies in conjunction with OECD companies in order to minimize the practice of double taxation and to facilitate the process of resolving disputes with European partners based on the application of US rules and regulations.

At the same time, it is proposed to pursue a national policy in the United States, which will be aimed at developing and introducing new information and communication technologies. In particular, it is intended to carry out such state regulation that would act as an "easy touch" meeting the realities of the market, therefore regulatory requirements should be based on the rule of law, but at the same time, should take into account the priority of the country's tasks of increasing the national competitiveness. In this regard, the need for closer attention to issues of global labor relations and health problems is pointed out.

In particular, in economic studies, the question of the role of subsidizing segments of the economy that are important for national development and US

security is considered. For example, when a large firm enters a segment of the economy such as ICT in another state or for export, its impact on the local economy can have a significant influence (Greenstone, Hornbeck and Moretti 2010) [10]. In these conditions, state and local subsidies can be powerful incentives for expanding the scope of the company. At the same time, it is noted that state and local politicians have "clear incentives" to attract such enterprises [11] and they can use various political instruments, as well as tax incentives and various types of subsidies. This violates the rule of fair competition, which is the basis of the WTO (World Trade Organization), and injustice is reflected, first of all, on the activities of young companies that do not possess the same administrative resource as large firms. But this also affects the fairness of competition in the world market, when subsidized suppliers - large

companies that sell on the market have a de facto certain preference against suppliers that do not have subsidies from the state [20-23].

Figure 3 shows the increasing share of real government subsidies in the US (including the local level of states), which actually increased threefold compared with 1990. These incentives were aimed at creating jobs, stimulating investment and tax incentives in the field of R&D, and also envisaged property tax exemptions and vocational training subsidies. Together they grew from 0.5% of the added value created in 1990, to 1.4% in 2015. At the same time, the focus in the United States was on supporting the creation of jobs - about 66%. At the same time, a number of American researchers believe that subsidizing in general does not negatively affect the competitiveness of US companies at home and abroad, the startups, the creation of jobs or their elimination.[12].

Tax Incentives as a Percentage of Value Added, 1990–2015

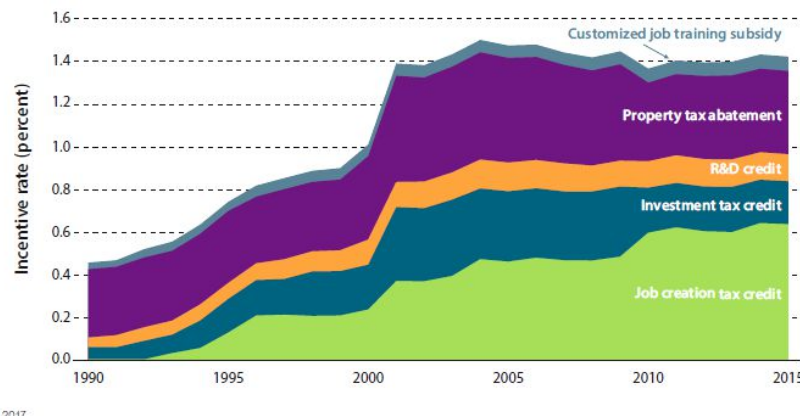


Fig. 3. Tax incentives in the US, expressed as a percentage of added value for the period 1990-2015.

Thus, the US government policy is aimed at gradually increasing the role of state regulation in order to increase the national competitiveness of companies.

With regard to maintaining the level of international competitiveness of the US ICT companies as one of the priority sectors of the national economy, the United States intends to strengthen its influence in the work of the International Labor Organization (ILO), increasing its financial provision and setting standards for national governments in implementing labor standards and ensuring compliance with the labor laws of member countries.

This approach seeks to support the initiative of many interested parties to improve working conditions in the process of building global value chains, assuming equal conditions for all interested parties. Simultaneously, as measures to stimulate the development of ICT in the United States, it is necessary to support the initiative in disseminating consumer information and using products in the educational system, to increase the responsibility of marketing and advertising for the advertised information, focusing on advertising and marketing products that provide a healthy lifestyle.

