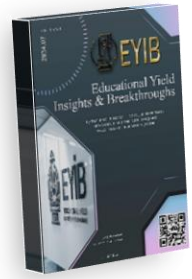


THE ROLE OF INNOVATIONS IN THE DIGITAL ECONOMY

Samadov Sevinchbek | ***Student of TSUE***

Annotatsiya

In the development of the digital economy, the allocation of innovations and investments in this area is of great importance. The introduction of innovations in the field of the digital economy implies the practical application of digital technologies and modern software tools, the results of experimental and design solutions, and requires attracting constant investments in this area. Such tasks as analyzing the investments and innovations of the world's leading countries and determining the main directions of development in this area, strengthening the training of personnel in this area, are the main tasks for the development of the digital economy.

Kalit so‘zlar: Digital economy, innovation,investments, Research&Development

Introduction

In the context of the development of the digital economy, the problem of introducing and developing innovative technologies in the world remains a constantly relevant problem. For the development of the digital economy, attention is being paid worldwide to improving the implementation of innovative technologies in the telecommunications sector, ensuring the attractiveness and financial stability of innovative technologies in telecommunications.

In his 2020 Address to the Oliy Majlis of the Republic of Uzbekistan, the President of the Republic of Uzbekistan Sh.M. Mirziyoyev stated: "To further develop science in our country, to educate our youth with deep knowledge, high spirituality and culture, to continue working, we have begun to form a competitive economy and raise it to a new modern level. I propose to name the year "Year of Science, Education and Digital Economy Development"[1]. Innovations and innovative technologies in various fields application, application in science and scientific developments in production is considered the main catalyst for progress. Today, worldwide, the introduction of innovations that ensure increased efficiency of processes and product quality is becoming a requirement of a market economy. At the same time, the implementation of innovations in practice should correspond to socio-economic and cultural needs. An example of the introduction of innovations is characterized by the introduction of products with new consumer properties into the market or the focus on increasing the

production efficiency of certain products (2). Innovations in the field of the digital economy stimulate the development of the digital society, allow the application of new developments in many areas, and lead to a sharp change in the economy.

Research methodology.

The word and concept of "innovation" were first used in scientific research by the Austro-American scientist J. Schumpeter.

