

Innovative Way of Development of Modern Telecommunications and Computer Technologies in Ukraine and Countries of the World

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Summary

Innovative implementations in telecommunications and computer technology in the countries of the world are relevant. The modern world has stepped into a new technological, economic, and social reality. The increase in the digital divide creates the danger of developing countries falling further behind, and this primarily concerns Ukraine. The direction of innovation in modern telecommunications and computer technology is an important task of the economy, and the service sector and ensures the growth of income and national welfare of any country. The article is devoted to researching innovative actions in the sphere of telecommunications and computer technologies in Ukraine and countries around the world. The article examines the state of development of telecommunications, computer technology, the Internet, e-commerce, etc. Analyzed statistical data on the state of development of the Internet, mobile communications, electronic commerce, outsourcing, telecommunications, and computer technology. The results of the study confirm the need to create effective conditions for the process of innovation in telecommunications and computer technology at the level of the states of the world. Certain discussions of the results of the research are carried out, and the topical questions concerning the importance for society of the process of innovative development of the computer sphere are highlighted. Also, conclusions were made about the prospects for an effective impact of innovations in telecommunications, computer technology, the Internet, the economy, education, and e-commerce in Ukraine and countries around the world.

Keywords: *innovation, telecommunications, computer technology, Internet, e-commerce, outsourcing.*

1. Introduction

Telecommunications, computer technology, the Internet, mobile communications, and electronic commerce are part of the infrastructure of the world economy, which ensures the effective functioning of world markets. The degree of implementation and use of modern digital technologies in various areas of society is a significant factor in the economic and social development of states.

The process of introduction of innovations in modern computer technologies in the countries of the world follows the direction of global integration. The main segments of digital technologies are automation, software production, and IT services. The research topic of the article is relevant in connection with the presence of the problem of the digital divide among the states of the world.

There are also unresolved questions about how to assess the contribution of the sharing economy, platforms, and gig-economy to GDP and productivity growth.

The article aims to investigate theoretical, practical, statistical, and scientific materials on innovation in modern digital technologies in the countries of the world.

The article aims to study the main aspects of the research topic, namely:

- reveal the essence of the main concepts of the topic;
- evaluate the importance of the development of telecommunications and computer technology for society;

- to analyze the state of development of innovations in the field of telecommunications and computer technology in Ukraine and countries around the world;

- to draw conclusions on the topic of the article.

The hypothesis of the study is as follows. The introduction of an innovative direction of development of modern digital technologies in Ukraine and countries around the world should contribute to the effective operation of society.

2. Materials and Methods

To achieve certain goals, the article used the following methods of scientific research: induction and deduction - to study the essence of the basic concepts of the topic; evaluation and analysis - to provide research results; abstract-logical method - to draw conclusions on the innovative way of development of modern telecommunications and computer technology in Ukraine and the world.

The research materials are publications and scientific works of different authors on the topic, statistical data from the websites of the United Nations, the Organization for Economic Cooperation and Development (OECD), the International Monetary Fund (IMF), the State Statistics Service of Ukraine.

3. Results

Technology development is carried out by wealthy countries and the most influential economies, called industrial nations, on which the consumer countries of this equipment depend. Proprietary technologies can ensure the development of industry, economic independence, and information security. Technology-driven enterprises create modern production capacity for all other industries, automate, innovate, and increase productivity, which affects the overall growth of productivity across the economy as a whole. Countries dependent on imported technology will remain on the periphery of the developed world.

The innovative direction of the development of modern digital technologies is of great importance for society. For example, global spending in the telecommunications and computer technology market amounted to about \$4.81 trillion in 2018 and is expected to grow to \$6 trillion, according to the estimates of analytical agencies (Table 1).

Table 1: Global spending in the telecommunications and computer technology market in 2017-2021[1]

Years	Global spending on the telecommunications and computer technology market, trillions of dollars U.S.
2017	4,57
2018	4,81
2019	5,06

2020	5,34
2021	5,68

The information and communications technology (ICT) industry should contribute to GDP growth in the coming years. The proliferation of the web ensures the overall growth of product and service markets. The largest expenditures will come from innovations in digital technology.