Attention is drawn to the intentions of the US Administration regarding the regulation of the Internet system in the United States. For example, George Soros, a liberal billionaire financier [13],

has intensified criticism of large technology companies, despite investing millions in companies that he singled out, such as Facebook and Alphabet, Google's parent company. He is looking for ways to de facto resist the influence of large technologies, because "Monopolistic behavior" of such companies, which in their narrowly cartel interests deny liberal principles in the economy and politics, leads to "obstacles of the introduction of innovations" in the economic environment. "The growth and monopoly behavior of giant American companies in the field of Internet platforms contribute significantly to the impotence of the US government" [14], - wrote D. Soros. "These companies often played an innovative and progressively liberating role. But as Facebook and Google have become more powerful, they have become barriers to innovation and create many problems that we are only now beginning to realize" [14].

Over the past few years, Soros has invested millions not only in Facebook, but also in other projects of the company. D.Soros, along with a number of other rich liberal donors, provided funding at the end of 2016 for an "International Fact-Finding Network", i.e. a group used to verify the creation of "fake news" on Facebook, which were organized by Republicans in connection with their potential bias towards the promotion of liberal ideas. In 2017, Soros began to reduce its participation in technology companies, selling its shares in companies such as Apple and Snap, while also publicly abandoning Facebook. The Open Society Foundation stated that "it is studying new ways to counteract the influence of large technologies" and provided a six-figure grant to

Open Market Institute, which uses journalism to increase information awareness of monopolization in the implementation of "works around web platforms".

It is assumed that the maintenance of Internet stability in the US will be provided through the rational management of Internet domain control functions and the extension of the application of ICANN rules to the level of the global community.

In other words, the US will aggressively promote domestic national rules for the regulation of the internet to the entire international community. At the same time, the US will promote the cyber security management model based on risk

management, exercising it both at global forums and on the basis of interstate agreements.

The task is to ensure that confidentiality rules do not impede cross-border data flows or innovation, which directly relates to data protection in the US and to the removal of barriers to government regulation of information transfer in developing economies. Finally, as an incentive for ICT development, it is expected to strengthen interaction with international organizations developing digital trade rules to ensure the interests of USCIB members, including protection of intellectual property rights of the United States.

6. On the Fairness of International Competition in ICT from the Position of US Companies

One of the most important competitors in the sphere of ICT for the United States is not so much Japan, as the growing economy of China, and the planned basis for the development of all spheres of economic activity of China, focused on long-term, is of particular concern in the United States. In the field of ICT, US President D. Trump de facto defends the interests of approximately 40 American leading companies, including Amazon, Facebook and Google, as well as the interests of a number of leading scientists, as was reflected in a press release of the White House on March 22, 2018. [15]

The modern political orientation of the US measures in the field of ICT is reflected in this bulletin, which is actually subordinated to the task of protecting US competitiveness. The threat to American companies in the field of innovation, according to the leadership of the United States, is the Chinese companies. In August 2017, the US foreign trade representative launched the first investigation into the China's acquisition of technology, intellectual property and innovation. The investigation showed that China is using a number of administrative measures of a restrictive nature with regard to the functioning of foreign private property, including requirements for joint ventures and revision of the licensing of activities in China, which encourages or exerts pressure on US companies to transfer their technology to Chinese companies. At the same time, it was established that there was a requirement from China for foreign companies to access new energy vehicles markets for the transfer of basic

technologies to joint ventures and the rights to technology for developing and manufacturing vehicles themselves.

According to the US Administration, China is forcing American companies to license technology, transferring rights to use to the Chinese enterprises, which in fact does not meet the practice of market activity. At the same time, introducing "contractual restrictions" on licensing intellectual property and foreign technology, China, at the same time, doesn't establish any restrictions on contracts between Chinese enterprises. The American side declares that from China there is an unfair practice to support large-scale investments for the acquisition of costly technologies of American companies by Chinese enterprises. For example, a Chinese government-funded fund helped Apex Technology Co (the Chinese investment consortium) to acquire an American computer printer manufacturer that had previously sued Apex for patent infringement.

The US administration is of the view that the government of the People's Republic of China maintains the cyber-attacks on

American companies for access to their confidential commercial information, including data of commercial secret. So, in 2014, the US accused five Chinese military hackers of cyber espionage committed against American corporations and labor organization in commercial purposes. In 2017, the Presidential Administration conducted 82 investigations of anti-dumping and countervailing duties. This is 58% more than in 2016. In particular, for example, it is emphasized in the study of the White House in 2018 that China acted as a "world plant" for a whole generation. By 2015, the share of the Chinese market in the field of ICT already accounted for 28% of world car production, 41% of global ship production, more than 50% of world refrigerator production, more than 60% of world production of color TVs and more than 80% of world production of air conditioners and computers.

