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# SCIENTIFIC TECHNOLOGY IN THE REPUBLIC OF UZBEKISTAN INFORMATION RESOURCES DEVELOPMENT HISTORICAL FEATURES (ON THE EXAMPLE OF 2000-2019)

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## ABSTRACT

*The article discusses the introduction of digital technologies in the context of the COVID-19 pandemic (IT), which has become one of the most pressing issues of today. end, front-end programs, the positive impact of the application on the development of the country's economy is studied. In this regard, the analysis of specific aspects of the history of development of scientific and technical information resources in the world, including mechanisms for their improvement, legal framework, current trends and problems, as well as scientific and technical information resources, their historical stages, assessment of existing scientific potential. a lot of research is being done on targeting. Also, the differences and peculiarities of the three types of directions (science, technology, innovation) were analyzed. In addition, the scientific and pedagogical potential of the Ministries and agencies and the participation of state scientific and technical programs were analyzed. In addition, conclusions and recommendations on the historical features of the development of scientific and technical information resources in the Republic of Uzbekistan (on the example of 2000-2019) were developed.*

***Keywords:*** *national economy, COVID-19, blockchain technology, IT technologies, scientific and technical information resources, science and industry, history, information resources, scientific and pedagogical potential, scientific and technical information.*

## АННОТАЦИЯ

*В статье рассматривается внедрение цифровых технологий в условиях пандемии COVID-19 (ИТ), что стало одним из самых актуальных вопросов современности. end, front-end программы, изучено положительное влияние*

VOLUME 2 | SPECIAL ISSUE 20
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SJIF 2022: 5.947 | ASI Factor = 1.7

*приложения на развитие экономики страны. В связи с этим проводится анализ конкретных аспектов истории развития научно-технических информационных ресурсов в мире, в том числе механизмов их совершенствования, нормативно-правовой базы, современных тенденций и проблем, а также научно-технических информационных ресурсов, их исторических этапов. , оценка имеющегося научного потенциала. проводится много исследований по таргетингу. Также были проанализированы отличия и особенности трех типов направлений (наука, технология, инновации). Кроме того, проанализированы научно-педагогический потенциал министерств и ведомств и участие государственных научно-технических программ. Кроме того, разработаны выводы и рекомендации об исторических особенностях развития научно-технических информационных ресурсов в Республике Узбекистан (на примере 2000-2019 гг.).*

***Ключевые слова:*** *педагогический процесс, педагогическая задача, педагогическая диагностика, процесс принятия решений, технология проектирования.*

## INTRODUCTION

In the process of economic development in the world, the field of science is also improving and improving. In particular, special attention is paid to the effective use of scientific and technical information resources, their formation, the evolution of socio-economic development.

In the Republic of Uzbekistan, too, the development of each sector requires the use of scientific and technical information resources. In particular, it is important to ensure the continuous connection of education, science and industry, to establish effective cooperation. It also leads to the emergence of new innovative ideas and their implementation in practice [1]. As a result, a creative approach to existing problems is formed and new opportunities for further development of socio-economic spheres emerge. Such opportunities can be achieved by studying, comparing and forecasting the information resources of existing scientific research aimed at solving the socio-economic problems of the country. It serves to create a single platform for scientific and technical information. The results of fundamental, applied research, innovation, promising research of young scientists in the Republic of Uzbekistan in 2000-2019 are not formed in the form of a single database for each discipline and consumer enterprise.

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

President of the Republic of Uzbekistan Sh.M. As Mirziyoyev rightly noted, “Not all research conducted in our country fully meets the current high level of development of science. In order to implement high-tech scientific products, it is necessary to create new modern experimental-production, design and technological organizations and innovation centers [2]. Marketing and licensing services are not in demand. This is evident in the widespread implementation of scientific and innovative products of our country. ” This situation requires the analysis of scientific and technical information resources collected in Uzbekistan from 2000 to 2019, their development, implementation, specific features in the context of historical processes. Improving the integration of science, education and industry, providing benefits and preferences to enterprises introducing new technologies will also play an important role in significantly increasing the number of enterprises investing in science [3].