There are also a number of issues related to the complexity of ICT implementation. The main barriers to the innovative development of telecommunications and computer technologies are: the high cost of developing new technologies, security problems, the lack of necessary infrastructure, poor connections between the elements of ICT, the unpredictability of some technologies, the absence or imperfection of the legal framework for regulating processes related to the use of ICT.

The expected effectiveness of the use of telecommunications and computer technology in the production process and daily activities involves: increasing the efficiency of data processing, optimization, automation of production processes, increasing the computing power of modern computers, connecting hard-to-reach regions to the network, increasing the capacity of data carriers and reducing the cost of data storage[11].

So, ICT is the most important area among the key innovative components of the modern world.

In 2011. The UN recognized Internet access as one of the basic, inalienable human rights - along with the right to education, freedom of speech, etc. The Internet is an indispensable tool for implementing a number of human rights, combating inequality, and promoting progress [3]. According to the United Nations, every state should be responsible for making the Internet available to the widest possible segment of the population.

Broadband can be seen from a technical perspective (a set of promising network technologies) and as a driver of revolutionary change, renewing the provision of existing services and facilitating innovative services. In today's world, broadband is becoming a critical infrastructure that determines the competitiveness of countries in the global digital economy[18].

Access to broadband Internet will impact employment. The ability of the Internet to reduce transaction costs expands opportunities for people who have trouble finding work and also facilitates the inclusion of people with disabilities and those living in remote areas. Targeted outsourcing provides jobs through the Internet to the poor and disadvantaged.

A study in Germany in early 2010 predicted that broadband networks could create about a million jobs over the next 10 years [13]. A study in Brazil found that broadband could increase job growth by 1.4 percent. In China, increasing broadband penetration by every 10% is

seen as contributing an additional 2.5% to GDP growth[14].

Optimization and robotization of production will take out a number of workers in the economy, but in general, the impact of ICT development in Ukraine and countries around the world on the labor market will be quite effective.

Important for the development of telecommunications and computer technology is fifth-generation communication (fifth generation). In 5G, real speeds will reach 10 Gbit/s (for comparison: now the maximum speed of 4G subscribers rarely exceeds 100 Mbit/s) [16].

Further development of similar technologies will lead to a revolution in the industry, agriculture, and transportation [5]. The possibility of uninterrupted and ultrafast data transmission, as well as the ability of devices to exchange data, will directly contribute to the spread of remote control of agricultural machinery, industrial work, or unmanned vehicles.

Table 2: Impact of 5G technologies on society

Sphere	effect
Unmanned cars	Elimination of dangerous signal delay at high speed
Industry	Fast industrial operations and infrastructure unification
Agriculture	Remote farm management, field, and animal monitoring
Education	Training via VR broadcast
Telemedicine	Real-time remote operations
Communication	Interactive virtual reality through the process of digital innovation
Entertainment	Rapid wireless transmission of ultra-high-definition video, broadcasting events with VR effect
Computer games	Attracting many VR game users without signal delay

Another area of innovation in the digital economy is the proliferation of platforms. Many digital platforms have emerged around the world, using data-driven business models and transforming existing industries. Digital platforms act as mechanisms for different parties to interact online, as multistakeholder markets with online infrastructure and transactions between different parties.

Some global digital platforms have gained strong market positions in certain segments. For example, about 90% of the Internet search engine market is owned by Google. Facebook has 2/3 of the global social media market and is the most popular social media platform in more than 90% of countries. Nearly 40% of the world's online retail sales are made through Amazon's network, and its subsidiary, AmazonWebService, accounts for roughly the same share of the global cloud infrastructure

services market [7].