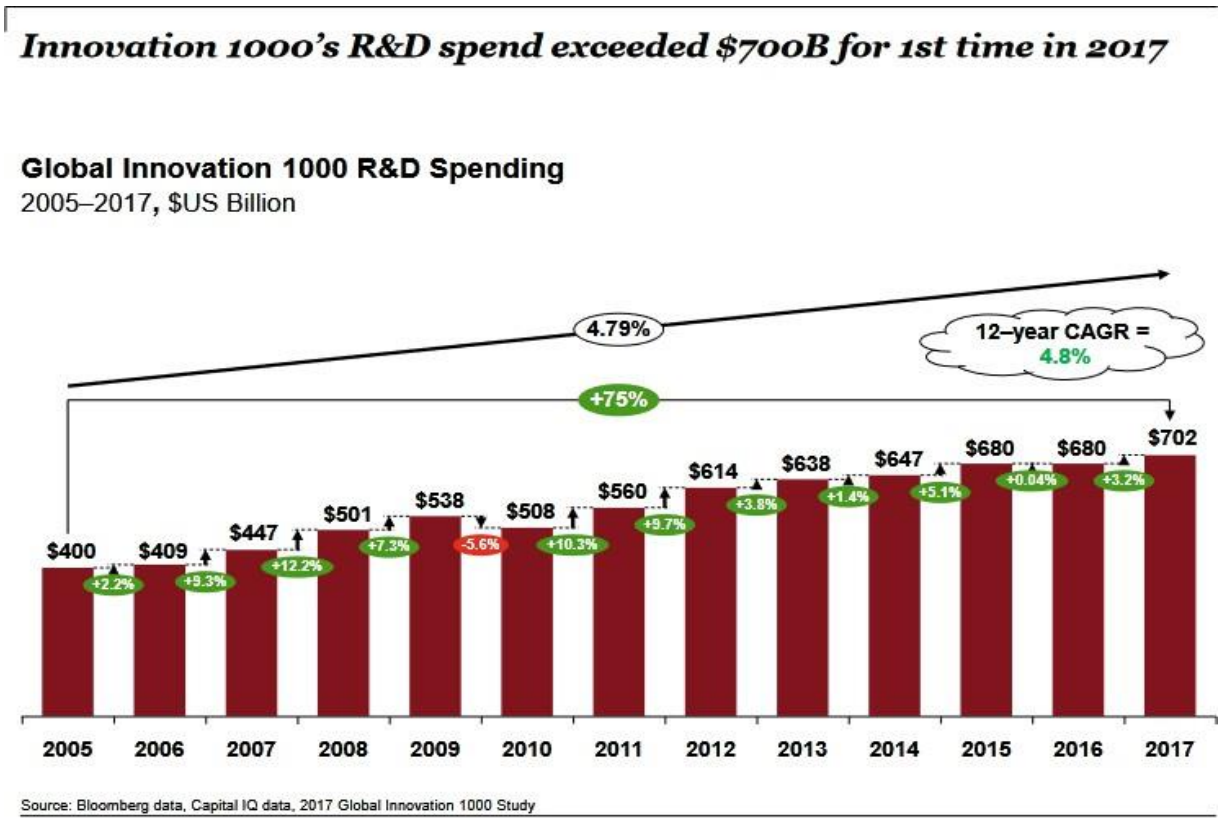
According to his definition, "Innovation is not any innovation or novelty, but the only thing that significantly increases the efficiency of production, a working system" (2). There are many scientific studies by scientists on the study of innovation problems, one of them, B. Twiss, in his research defines innovation as a "process in which an invention or new idea acquires economic meaning" (3). Another scholar, M. Hucek, classifies innovations as the combination of technical and natural science material (4). Prigozhin A.I. and other scientists consider innovation as a complex process, including the production, introduction into production, and commercialization of new consumer values, such as goods, equipment and technologies, and organizational forms (5). According to B. Santo's definition, innovation is a socio-economic process that leads to the creation of the best products and technologies according to their characteristics through the practical use of ideas and inventions. Ultimately, it brings economic benefits, and its appearance on the market can bring additional income (6). Based on the foregoing, it can be said that innovation consists of developments and processes that serve to significantly increase the efficiency of new inventions, ideas, and production, and its creation requires research and development. These studies and investigations are specific level, it requires investment funds to be directed to this sector. Especially in the development of the digital economy, new inventions, ideas, proposals, scientific research and studies play a key role.

Research methods.

To study the role and significance of innovations in the development of the digital economy on a global scale, methods of scientific abstraction, logical thinking, comparative analysis, monographic research, dynamic study, data grouping, comparison, correlation and regression analysis were used in the study of data related to this area.

Analysis and results.

Studying the factors associated with the development of the digital economy in the world, we see that the introduction of innovations and investments in the development of this sphere is one of the main factors of its development and is expanding year by year. For example, the annual expenditures of the world's largest thousand companies on research and development in 2005 amounted to 400 billion dollars. From US dollars to 700 billion by 2017. US dollars, and in recent years it has been growing by 4.8% annually (Fig.1). Figure 5. Annual research expenditures of the world's 1000 largest companies.



Source: https://www.strategyand.pwc.com/uk/en/media/2017-global-innovation-1000-fact-pack.pdf

Competition in various markets is steadily growing, new companies and industries are being created, therefore expenditures on R&D are increasing year by year. The graph shows that spending on R&D has been steadily growing since 2005 and has slightly decreased since the 2009 crisis. On average, the growth rate of research and development is 4.8%. As can be seen from the graph, the world's largest companies are focused on innovation in development, new