It is important to analyze the resources of scientific and technical information, to show their historical stages, to assess the existing scientific potential, to direct funds to various sectors of the economy. To date, the historical features of the development of scientific and technical information resources in the history of Uzbekistan have not been studied separately, and this shows the relevance of scientific research.

Law of the Republic of Uzbekistan "On Science and Scientific Activity", Presidential Decree "On Approval of the Strategy of Innovative Development of the Republic of Uzbekistan for 2019-2021" No. PF-5544 of September 21, 2018, "Measures to improve archival work and record keeping in the Republic of Uzbekistan" Decree No. PF-5834 of September 20, 2019, "On measures to further strengthen the infrastructure of research institutions and the development of innovative activities" No. PP-3365 of November 1, 2017, "Organization of the Ministry of Innovation Development of the Republic of Uzbekistan" No. PP-3416 of November 30, 2017, “On Additional Measures to Improve the Mechanisms for Introducing Innovations in Sectors and Sectors of the Economy” No. PP-3698 of May 7, 2018; On additional measures to increase ”2018 No. PP-3855 of July 14, 2019, “On measures to improve public administration in the field of intellectual property” No. PP-4168 of February 8, 2019 and “Measures to improve the system of attracting young people to science and supporting their initiatives This dissertation to some extent serves to implement the tasks set out in the decisions of August 30, 2019 No PP-4433 and other regulations in the field [4].

Иқтисодиѐтни рақамлаштириш мамлакат иқтисодиѐтининг to expand its capabilities, to solve its social, economic, political and environmental problems

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

quickly and cheaply. In this process, the formation of a large database, their processing, increases the rate of exchange of transactions on different levels of platforms, leads to the transformation of value-added chains (Kobulov, 1998). It is through the digitization of the economy that it covers all existing platforms in society, influencing efficiency indicators, value added created in the economy, the problem of employment, the level of profitability, cost optimization and the acceleration of trade [5].

It should be noted that one of the main processes in the digitization of the economy is the transition to the use of blockchain technologies in the economy at the macro and micro levels. It is the introduction of blockchain technology in all sectors of the economy that is a guarantee of accelerating the process of digitization of our national economy. Blockchain is a revolutionary technology that can bring about new scientific and technological innovations by completely transforming the economy by serving to radically change the essence of all existing business models today. A blockchain is a large book of accounts in which each participant can enter their records, store data, and use, analyze, and monitor a large database using computer technology located anywhere in the world (Aripov, 2004). Blockchain is a software product that allows you to collect, store and secure large databases on the Internet without this centralized management structure [6]. The process of digitization and digitization of the economy, covering almost all sectors and industries, has allowed to dramatically increase productivity and labor efficiency, improve the quality of services, reduce their cost, and achieve global market coverage (Khodiev, 2007). In this process, the development of robotics, IT, cloud computing, the use of three-dimensional publications such as "large-scale databases" has been accelerated. We can see that the full automation of all work (services) and the full digitization of the process, as well as the ability to fully control all types of revenues and expenditures related to public activities, will allow us to continuously optimize these revenues and expenditures. Today, we can see that enterprises and organizations achieve a number of benefits as a result of the application of IT technologies in their work [7]:

• the opportunity to choose a good specialist without being tied to the ground;

• Remote work with remote customers. It is much cheaper than going on a business trip;

• better service with the help of highly qualified specialists working in direct close communication;

• labor efficiency, round-the-clock customer service;

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

• No time spent going to work (traffic congestion, weather conditions), saving for the employer in the rent of electricity and office space, equipment of the workplace (Muminova et al., 2020).

Second, as a result of digitization through the principles of blockchain, it is possible to constantly monitor the state budget, to determine at what point the difference between revenues and expenditures occurs.

