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EFFECTIVE USE OF DIGITAL TECHNOLOGIES IN THE STATISTICAL SYSTEM

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ABSTRACT

This article is devoted to the topic of using digital technologies in statistical activities. The article discusses specific aspects of statistical data, quantitative statistical indicators, areas of national statistics and trends in the development of the digital economy in our country, as well as implemented and ongoing projects in the statistical system based on "Digital Uzbekistan-2030", highlights the main technologies of the digital economy Big Data, artificial issues such as intelligence, neurotechnologies, quantum technologies, cloud and mobile technologies, virtual and augmented reality technologies, crowdsourcing, blockchain technologies. The article discusses the scientific work of domestic scientists devoted to solving issues of the effective use of ICT in industries and sectors of the national economy of the Republic of Uzbekistan. A comparison and analysis of the state of indicators reflecting the state of development of the digital economy in Uzbekistan and other developed countries was also carried out.

Keywords. Statistical data, official statistics, statistical system, national statistical system, statistical agency, information, digital economy, digital technologies, e-commerce, statistical agency, information system, information and communication technologies, interactive services, open data.

INTRODUCTION

Statistics appeared in the middle of the 17th century in connection with the need to make various calculations on quantitative data necessary for the effective development of all spheres of society and the state.[1]

In the modern scientific environment, statistics is interpreted as a science that describes the specific aspects of working with statistical data, its main task is to study various quantitative methods of performing functions on data, to develop short-term and long-term forecasts related to various public events occurring in society.[2]

On the basis of quantitative data, statistics help to determine the characteristics of public events and processes, help to determine the trends and laws of socio-economic development of economic entities. Statistics are the most important information

resource of the information society. Practice shows that any phenomenon becomes more accurate and significant if it is confirmed by quantitative statistical indicators. In the conditions of the rapidly developing competitive environment in the world economy, great attention is paid to the development of activities in all directions based on today's and tomorrow's demands and in accordance with world standards. In this regard, a number of works are being carried out in our country.

As this process, in turn, requires the improvement of the current legislation and the replacement of outdated norms with new ones, instead of the current Law "On State Statistics", as a result of the study of international experience, fully compatible with the current conditions and international recommendations, on the basis of foreign experiences and recommendations of international organizations, "On Official Statistics" The draft law of the Republic of Uzbekistan was developed and adopted by the Legislative Chamber.[3]

Article 4 of the Law of the Republic of Uzbekistan "On Official Statistics" states that statistical data are information of an economic, demographic, social, financial, environmental and other nature, prepared as a result of statistical observations and (or) on the basis of administrative data. Official statistics consist of statistical data prepared and distributed by state statistical bodies and other preparers of official statistics in accordance with the provisions of the Law "On Official Statistics".[4]

Thanks to the statistical information, the governing bodies get a complete description of the socio-economic situation. These statistics are used to assess the standard of living and quality of life of the population, to determine the size of the gross domestic product and gross regional product, to determine the main trends in the development of economic sectors and sectors, to statistically evaluate and analyze the level of inflation, financial and commodity markets, competitiveness of products and services, corporations. and makes it possible to accurately evaluate the results of the production and financial activities of the companies, to determine the reserves within the production. It is for this reason that it is important to ensure the security of statistical data. Statistical confidentiality, accuracy and reliability[4], which are the main principles of official statistics, also confirm that ensuring the security of statistical data is one of the urgent issues.

In the conditions of the globalization of the world economy and the rapid development of transnational companies and digital technologies, it is important to develop the digital economy appropriately. Therefore, the President of the Republic of Uzbekistan, Sh. Mirziyoev, in his address to the Oliy Majlis on December 28, 2018, specifically emphasized the following regarding the development of the digital economy in our country: "We need to develop a national concept of the Digital Economy, which

involves updating all areas of the economy based on digital technologies. On this basis, it is necessary to implement the "Digital Uzbekistan - 2030" program. The digital economy allows to increase the gross domestic product by at least 30%, and to drastically reduce corruption. Analyzes conducted by reputable international organizations also confirm this." [5]

RESEARCH METHODOLOGY

In carrying out this research work, the literature on the topic, normative legal documents were analyzed, as well as historical facts were taken into account in scientific sources in a number of online databases. The collected and studied data were summarized and compared. Systematic analysis, historicity and logic, induction and deduction, analysis and synthesis, comparative analysis, monographic analysis and grouping methods were used in the research work.