The rapid consolidation of the dominance of the largest digital companies in the market is due to the following. There is a network effect, that is, the greater the number of users of a platform, the greater its value for all. An increase in the number of users means an increase in the amount of data, which allows you to outpace potential competitors and take advantage of first-mover advantages. The platform begins to scale up and offer different comprehensive services, and the cost to users of switching to other service providers will begin to increase.

Other measures include strategic investment in research and development (R&D) and lobbying policymakers at the national and international levels.

Investments in digital technologies will improve the investment climate of the country. Internal and external investments in the development of computer technologies will contribute to the processes of integration of the national economy into the global economic space. The development of digital technologies and the digital economy sector depends on investments. Therefore, it is necessary to create favorable conditions in the country for investment in telecommunications, electronic commerce, software, and digital technologies.

One of the areas of e-business is electronic commerce (e-commerce). E-commerce is understood as a sphere of economy, which covers all financial and trade transactions carried out by means of computer networks, and business processes related to the conduct of such transactions. E-commerce includes the electronic exchange of information, electronic movement of capital, electronic commerce, electronic money, electronic marketing, electronic banking, and electronic insurance services.

The development of this type of commerce became possible after the percentage of the spread of the global network exceeded a certain critical level, which led to its accessibility to the wide masses of the population. The level of development and spread of e-commerce in the world market directly depends on the level of global network coverage in individual countries and regions, as well as in the whole world[17].

The World Bank recognizes the lack of adequate macroeconomic statistics that can fully measure the benefits provided by digital products and products created through digital technologies or cross-border transactions. In this regard, the International Monetary Fund has recently initiated discussions in government, academia, and business circles on how to measure the digital economy[4].

So, the digital transformation of the economy is a permanent process concerning the development of a variety of modern telecommunications and computer technologies to stimulate the creation of innovations for cooperation and development at the international level. The public sector of the economy, the private sector, and

civil society must participate together in digital processes.

The development of the Internet is beginning to change the situation for certain areas of the economy. First and foremost, this concerns labor and business activities that are informational in nature. The professional activities of programmers, copywriters, designers, administrators of Internet stores and websites, Internet marketers, and call-center workers do not depend on their location since specialists in these professions can work remotely. With the development of appropriate digital platforms and communication technologies, doctors, psychologists, teachers, tutors, financial workers, and lawyers are moving to remote work (partially so far). Many professionals from different professions are beginning to provide information services on the Internet, as social digital platforms such as YouTube, Instagram, Facebook, etc. allow them to disseminate professional information and generate income from their knowledge[6].

Internet technologies reduce entry and exit barriers in the labor market related to geographic location, which increases competition and reduces the monopoly power of scarce specialists. A positive result of this process is an increase in the quality of services offered on the market and the emergence of employee motivation to improve work efficiency and self-development.

The development of modern telecommunications and computer technology in Ukraine contributes to the equalization of access to knowledge for residents of different territories [8]. The main factor of competitiveness in the labor market is the intellectual human capital of employees. The development of the Internet environment and online education can potentially reduce the gap in the quality of the educational environment and make the residents of the periphery more competitive. Despite the high availability of broadband Internet connection in Ukraine, the development of online education is at an early stage.

There is an increase in specialization due to the expansion of the sales market. Many types of work and services become profitable only after a certain volume of the sales market is reached. The development of ICT and the availability of the Internet make it possible to offer services that were previously unprofitable in relatively small communities. The expansion of the market for information services activates the mechanism of positive economies of scale so that the production of information goods becomes competitive even in small localities.

Effectively increase additional benefits for the consumer. New digital goods and services have emerged: e-books, digital music, and search engines. The Internet has replaced previous services, including cab services, reception and accommodation services, health care, education, and retail services[10].

The rapid development of telecommunications and computer technology is becoming a source not only of new

opportunities but also of threats and problems for the population. Thus, a report provided by the OECD for the German G20 presidency notes: "... digital technologies can be disruptive, with future negative impacts on productivity, employment, and well-being... these technologies may also displace workers from the labor market and increase disparities in their availability and use, leading to a new digital divide and growing inequalities" [2]. However, with half of the world's wealth concentrated in the hands of 1% of the population, inequality has reached enormous proportions. It also contributes to populist and anti-globalization sentiments in many countries. One might even ask whether the big speeches of businesses about digitalization are justified.