Third, it will be possible to increase production efficiency, introduce control regulations and other protocols that reduce the impact of the human factor, as well as increase energy consumption and resource efficiency, reduce energy consumption losses.

Fourth, the implementation of various levels of critical analysis using a comprehensive database of government activities, high-precision forecasting through science-based forecasts in the competitive market, as well as mathematical analytical forecasting methods to account for all impact factors provides an opportunity to identify situations in advance and make management decisions to address them.

## MATERIALS AND METHODS

Scientific and technical information consists mainly of a set of documents and evidence obtained in the scientific, scientific-technical and innovative process. The Model Law "On Scientific and Technical Information" on scientific and technical information resources was adopted for the first time in the Commonwealth of Independent States (CIS) on June 13, 2000. According to it, the objects of scientific and technical information are the system of documented scientific and technical information, scientific and technical information resources, scientific and technical information. Some of the scientific and technical information includes information about documents and facts, scientific, scientific-technical, innovative and social activities, documented scientific and technical information [8].

The Central Asian region has long served as a link between East and West, connecting countries such as Mesopotamia, Iran, Egypt, Greece, Rome, India, China, and ensuring the intermingling of different cultures. As a result, in Khorezm, Bukhara, Sogd, Khorasan, unique scientific schools were formed in the field of astronomy, mathematics, geometry, geography, medicine, philosophy, history. In particular, the ancient Khorezmians were the first to bring the achievements of Indian and ancient mathematics to the science of the Middle Ages, known as the "Muslim East", and to European science through it. In particular, Muhammad al-Khwarizmi (783-850) not only mastered the teachings of Ptolemy, but also enriched it with the achievements of

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

Khorezmian astronomy and expressed his knowledge in the field of astronomy in an algorithmic way [9].

Ahmad al-Farghani (797-865), Abu Nasr al-Farabi (873-950), Abu Rayhan al-Biruni (973-1048), Abu Ali ibn Sina (980-1037), Mahmud Zamahshari (1075-1145), Mahmud Qashqari (XI century) encyclopedic scholars such as astronomers, mathematics, medicine, language, philosophy have made a worthy contribution to the development of many fields of science. The Bayt al-Hikma (House of the Wise), which operated in Baghdad in the 11th century, played an important role in their work. At the same time, it should be noted that the role of the Toledo school in the translation and study of the works of Central Asian scholars into European languages [10,11].

During the reign of Amir Temur and the Temurids, the second renaissance was founded, and Mirzo Ulugbek (1394-1449), Giyosiddin Kashi (1380-1429), Ali Kushchi (1404-1474) achieved great success in the fields of astronomy and mathematics. During the European Renaissance of the XV-XVI centuries, scientists such as Leonardo da Vinci, R. Bacon, T. Gobbs, N. Copernicus, J. Bruno, G. Galilei, I. Kepler, R. Descartes made a great contribution to the development of sciences such as physics, chemistry and medicine. added [12,13].

Due to radical changes in industry (late eighteenth century), a new stage in the development of science began. In the XIX century, new sciences (thermodynamics, classical electrodynamics) appeared in physics, evolutionary theory and cell theory emerged in biology, the law of conservation and change of energy was formed, new concepts were developed in astronomy and mathematics (J. Maxwell, M. Faraday, J. Lamarck, Ch. .Darwin, T.Shwann, M.Shleyden, etc.). created a revolutionary doctrine in the field of geometry. By the end of the 19th century, science and technology began to be widely involved in joint production.

The concept of scientific and technical information was developed by Russian scientists who lived during the former Soviet regime. This concept also implies scientific and technical potential, and it is understood that it consists of a legal process. Scientific and technical potential occurs as a result of the interaction of two leading structural-institutional and fundamental approaches. In both cases, the "science-production" system of research is considered the starting point.

The formation of scientific and technical information base, which is a product of scientific potential and serves to increase it, was first created in the former USSR in 1976 within the framework of the international information system of social sciences.