The digital revolution, which is manifested as a new stage of economic and technological development, has drastically changed the life of mankind, created wide opportunities, and led to an even more intense competition in the international arena. Digital technologies such as Big Data, artificial intelligence, neurotechnologies, quantum technologies, cloud and mobile technologies, virtual and augmented reality technologies, crowdsourcing, and blockchain technologies are now becoming crucial. It is said that the digital economy will lead to significant changes in more than half of the existing industries. According to World Bank experts, an increase in the number of Internet users by only 10% can increase the annual GDP growth by 0.4 to 1.4%. By the end of 2022, about 23 million people will use the Internet in Uzbekistan, and 96% of the population will be covered by mobile communication.[6]

LITERATURE ANALYSIS FROM TOPIC SURFACE

Many scientific works of foreign and local scientists are devoted to the issues of improving the methodology of effective use of information and communication technologies in various branches and sectors of the national economy. The Russian scientist discussed the effectiveness of the use of information and communication technologies in the field of public administration in his scientific works. Y.G. Gulakov emphasizes that ICT is one of the important parts of governance in the current era, whether it is providing public services to the country's population or maintaining law and order in the country.

Today, public administration and ICT technologies go hand in hand for the effective development of the country. According to Yu.G.Gulakov, as a result of the use of ICT, there is transparency in the activities of state organizations, and they provide the

public services that are very necessary to people in a timely and correct manner. In almost all cases, information systems and technologies are aimed at ensuring the principle of transparency in the field of public administration, as well as more effective communication and optimization of work in general.[7]

Another Russian scientist, S.A. Haybullina, conducted research on the legal regulation of the provision of public services based on information and communication technologies. In his opinion, the introduction of information and communication technologies into the state administration allows to ensure a sufficiently high level of activity of state bodies in the provision of public services. As a result, the study of the legal regulation of relations arising in the field of providing public services in electronic form is considered the importance of social development.[8]

Our local scientists have also conducted scientific research on the issues of effective use of ICT in the branches and sectors of the national economy of the Republic of Uzbekistan in the context of the formation of the digital economy. B.A. Begalov, analyzing the practice of foreign countries with a developed economy in his scientific work, found that the possibility of conducting scientific research is emerging as a result of the effective use of advanced ICT in economic sectors, in particular, in the field of statistics, and modern ICT is not only an assessment of the current state of development of a particular sector, but also who specially emphasized that it serves to develop long-term forecasts and programs of socio-economic development, to set target indicators of sustainable development, to increase the well-being of the population and the competitiveness of our country [9].

According to I.E. Zhukovskaya, the development of digital technologies helps to increase the efficiency of the activities of national economic sectors and sectors[10].

The development of digital infrastructure is one of the decisive conditions for increasing the state's competitiveness at the global level, and it serves to develop new methodological solutions for evaluating the activity of industries and the national economy. As a result of the use of advanced digital technologies, innovative mechanisms for collecting and processing information flows, the statistical assessment of the implementation of the entire set of strategies for the development of the socio-economic complex will be more open and transparent, which, in turn, will improve the national economic sectors and enables to make qualified management decisions for effective development of the fields [11].

Also, academician S.S. Gulyamov, professor A.T. Shermukhammedov on wide implementation of digital economy technologies in the Republic of Uzbekistan. and

scientists such as Khodeyev B.Y., Shodiyev T.SH., Dadabayeva R.A., Kenjabayev A.T.[12-16] are also conducting research.

ANALYSIS AND RESULTS

The analysis of the main indicators of the development of the ICT sector in the Republic of Uzbekistan shows that the number of interactive services is increasing every year, software is being developed, and information communication services are being improved. In this way, the infrastructure is being created for the formation of a digital economy.

Table 1 Share of gross added value created in the fields of information economy and e-commerce in GDP (billion soums)

Indicators	2015	2016	2017	2018	2019	2020	2021
Information economy and e-commerce sector	3 876,3	4 967,7	6 377,8	7 934,0	8 701,4	11 121,8	17 455,5
Information and communication technologies (ICT) sector	3 581,7	4 575,3	5 849,0	7 059,0	7 508,4	9 399,3	12 012,8
ICT production	141,7	127,2	238,3	307,3	283,7	551,2	642,0
ICT trade	140,8	228,0	281,6	240,4	299,0	261,8	380,3
ICT services	3 299,2	4 220,1	5 329,1	6 511,3	6 925,7	8 586,3	10 990,5
Content sector and mass media	294,6	392,4	518,7	767,7	928,3	1 120,6	1 498,2
Electronic commerce			10,1	107,3	264,7	602,0	3 944,5

Table 1 shows the share of gross added value created in the fields of information economy and e-commerce in GDP, and if we pay attention, we can see that the share of this sector in GDP was equal to 1.9% in 2015, and by 2021 this figure will be 2.6%. The increase of this indicator by 0.7% for 6 years can be attributed to the increase in the number of enterprises and organizations operating in the field of "Information and communication" established in our country.