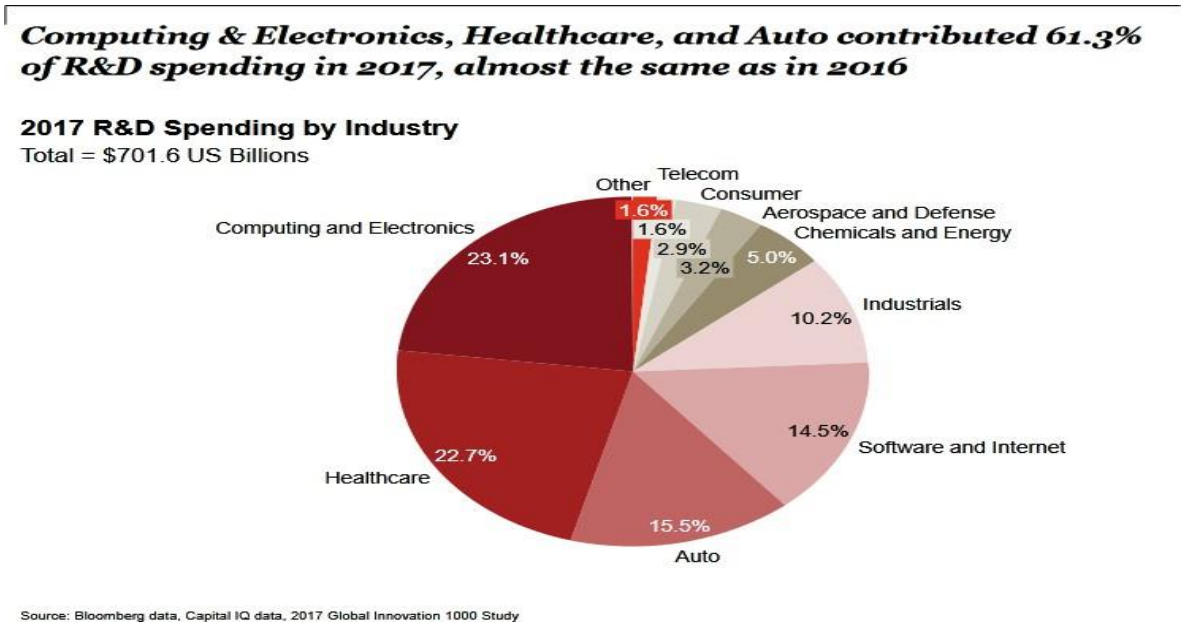
They are investing heavily in the implementation and development of technologies, scientific research, and innovative developments.

If we consider the expenditures of the 25 largest companies in this area in recent years, we can see that most of them are US companies, and among them there are many information technology companies, which are popular worldwide (Fig. 2).

				R&D Expenditures ($US Billions)		Revenue ($US Billions)		R&D Intensity	
2018 Rank	Company Name	Country	Industry group	2017	2018	2017	2018	2017	2018
1	Amazon.com, Inc.	United States	Retailing	16.1	22.6	136.0	177.9	11.8%	12.7%
2	Alphabet Inc.	United States	Software and Services	13.9	16.2	90.3	110.9	15.5%	14.6%
3	Volkswagen Aktiengesellsc...	Germany	Automobiles and Compone...	13.8	15.8	260.9	277.0	5.3%	5.7%
4	Samsung Electronics Co., L...	South Korea	Technology Hardware and ...	14.3	15.3	189.0	224.3	7.6%	6.8%
5	Intel Corporation	United States	Semiconductors and Semic...	12.7	13.1	59.4	62.8	21.5%	20.9%
6	Microsoft Corporation	United States	Software and Services	13.0	12.3	85.3	90.0	15.3%	13.7%
7	Apple Inc.	United States	Technology Hardware and ...	10.0	11.6	215.6	229.2	4.7%	5.1%
8	Roche Holding AG	Switzerland	Pharmaceuticals, Biotechn...	11.8	10.8	54.0	57.2	21.9%	18.9%
9	Johnson & Johnson	United States	Pharmaceuticals, Biotechn...	9.1	10.6	71.9	76.5	12.7%	13.8%
10	Merck & Co., Inc.	United States	Pharmaceuticals, Biotechn...	10.1	10.2	39.8	40.1	25.4%	25.4%
11	Toyota Motor Corporation	Japan	Automobiles and Compone...	9.8	10.0	267.4	259.8	3.7%	3.9%
12	Novartis AG	Switzerland	Pharmaceuticals, Biotechn...	9.6	8.5	49.4	50.1	19.4%	17.0%
13	Ford Motor Company	United States	Automobiles and Compone...	7.3	8.0	151.8	156.8	4.8%	5.1%
14	Facebook, Inc.	United States	Software and Services	5.9	7.8	27.6	40.7	21.4%	19.1%
15	Pfizer Inc.	United States	Pharmaceuticals, Biotechn...	7.9	7.7	52.8	52.5	14.9%	14.6%
16	General Motors Company	United States	Automobiles and Compone...	8.1	7.3	149.2	145.6	5.4%	5.0%
17	Daimler AG	Germany	Automobiles and Compone...	7.8	7.1	184.0	197.3	4.2%	3.6%
18	Honda Motor Co., Ltd.	Japan	Automobiles and Compone...	6.5	7.1	137.5	131.8	4.7%	5.4%
19	Sanofi	France	Pharmaceuticals, Biotechn...	6.2	6.6	41.7	43.5	14.9%	15.1%
20	Siemens Aktiengesellschaft	Germany	Capital Goods	5.8	6.1	94.1	98.2	6.2%	6.2%
21	Oracle Corporation	United States	Software and Services	6.8	6.1	37.0	37.7	18.4%	16.1%
22	Cisco Systems, Inc.	United States	Technology Hardware and ...	6.3	6.1	49.2	48.0	12.8%	12.6%
23	GlaxoSmithKline plc	United Kingdom	Pharmaceuticals, Biotechn...	4.9	6.0	37.7	40.8	13.0%	14.8%
24	Celgene Corporation	United States	Pharmaceuticals, Biotechn...	4.5	5.9	11.2	13.0	39.8%	45.5%
25	Bayerische Motoren Werke...	Germany	Automobiles and Compone...	5.2	5.9	113.1	118.5	4.6%	5.0%