Exploring the issues of innovative development of modern telecommunications and computer technology in Ukraine and the world, we can observe that there are advantages and disadvantages. Of great importance for the development of such a direction is the Internet. The main means of access to the Internet in developing countries is the cell phone, which has about 80% of the world's population. However, almost 2 billion people do not have cell phones, and about 60% of the world's population does not have access to the Internet [13].

The trend of the development of modern information technology in various social spheres on a global scale is obvious. This process is the basis for a "technological" race. At the same time, the introduction of innovations in the development of ICT is effective for Ukraine and countries around the world. For example, this process of development of telecommunications and computer technology can contribute to a better domestic socio-economic situation in developing countries. One of the main challenges for most states is digital transformation and the creation of a hypercompetitive digital economy. In September 2019, the Ministry of Digital Transformation of Ukraine was created, is responsible for the formation and implementation of state policy in the field of digitalization, open data, national electronic information resources, the introduction of electronic services, and the development of digital literacy of citizens.

The concept of digitalization of the economy in Ukraine is fundamentally different from what is happening in the world. In Ukraine, the concept of "digitalization" is focused on the creation of new types of SERVICES based on the collection and analysis of data from various physical objects and does not cover the issue of fundamental changes in the production system, approaches to the design, production, marketing and operation of these physical objects[12].

At the same time, the study of existing analytical materials shows that most experts insist that the Ukrainian IT industry occupies one of the leading positions in the global technology market [13]. Such a conclusion is mainly based on the fact that Ukraine holds leading

positions in IT outsourcing, in particular, in the fulfillment of complex task segments ordered by high-tech companies for relatively little money: “The Ukrainian IT market has become profitable and has taken a high place in the world. Ukraine is the leader among outsourcing countries in Europe”[15].

The main problem of the Ukrainian IT-sphere is the lack of a software product of own development. The main source of cash income from Ukrainian programmers is wages, i.e., not even subcontracting. Almost every IT specialist hired by a foreign company works on a private hire basis (outsourcing). The annual amount of such receipts is 4.1 billion hryvnias. [1] The IT sector in Ukraine is expanding not at the expense of increasing its share of the world market, but at the expense of the growth of services provided in the world.

In Poland, the income per IT specialist is almost three times higher than in Ukraine. This is because there they also sell ready-made products and services.

Prykhodkina Nataliia and others [9] argue that information technology allows and the need to change the models of education in the educational process.

An external factor also affects the development of the Ukrainian IT industry. For example, the introduction of anti-outsourcing legislation [14] is being considered in the US market, the main consumer of IT services, which may cause a significant reduction in sales. The European requirements for the protection of personal data complicate the provision of IT services from Ukraine. Given this, Ukrainian financial institutions interested in providing IT services in the EU and obtaining outsourcing contracts in the European market should pay attention to the report of the European Banking Regulator (EBA) dated February 25, 2019, with binding recommendations on outsourcing. These guidelines apply to credit institutions, investment firms, payment institutions, and e-money issuers from the EU that plan to outsource their functions and processes (outsourcers).

The main obstacles to the introduction and development of ICTs in Ukraine are:

- insufficiently developed infrastructure;
- low technological education, accessibility of the benefits and opportunities of the digital world to not all citizens, territorial digital inequality (the rural population, people with low income and older age groups are more limited in their access to the Internet), the small share of innovation in the digital economy;
- obsolete technology in government organizations and structures;
- lack of standardization in both entire digital systems and in the use of the Internet of Things, which could ensure information security both at the individual level and at the level of information services provided by the state;
- the disproportionate structure of the IT market. While in countries such as the U.S. and Germany, the weight of

the main market segments (hardware, software, and IT services) is distributed evenly, each segment accounts for about a third of the IT market, in Ukraine, there is an advantage of the market supply of equipment (equipment accounts for more than 80%, software and IT services and services - a little over 15%, while in Poland the share of services exceeds 50%. Figures suggest that Ukraine does not even import technology[14];

the low level of state support for the modernization of basic means of production to digital, the existence of most projects on paper and the lack of their implementation in practice, the lack of a coherent strategic approach to the formation of policies towards the harmonization of digital markets with the EU.