According to analysts of the US White House, China's competitiveness was achieved mainly due to the aggressive actions of the Chinese government, which go beyond global norms and rules or due to "economic aggression".

The experts indicate the following factors of economic aggression:

- Protection of China's domestic market from imports and unfair competition, which is ensured by high tariffs, non-tariff barriers and other regulatory and legal barriers;
- Expansion of China's goods and services to the global markets through national industrial policy, financial support for exports and the formation of large state-owned enterprises that can compete with foreign companies in both domestic and global markets. Simultaneously, subsidies are used to finance surplus capacity in China, which affects world prices and drives out foreign competitors from the world market;
- China uses "debt traps" that offer significant financing to developing countries in exchange for encumbrance of their natural resources and access to markets, including bauxite, copper and nickel and rarer products such as beryllium, titanium and rare earth minerals markets.
- Dominance of industrial enterprises in China is also provided by preferential loans and tariffs for domestic services (below market ones), as well as weak or poorly observed norms of environmental protection and health and safety.

Economic aggression of China in the field of ICT, according to experts of the White House, is:

- Acquisition of key technologies and intellectual property from other countries, including the United States;
- Capturing of new high-tech industries (through purchases, mergers and acquisitions), which will contribute to further economic growth, including the development of China's national defense industry. As part of this policy, China seeks access to the latest developments in American technology and intellectual property.

In terms of supporting the competitiveness of American ICT companies and corporations by the government, the US Administration proceeds from the advisability of using predominantly sanctions policy. So, in January 2018, new tariff barriers were announced for the import of large household washing machines and solar batteries. And it is characteristic that the USA actively uses the WTO mechanism. So, in February 2018, the USTR won the requirement to comply with WTO rules regarding unfair anti-dumping and countervailing duties on the export of American poultry, but China announced the termination of its obligation to

import these products. In November 2017, the United States won the WTO dispute over the regime of illegal licensing of Indonesia, which restricts exports of US agricultural products. In October 2017, the WTO Compliance Group found that the US tuna labeling rules, designed to inform consumers about safe fishing practices, are in line with WTO standards. In September 2017, the WTO rejected the European Union's claims that Boeing receives prohibited subsidies. In June 2017, the WTO compliance group rejected almost all of the claims of the European Union, according to which the alleged US subsidies to Boeing caused serious damage to Airbus, but instead confirmed that the US support programs with Boeing fully complied with WTO rules. President Trump proposed to introduce 25% additional import tariffs for products whose competitiveness is supported by China's unfair industrial policy. In particular, these tariffs should apply to products of aerospace, information and communication technologies and apparatus.

Thus, US policy in the form of sanctions against China is a forced measure, according to the White House, aimed at increasing the national competitiveness of the United States, including in international ICT markets. For the Trump Administration, the question is to help domestic companies to prevent increased competition from China within the framework of the "global economic battle" for technological superiority. The development of AI or technology that performs tasks specific to the human intellect (understanding the language and recognizing objects and sounds) is one of the priorities of China's national strategy since July 2017, but the US Administration considers that these are the areas of USA's national interest and security.

"When Trump enters a trade battle with China, he wants to make sure that he does not just punish Chinese companies, but also actively supports American companies that are facing growing competition from the mentioned country," said P. Harrell, a former high-ranking official of the US Bureau of economic and business affairs of the State Department and now an assistant to a senior researcher at the Center for New American Security, an analytical center in Washington, DC.

The Commission of the White House on AI, whose task is to stimulate the practical application of technology for cars without a driver and in smartphones when recognizing the voice of people

(Order a meeting, visiting salons, etc.), emphasizes that China in the field of AI and a number of other technological areas is the most real competitor of US companies (Figure 4.)

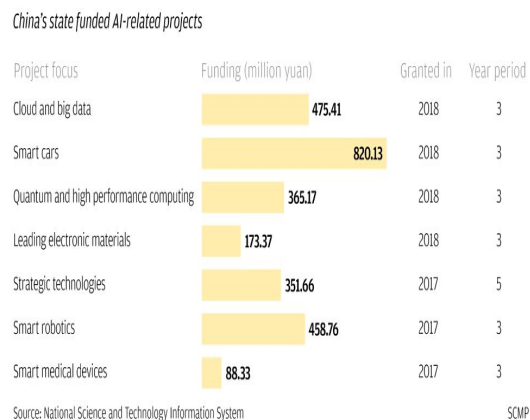


Fig. 4. Projects evaluated by the US as being implemented with the support of the government of the People's Republic of China.