Table 1

Table of the analysis of expenditures of the world's 25 largest companies for 2017-2018.



The study of the structure of R&D expenditures, i.e., expenditures on scientific research and innovation, shows that most expenditures are aimed at solving the following goals and objectives:

increase in yield;

- The increase in productivity;
- improving product quality;
- adapt the product for a specific market;
- create a product with unique properties;
- creation of affordable products for production (cost reduction);

- creation of products that are universal for different markets;
- Increasing the speed of product launch;
- increase in the number of invention products, etc.

Sociological survey of America among the 1000 largest companies in the world

Research conducted through a survey shows that the largest funds were allocated to improving productivity and product quality.

This analytical agency also shows in its research the share of various sectors of the economy, such as information technology and telecommunications (ICT), healthcare, automotive industry, and others, in total research expenditures. Figure 2 shows a pie chart of this distribution.

Distribution of R&D expenditures among economic sectors The three largest sectors in terms of R&D expenditures are IT and telecommunications, healthcare, and the automotive industry.

Also, the annual growth of scientific research developments corresponds to the same structure.

The list of the 50 most innovative companies in the world in 2021.

Analysis of the above data shows that in the structure of expenditures on R&D, 23.1% are allocated to electronics and computing, 22.7% to healthcare.

%, 14.5% for programming and Internet development, 15.5% for automotive manufacturing. Thus, the total expenditures on the development of electronics and computing, programming and the Internet amounted to 37.6%, or 263.8 billion soums. It amounts to US dollars. Currently, 5.5% of the world's GDP is accounted for by the ICT sector, and according to forecasts by the consulting company McKinsey, by 2020 this figure will be 9%. At the same time, the share of this sector in GDP, due to the nature of the product, does not fully reflect the enormous impact of ICT on economic growth and all spheres of human activity, including various healthcare, social, and educational services.

The presented analyses show that the funds spent on electronics, the Internet, and programming are increasing year by year, and this is due to the fact that

ensures economic growth under conditions of fierce competition.

Analysis and results.

The sphere of influence and self-propagation of modern information technologies (high-speed Internet, mobile broadband, computer services, etc.) is the cause of self-economic growth, and the improvement and acceleration of the process of interaction between people, the growth of labor productivity provide additional socio-economic benefits. According to the consulting company McKinsey, even one direction - raising the level of mobile broadband connectivity in developing countries to the level of developed countries - could lead to a global GDP growth of 300-420 billion dollars and approximately 10-14 million new jobs in various industries (for example, in the production of electronic equipment and devices), offshore services, and outsourcing. The role of the IT sector in ensuring economic growth has significantly increased during the period of intense struggle of states with the consequences of the global financial and economic crisis.

US President Barack Obama, in particular, reported in 2009 that "increasing expenses for broadband access, introducing electronic health records, investing in green energy, new computers for schools and libraries are effective ways to maintain America's investment and competitiveness, creating new jobs." Former British Prime Minister Gordon Brown also announced his government's efforts to develop digital infrastructure "in the area of railway, highway, and bridge construction, which was intensively carried out in recent years to stimulate the economy." The countries on the list are not alone in their aspirations. For example, South Korea has long been a leader in broadband investments. Today, many countries, from Greece to Malaysia, are investing heavily in the development of the national IT sector.

According to the latest research by the international consulting company McKinsey on consumer markets, ICT is used in healthcare, agriculture, and

Alongside infrastructure, it is one of the four economic sectors with the highest intensity of impact on modern society. Figure 3 shows the sectors that have the greatest impact on social development[2].