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

These central scientific data include not only the countries of the USSR but also Bulgaria, Czechoslovakia, the German Democratic Republic (GDR), Mongolia, Hungary, Vietnam (1979), and Cuba (1985). At that time, the USSR Academy of Sciences created a central automated database for the social sciences "Institute of Scientific Information of the Academy of Sciences of the USSR (INION)", which contains about 1 million articles on economics, philosophy, history and law. This mainly served to strengthen Soviet ideology [15].

In order to provide the staff of research institutions with the necessary literature in the USSR, the Main Library of the Academy of Sciences of the Republic of Uzbekistan was established in 1933. Initially, its book fund consisted of 39,422 copies, and mainly literature on geology and botany was preserved. Later, in 1940, the book fund was increased to 53,600 and enriched with various publications.

In 1936, the library staff began to compile the "Index of bibliographic assistance." Also, in 1981, books were published on such topics as "On dissertations in Uzbekistan (1964-1968)", "Geology of Central Asia", "Nature and natural resources of Uzbekistan". Currently, the library is working on the electronic placement of existing literature, the preparation of duplicates, the exchange of information with other libraries. This library also plays an important role in the formation of scientific and technical information resources in Uzbekistan. One such resource center is the Alisher Navoi National Library of Uzbekistan.

In particular, the dissertation states that the main goal of science and technology policy is to ensure the growth of the country's economy, its competitiveness in the world market, solve social problems and ensure economic security.

Today, all over the world, scientific and technological progress is considered as an important factor in the development of the economy, and this situation is directly related to the concept of the innovation process. One of the main elements of the innovation process is the resources of scientific and technical information. The role of scientific and technical information plays a special role in ensuring the effective integration of science, education and industry, especially in the context of future development of innovative technologies. Developed countries rely on knowledge-based economic experience in developing strategies and processes to ensure the effective operation of national scientific and technical information systems. In particular, this can be seen in countries such as Switzerland, Sweden, the UAE, the Netherlands, Britain, Finland, Denmark, Singapore, Germany, Israel and South Korea.

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

It is known from world experience that the policy of scientific and technical information is mainly based on the following three directions. They are: science, technology and innovation. By combining these three areas, it is possible to formulate a policy of scientific and technical information in the Republic of Uzbekistan.

Table 1.

**Differences and peculiarities of three types of directions (science, technology, innovation)**

| **Directions** | **Science policy** | **Technology policy** | **Innovation policy** |
|---|---|---|---|
| **Theory** | Neoclassical | Value, Evaluation | Value, evaluation |
| **Objects** | Research (invention) | Technology (at the intersection of routes) | Innovation (commercialization, production process) |
| **Process participants** | Scientific organizations, higher education institutions | Industry | Incubators, accelerators, technoparks, laboratories |
| **Tools** | Research projects, science infrastructure | Technology transfer programs, results of scientific projects and patents for inventions | Incubators, Technology Transfer Programs |
| **Key indicators** | Research projects, research presentations and research staff | Research and technical staff, research and development in the industry | Costs for innovation, organizational work done for innovation, innovative developments |

The first document defining the scientific and technical policy of independent Uzbekistan was the Decree of the President of the Republic of Uzbekistan No. PF-345 of February 18, 1992, according to which the State Committee for Science and Technology of the Republic of Uzbekistan was established. According to the decision of the State Committee for Science and Technology, the Committee on Economics

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

and its affiliated scientific organizations, as well as the Republican Center for Science, Technology and Patent Licensing (UzFTPA) were included in the management of the State Committee for Science and Technology [18].

The main task of the Committee was to maintain the scientific and technical potential, to finance scientific research from the budget and to direct them to the implementation of state scientific and technical programs. Since 1997, the first steps have been taken to form an innovation system that provides for the introduction of research results into production.

For many years it was intended to serve only two types: fundamental - to discover new knowledge, to create theories or to enrich existing ones; Research projects aimed at creating a sample or the first part of a new development on the basis of practical and modern knowledge have been implemented.