If we pay attention to Figure 1, the number of enterprises and organizations operating in the field of "Information and communication" was 6,370 in 2016, and by the end of 2022, this indicator reached 12,204. This means that this indicator has increased to 5834 (91%, 1.91 times) over 8 years.

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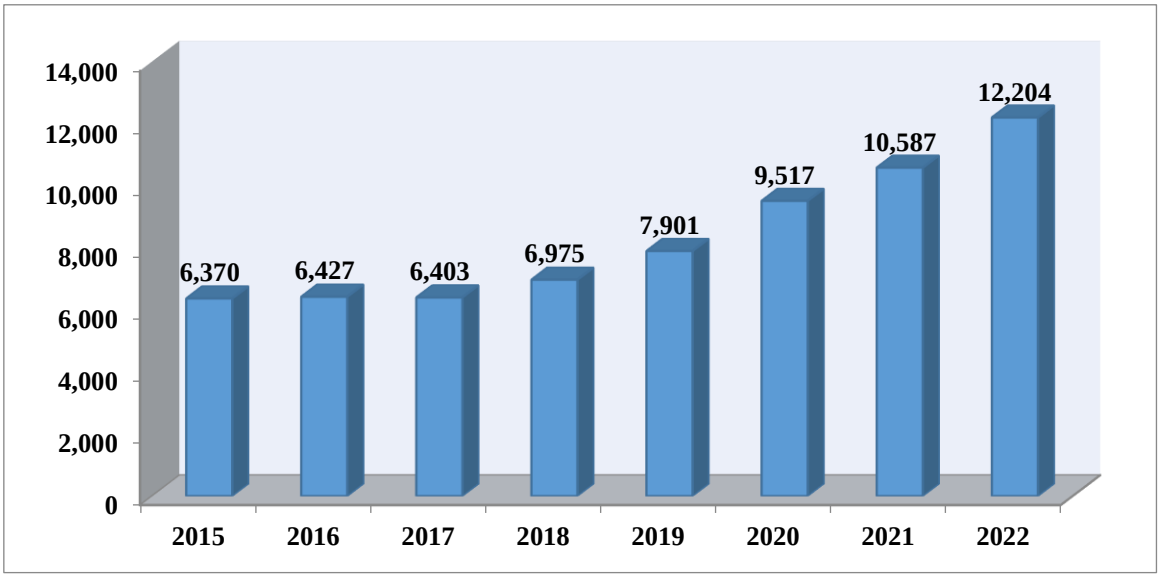

Figure 1. The number of enterprises and organizations operating in the field of "Information and Communication" in terms of economic activity
Source: stat.uz

To date, the projects defined in the "Digital Uzbekistan-2030" strategy by the Statistical Agency under the President of the Republic of Uzbekistan have been created and widely implemented. One such project is the introduction of innovative technologies into the processes of conducting selective statistical observations, and for the implementation of this project, the software for conducting observations conducted by the statistical agency through a tablet was developed. The information system was introduced in 14 regional statistical offices in a trial manner.

Today, the system has been put into practice on the scale of the republic, and the work of eliminating the deficiencies identified in it and providing constant technical support is ongoing.

Automation of Census processes by the Agency of Statistics provides an opportunity to implement the process in an operational, reliable and high-quality manner. Taking this into account, in order to inform the public about the processes and results of the population census, the development of a special official website, the development of an information system for entering and processing the primary data of the population census is entrusted to the statistics agency in the "Digital Uzbekistan-2030" strategy.

Another of the projects implemented in the statistical system is an information system for providing users with information from the unified state register of enterprises and organizations in an interactive form, and this information system is integrated into the updated official website of the statistical agency.