The Ministry of Science and Technology of China financed eight research projects related to AI in the last six months to the amount of 2.73 billion Yuan (430 million US dollars) from the central state budget. In addition to AI, these projects cover topics from large data and high-performance computing to more leading areas, such as human organs on chips.

The Chinese Academy of Sciences (CAS) (consisting of more than 300 laboratories and four national research centers) received more than 2.7 billion Yuan in 2017 for 11 fundamental scientific projects, although not publicly announced which of them are directly related to AI.

The Chinese government has set an ambitious goal to overtake the United States' world leadership in the field of AI by 2030. According to the detailed "roadmap" issued in July 2017, the government indicated that by 2020 the scope of AI will reach 1 trillion Yuan, and by 2025 - 5 trillion Yuan, respectively, with the widespread introduction of AI into intellectual production, into smart healthcare, into smart cities, into smart agriculture and national defense infrastructure. In other words, according to the road map, by 2030, China will lead innovation in the world and build a smart economy and a "smart society". The amount of funds, determined as the basis for the dominance of AI, is estimated at 1 trillion Yuan, and when used by related industries at more than 10 trillion Yuan.

At the same time, China focuses on the development of AI in the private sector.

In November 2017, the Ministry of Science and Technology of China ranked four of its largest technology companies - Baidu, Alibaba Group, Tencent Holdings and iFlyTek - as the so-called national leaders who should lead the development of innovations in the field of AI for cars, smart cities, optical computers for medical diagnosis and voice recognition of tasks. It is expected that the influence of the government on large companies of the country will contribute to the initiative of smaller players in the field of AI. The Chinese government has stepped up financing of AI projects not only through the "state budget", but also the budgets and the fund of local authorities and state companies. According to the report of Oxford University published in March 2018, the Chinese government invested more than 1 billion dollars into domestic "start-ups", and a significant part of investments is directed to healthcare and AI as priority areas of ICT. For example, a plant in Dongguan, China, works almost exclusively with robots. The facility, operated by Changying Precision Technology Company, "has automated production lines that use robotic equipment for the production of cell phone parts. The plant also has automated equipment for processing, autonomous transportation, etc. And if to perform these works 650 employees were needed, then sixty robots perform the required tasks without requiring leaves and sick leaves. Robots increased annual production from 8,000 to 21,000 phones and reduced the level of defects from 25 to 5% [9, 16-19].

As the technological revolution progresses and its consequences are felt by all segments of the population (but to varying degrees), the management of transitional processes and digital opportunities in the US national economy requires coordinated efforts and taking into account the diversity of social challenges that undermine the national stability of development and social sustainability. At the same time, a special role is played by the interconnection of all types of resources in the implementation of public-private partnership programs in the field of ICT [20-25]. In the coming years, computing devices will become more complex, which will have a huge impact on society, business and government. And this transition should be accompanied by adequate state

regulation and management, so that the transition period would not become a crisis, with deep social instability, but, according to American researchers, a time of peace, prosperity and pleasant leisure for US citizens.

7. Conclusions

1. The United States is a country that has a sufficiently high competitiveness in the field of ICT and conducts nationally oriented economic and technical policies to ensure the existing information and technology potential of the US economy.
2. Developments in the field of ICT, and in particular of AI, on the one hand, contribute to the replacement of human labor by artificial intelligence, reducing real workplaces. On the other hand, they form the potential for the emergence of new jobs, fundamentally different from the existing jobs. In turn, this requires the US government (including state policy) to be more attentive to the process of retraining the emancipated workforce, to stimulate employment of all segments of the population, living in the US and losing their traditional jobs [26].
3. The current US policy of protectionism is aimed at maintaining the national and international competitiveness of the United States, to prevent new, more competitive players from entering the world ICT market, not at the level of individual companies or firms, but at the state level. In other words, the US government de facto understands that the transition to multipolarity is inevitable, and in these conditions it is necessary to activate the role of the state as an institution for the effective regulation of economic policy and international cooperation.

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