Ukraine's lagging behind neighboring countries in the pace of modern development of telecommunications and computer technology can lead to the fact that the country will find itself on the sidelines of scientific and technological progress. In this case, the country will be deprived of the prospects of innovative development, which will significantly reduce the competitiveness of both individual domestic companies and the entire Ukrainian economy in the world market. That is why on the level of the state it is necessary to finance the direction of the introduction of innovations in modern telecommunications, the Internet, computer technologies, and software activities in various spheres of social functioning.

The functioning of the digital economy sector requires systematic formation and development of the necessary institutional, resource support, and development of supporting infrastructure.

Because of the impact on the components, structural elements, the main functions of the digital economy sector are realized: the growth of the innovation and technological component of the competitiveness of the economy; the development of communications between business, consumers, and the state; the growth of transparency in the functioning of government bodies and business; the development of e-commerce and transformation, the globalization of market relations; growth of efficiency of production promotion and sales of products; management functions; development of the services sector and digitalization; transformation of the growth of efficiency of traditional sectors of agriculture, industry; development of science, education, social sphere, ensuring the effective operation of the society.

Directions for effective innovation in telecommunications and computer technology:

- improvement of tax and customs policy instruments for the introduction of special import duties on machinery and technology;
- the creation of special funds for joint, venture investment;
- public procurement and orders in the digital economy sector;
- ensuring the functioning of the innovation-industrial and

digital infrastructure at the country level;

- implementation of digitalization in various spheres of society;
- the creation of favorable conditions for the improvement of digital education in Ukraine;
- development of e-commerce technologies and the transition to sales through the Internet;
- improvement of e-business processes and digitalization of production;
- development of projects for the digitalization of industries, the social sphere, and public administration.

The digital economy sector is a supplier of modern digital systems and communications, software platforms, and systems, providing the formation and development of digital platforms of communication and communication between business, consumers, and the state. The introduction of innovations in digital technology is a catalyst for integration processes, the expansion and deepening of trade and economic relations, and qualitative changes in various spheres of society. Electronic platforms, systems, networks, and technologies ensure the realization of public products and services. Technologies create new platforms of interaction between business, consumers of goods and services, users of electronic processes, and the state and ensure the transition of economic systems to a new level of socio-economic development.

4. Discussion

The introduction of innovations in the development of telecommunications and computer technology should be an important issue for the country. Since the direction of ICT development in Ukraine affects the level of national security and competitiveness in the world market, as well as the level and quality of life of the population.

A significant problem of IT sector development is the rapid saturation of the market with domestic IT specialists from Ukraine. Therefore, a negative scenario is also possible.

On the one hand, the problem of Ukraine is that now the demand for programmers is much higher than the supply, and if Ukraine will not develop IT education and produce more specialists, the country will have an "overheated" market. The emigrant issue is also among the problems. Many highly qualified IT specialists go abroad.

In addition, the world is developing advanced programs for automatic code writing (programming), which so far only the largest companies can afford. But in the near future, such software will become more affordable, and then smaller players will be able to buy it as well. Also, powerful IT companies are already thinking about the upcoming changes ("the future of coding is in the absence of coding," i.e., when writing and checking code will be available to everyone, there will be no point in having a special resource for this). Given the speed of IT

development in the near future, this trend will also reach Ukraine.

The most common area of application of IT specialists from Ukraine is computer programming, so Ukrainian developers will have to move to a more complex level, which machines are not yet able to do. This will lead to a reduction in demand for specialists of the relevant profile. And because not everyone will be able to master the new knowledge, the industry can expect a significant reduction.