In addition, integration with existing information systems was established to use the interactive service, and the service of receiving data from the unified state register of enterprises and organizations in interactive mode was tested and launched. Another task defined in the roadmap of the "Digital economy-2030" strategy is the modernization of the information and communication infrastructure of the statistical agency, based on which, by conducting competitions in the established order, all statistical bodies will be equipped with 18 speakerphone devices, video conference communication cameras and 18 large-sized provided with televisions. Also, in order to introduce high-quality convenient communication between statistical bodies, 16 IP-telephony mini-ATS devices, 270 IP-telephone devices were provided. The Statistical Agency under the President of the Republic of Uzbekistan, together with the Ministry of Digital Technologies of the Republic of Uzbekistan, developed a new interpretation of the open data portal in the Republic of Uzbekistan at the expense of the funds of the special account number for financing interdepartmental projects of e-government and digital economy in order to introduce new mechanisms for working with open data, taking into account advanced foreign experience. issued and put into practice.

As of January 2022, Uzbekistan scored 67 points in the open data rating of Open Data Inventory (ODIN), rose to 37 places in this rating and retained the 1st place among Central Asian countries. Table 2 provides information on the points and position of Uzbekistan in the Open Data Inventory (ODIN) open data ranking in 2015-2022. As can be seen from the data presented in this table, the coverage and openness of the official statistics of Uzbekistan is growing year by year. In particular, the Open Data Inventory (ODIN) assesses coverage and openness aimed at identifying official statistics gaps, promoting open data policies, and improving and encouraging communication between national statistical authorities and data users. Open Data Watch is an international non-profit organization working between open data and official statistics. Their activity is to implement changes in the development and management of official statistical data. Open Data Watch created the Open Data Registry (ODIN) to conduct an annual assessment of the coverage and openness of official statistics from countries around the world. By monitoring the quality and availability of data, they can help governments, international organizations and citizens address the challenges of assessing and achieving the Sustainable Development Goals (SDGs).

The Statistical Agency under the President of the Republic of Uzbekistan has been cooperating with the Open Data Watch organization since 2019. An analysis of developed countries 2022 Open Data Inventory (ODIN) open data ranking and

ranking shows that Germany ranks 13th with 78 points, Canada ranks 17th with 75 points, the US ranks 24th with 71 points, and Japan ranks 69 points. It occupies 28th place. Based on the "Digital Uzbekistan-2030" strategy, the "Market Price" information system for monitoring the prices of basic goods in the markets and trade outlets and the automated information system for the electronic submission of state statistical reports were created and implemented in the statistical system. In order to ensure the implementation of the tasks specified in the Decree of the President of the Republic of Uzbekistan "On approval of the Digital Uzbekistan - 2030" strategy and measures for its effective implementation, "On additional measures to ensure the openness and transparency of state administration and increase the statistical potential of the country", The Statistical Integrated Information System (SIAT) was created by the State Statistics Committee and the statistics portal of the Republic of Uzbekistan siat.stat.uz was launched on its basis.

The SIAT information system was developed in order to establish electronic information exchange by integrating the necessary statistical data for relevant ministries and agencies, and to perform a number of the following tasks:

– introduction of modern database management systems;
– collection of digital statistical data sources into a single data warehouse;
– establishing information exchange based on the integration platform (REST-API);
– introducing a module for visual representation of data (table, graph, diagram, cartogram);
– implementation of a unified web interface for users of statistical data.

Currently, the Portal and the SIAT information system as a whole contain a total of more than 1,700 sets of official statistical indicators in 19 directions, 10-year dynamic series, as well as the last 30 years of macro-indicators in 5-year intervals in 3 types (Excel, PDF and JPG) format. The portal includes modules for comparison of data in the form of interactive graphs, histograms and charts, as well as rating formation and defining relationships between indicators. Based on the SDMX standard, metadata on each statistical indicator is placed in the system, allowing users to obtain information about the indicator's first publication date, updated date, its primary source, calculating body and methodology, responsible department and employee, and other such necessary information.

Based on the "road map" on the evaluation of the development of the digital economy and electronic government in the Republic of Uzbekistan, and the effective organization of keeping records of industry indicators, the statistical agency has been carrying out the collection and formation of statistical indicators on the state of development of the digital economy and the effective organization of evaluation.

CONCLUSIONS AND SUGGESTIONS

In conclusion, the article talks about specific aspects of statistical data, quantitative statistical indicators, the development trends of the field of national statistics and the digital economy in our country, as well as the projects implemented and put into practice in the statistical system based on the "Digital Uzbekistan-2030" strategy. Also, the research works conducted by foreign and local scientists on the specific aspects of the widespread introduction of ICTs into the activities of public administration bodies were analyzed. Assessing the development of the digital economy and electronic government in the Republic of Uzbekistan, effectively organizing the accounting of industry indicators, the statistics agency has been carrying out the collection, formation and evaluation of statistical indicators on the state of development of the digital economy.

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