A study of the level of development of countries with high innovative development in the world shows that in these countries, per capita expenditures in the field of innovation are at a high level and amount to an average of 50.8 thousand US dollars per year. In Uzbekistan, this indicator is equal to 2.1 thousand US dollars and is 24.1 times less than their average expenditure.

The global innovation index of innovative development has a coefficient of 57.8 in developed countries and 29.1 in Uzbekistan, and the publication of articles in international journals is 4455.7 in developed countries and 11.2 in Uzbekistan. These analyses show the need to strengthen innovative development in our country.

Table 2

Countries with high innovative development

Countries	Level of development		Indicators of innovative development		
	GDP (thousand per person) dollars)	GDP (thousand dollars per person, according to	Global Innovation Index	Export of high-tech goods (industrial) % of export)	In international journals articles

		PPS)			
Switzerland	79.9	63.9	66.3	27.1	2534.4
USA	57.6	57.6	61.4	20.	1265.7
Singapore	53.0	87.8	59.2	67.4	2007.0
Ireland	64.2	71.5	59.0	29.8	1431.8
Netherlands	45.6	50.5	58.3	-	1759.8
Average by country	50.8	53.8	57.8	21.4	4455.7
Uzbekistan	2.1	6.5	29.1	4.7	11.2
Between Uzbekistan and average difference (times)	24.1	8.3	2.0	4.5	397.5

Source: Prepared based on data from the World Bank and the State Statistics Committee

Uzbekistan's global innovation score is almost 30 points (on a 100-point scale), and the republic ranks 80-90th in the ranking of WEF countries in terms of global competitiveness. The difference in the average score of this indicator for leading countries (57.8) is approximately 2 times.

Comparison of indicators of conditions and factors of innovative development in Uzbekistan with world indicators allows us to draw the following conclusion: The main factors hindering the transition to an innovative economy in Uzbekistan are the underdevelopment of institutions in this area and the insufficient financing of science and new technologies in the republic.

Conclusion

Research and analysis of the impact of innovations on the economy, investments in research work show that the introduction of innovations into the digital economy can accelerate its development in the country. Today, developed countries and mega-companies are greatly benefiting from innovations in the digital economy. According to the Decree of the President of the Republic of Uzbekistan "On Measures for the Wide Implementation of the Digital Economy and E-government," by 2023, the share of the digital economy in GDP will double, and the volume of services in this area will triple.

100 million dollars. At the same time, in 2020-2022, it is planned to implement a total of 268 projects for the further development of e-government, telecommunications and the park of software products and information technologies, and the widespread introduction of digital technologies into the real sector. Thus, in accordance with the Decree of the President of the Republic of Uzbekistan dated April 28, 2020 No. PP-4699 "On Measures for the Wide Implementation of the Digital Economy and E-Government"

In 2021, the total value of data for the technology and communications sector amounted to 17.6 trillion soums.

It is planned to implement 35 priority projects. 44.8 percent of these projects are direct foreign investments and unsecured loans, 33 percent is planned to be implemented through loans guaranteed by the government. The implementation of these tasks will undoubtedly have a significant impact on the development of the country's digital economy.

List of used literature

1. Schumpeter J. Theory of Economic Development: Research on Entrepreneurial Profit, Capital, Credit, and the Conjuncture Cycle. Moscow: Progress, 1982.
2. Twiss B. Management of Scientific and Technical Innovations. - M.: Economics, 1989.
3. Kuchek M. Innovations at Enterprises and their Implementation. Moscow: Luch, 1992.
4. Prigozhin A.I. Innovations: incentives and prospects. Moscow: Polit-izdat, 1998.
5. Пригожин А.И. Нововведения: стимулы и перспективы. - М.: Полит-издать, 1998.
6. Santo B. Innovation as a Means of Economic Development. Translated from Hungarian. -M.: Progress, 1990.
7. McKinsey Global Institute [electronic resource]. URL:http://www.mckinsey.com/insights/m gi
8. 2017 Strategy& Global Innovation 1000
9. https://www.strategyand.pwc.com/uk/en/me dia/2017-global-innovation-1000-fact-pack.pdf
10. https://www.bcg.com/publications/2021/mo st-innovativecompanies-overview
11. www.wikipedia.ru - website
12. www.kun.uz - website
13. MITC.uz
14. Uztelecom.uz website