Another problem is the slow implementation of digital technologies in business in Ukraine. Most private companies in Ukraine are still not ready and do not even plan to implement fundamental changes in business models in the near future.

Consequently, aspects contributing to the growth of IT in Ukraine:

- financial. The average salary in the IT industry in Ukraine is almost 7 times higher than the minimum wage, which is the reason why young university graduates and specialists in other fields are seeking to enter the IT sector;

- IT jobs are not sensitive to economic fluctuations, as in other sectors, and are as safe and stable as possible;

- jobs in IT give a certain social status and prestige in Ukraine;

- historically strong technical education - almost all Ukrainian universities have engineering departments. As the popularity of technical disciplines grows, the number of new programs introduced at universities increases, increasing Ukraine's talent pool;

- reducing bureaucracy in the tax system;

- the geographical location of the state, which gives all the advantages for direct exports of IT services to foreign companies and investors;

- key technologies in Ukraine. Ukrainian software developers specialize in a wide range of programming languages, technologies, and tools. Ukrainian engineers not only have practical knowledge of a large number of technologies but also know how to use them in different areas.

Also, information technology has changed the labor market in Ukraine. The country has created a strong scientific and educational base for the training of competitive specialists in the field of IT development. However, the Ukrainian digital work is only at the beginning of its development. At the same time, Ukraine is a donor for developed countries for economic, political, and social reasons. The main factors driving digital migration from Ukraine are low wages, insufficient development of the national technological base, the difficulty of running one's own digital business, and a high level of corruption. Taking this into account, it can be argued that digital work offers great opportunities for Ukrainian workers and society, but also raises important questions about the reliability of this work and the future of the social model it offers.

In Ukraine, the need to form a digital economy is recognized at the state level, and digital technology is seen as one of the key drivers of sustainable development. In contrast to other countries, where the state has a leading role in the formation of the digital economy cluster, we note that the role of the state in this process is not so significant, and joining the international online business is not a choice, but a necessity, which in itself will lead to a gradual transition to digital governance and exclusively through international relations the development of digital infrastructure is inevitable. In practice, the issues of justification of the prerequisites and the need to implement the concept of digital transformation (digitalization) in the regions of Ukraine remain underdeveloped.

The use of modern telecommunications and computer technology in various areas of society can contribute to the development of various segments and industries. Developed EU countries have long begun to use ICT and develop this direction. Thus, thanks to the introduction of innovations in the field of telecommunications and computer technology, there is a development in economic, social, humanitarian, and other spheres of society. The modern economy becomes more efficient, medicine, education, public administration, industry, and other areas become developed through the modern development and use of computer technology.

Mankind uses new technologies to improve different areas of activity. Thanks to the Internet, it is possible to get some services online. It is also possible to have fun with the benefit of computer technology. Many people in today's world have started online education. Some professionals and specialists have started working online. That is, the development of the Internet has contributed to the fact that some areas of humanity - services, shopping, learning, and others - can be done online.

Mobile communication is also a great achievement for society. Thanks to mobile communication, people communicate more often and can be nimble, mobile in different areas of activity. Mobile Internet is available to most people. Access to various information is made possible by mobile communications, the Internet, telecommunications, and computer technology.

The introduction of innovation in the development of technology requires a certain cost. At the state level, the development of telecommunications and computer technology provides many benefits for the country. Developed countries of the European Union are aware of and spend some money on innovative development of technology. Each state should create its own technological level of development of different spheres of society. For example, the economy should work more efficiently. The introduction of innovations in technology ensures the efficiency of production in various sectors, improves the productivity of the population and individual workers, facilitates the convenient use of various services for the

population, provides access to resources, and the like. There are many benefits of innovative development of telecommunications and computer technology for Ukraine and the European Union. We can conclude that Ukraine uses such technologies at the level of the state and individual spheres of activity. Also, the country creates a certain environment for the development of specialists in the field of telecommunications and computer technology. But most specialists in this field in foreign companies. The state needs to spend means for innovative development of telecommunications and computer technologies, to create an effective environment for the functioning of employees of this sphere, to develop education in the direction of programming, and to provide the reliability of technologies for the country.

In Ukraine, it is necessary to create conditions to stimulate the processes of technological development of the country, development, and implementation of innovations in the digital, ICT sphere, development of telecommunication technologies, implementation of an active state policy of involvement in the country and the economic sphere of technology imports, equipment, development of related digital infrastructure and infrastructure of innovation necessary for technological renewal, digitalization of all industries, implementation of a digital breakthrough in the country and overcoming the digital divide between the countries of the world.

The sector of digitalization of the economy to a large extent a completely new area of relations, the settlement of which requires a whole range of changes to domestic legislation, harmonization of its provisions with international practice, the settlement of the package of information security issues.

The main elements of innovation in the digital economy are reflected in Table 3.

Table 3: Structure of tools for the development of the digital economy in Ukraine

Legal	forming a full-fledged legislative basis for the digitalization of the economy and other spheres of society; regulating the functioning of the main institutions of the digital economy; elimination of legal restrictions for the development and spread of the digital economy in business and new industries.
Economic	implementation of public-private partnership programs; support of investment infrastructure specializing in ICT sector projects; formation of methodological centers of the system of intellectual and personnel support for the needs of the development of the digital economy.
Organizational	formation of institutional support for the planning of state policy on the development of the digital economy sector;

	creation of institutions to coordinate the activities of parties interested in the development of the digital economy; introduction of an institution to monitor the development of the digital economy sector and the effectiveness of government policy.
Psychological	formation of a unified digital environment of trust; development of the infrastructure of protection and defense of intellectual property; promoting the benefits and opportunities of digitalization of the economy and society.
Infrastructural	effective functioning of digital platforms of business, government, and the public; formation of unified digital cloud platforms; development of the institutional environment for research and development in the field of the digital economy; creation of information infrastructure

You can draw some conclusions about the innovative development of modern information technology for Ukraine and countries around the world. In developed countries, the process of innovation in telecommunications and computer technology state promotes at all levels of society. In Ukraine, the state almost does not use certain opportunities and resources to innovate in the field of information technology. But most of the population of Ukraine is already actively using online services of various kinds (products, finance, insurance, education), Internet, telecommunication, computer technology, etc. The innovative direction of information technology in Ukraine should be developed at the state level.

5. Conclusion

Consequently, the introduction of innovation in the development of modern telecommunications and computer technology is seen as one of the most important conditions for increasing the competitiveness of national economies. This process of technological development allows the restructuring of the economy, increasing the efficiency and reducing the time of production of goods, improving the quality-of-service provision, introducing technologies and technological processes that provide new opportunities for citizens to access services, education, and leisure.

The main problems of development for the Ukrainian IT-sphere:

The unpreparedness of the majority of IT companies for faster growth due to underdeveloped in-house management systems;

lack of confidence in the possibility of stable recruitment and retention of the personnel with the required qualifications for the current customer demand;

increased competition among IT-outsourcing market players;

loss of clients due to the inability to quickly adapt to the changes of technologies, methodologies and new standards.

So, according to the results of the study, we can conclude:

there are prospects and advantages in the development of telecommunications and computer technology in Ukraine, namely, cybersecurity software products, robotization, Internet penetration in households and industries, for which information is a major resource;

all industries have digital transformation capabilities; greater use of digital technology in services, communications, software development, telecommunications, trade, finance, media business, transportation, e-commerce, automotive industry, energy, public administration, housing, construction, medicine;

the lowest digitalization takes place in the manufacturing sector, which is characterized by the high inertia of manufacturing enterprises, which have mastered and use older technologies not only in the production itself but also in management.

The peculiarity of the innovative way of development of modern telecommunications and computer technology is that individual users and businesses are far ahead of the state and industry. Ukrainian small and medium businesses use ICT and mainly digital methods to promote their services, but the state and industry in Ukraine lag behind.

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