In the context of modern globalization, there is a need to coordinate scientific, technical and innovative activities in Uzbekistan at the level of world standards. Therefore, in accordance with the Decree of the President of the Republic of Uzbekistan dated February 20, 2002 "On improving the organization of scientific research", the State Committee for Science and Technology was abolished and replaced by the Council for Coordination of Scientific and Technological Development under the Cabinet of Ministers. The Center for Science and Technology and the Council for Examination of Major Scientific and Investment Projects have been established under the Council. In accordance with this Decree, along with the State Committee for Science and Technology, the State Fund for Scientific and Technical Information also ceased its activities [19].

The State Patent Office within the Committee was transferred to the Cabinet of Ministers of the Republic of Uzbekistan in accordance with the Decree of the President of the Republic of Uzbekistan dated February 20, 2002 No. PF-3029 "On improving the organization of research activities" and the Government of the Republic of Uzbekistan Its activities were regulated by Resolution No. 209 of 14 June.

The only scientific and technical library in Central Asia within the Foundation has been added to the Alisher Navoi National Library. In fact, the fact that this library operated in a separate form would have made it more convenient for the scientific community. In particular, the Russian State Public Scientific and Technical Library (there is also a Siberian branch) and the State Scientific and Technical Library of Ukraine are currently operating.

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

During its four years of activity, the Coordinating Council for Scientific and Technological Development has approved a list of fundamental, practical and technological developments in the Republic, the priorities for the development of science and technology.

In accordance with the Regulations on the Council for Coordination of Scientific and Technological Development under the Cabinet of Ministers of the Republic of Uzbekistan, approved by the Cabinet of Ministers of March 4, 2002 No. 77, the Chairman of the Council is the Prime Minister - Prime Minister of the Republic of Uzbekistan. Therefore, the efficiency of project implementation, execution discipline was high. However, the integrated system of examination of scientific projects and their monitoring has not been improved [21].

Resolution of the President of the Republic of Uzbekistan dated August 7, 2006 No PP-436 "On measures to improve the coordination and management of the development of science and technology" The Committee for Coordination of Science and Technology Development under the Cabinet of Ministers of the Republic of Uzbekistan was established on the basis of the Expert Council. However, the lack of a department for scientific and technical information resources in the committee did not allow the development of scientific research and innovation in the country at the level of modern requirements, the formation of scientific and technical information resources necessary for full integration between science, education and industry [22 ].

At the end of this period (2009), taking into account the need for an organization engaged in the formation of scientific and technical information resources, the Committee submitted a proposal to the Cabinet of Ministers to establish a state unitary enterprise "Scientific and Technical Information" under the Committee. In accordance with paragraph 6 of the minutes of the meeting of the Coordinating Working Group on the Republican Fair of Innovative Ideas, Technologies and Projects, chaired by the Prime Minister of the Republic of Uzbekistan on 13 August 2009, as well as The self-financing State Unitary Enterprise "Scientific and Technical Information" was established under the Committee for Coordination of Science and Technology Development [23].

Due to the termination of the Coordinating Committee for the Development of Science and Technology, the State Unitary Enterprise "Scientific and Technical Information" was closed on December 31, 2017.

The lack of a state body in charge of scientific and technical information resources in 2003-2019 has left Uzbekistan behind not only in developed countries,

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

but also in the former Soviet Union and now the Commonwealth of Independent States.

There is a need to establish a separate state body to collect, replenish, form new ones and deliver scientific and technical information resources to consumers in the field of science, education and industry. In particular, the Center for Scientific and Technical Information under the Ministry of Innovative Development of the Republic of Uzbekistan has been operating since 2020, but in our opinion, such structures should operate independently, not as subordinate to any ministry or agency [24] . It is also necessary to set special annual programs by the government, given that this structure will serve to increase the cooperation and effectiveness of national science and technology policy. In our opinion, it is expedient to establish the Institute of Scientific and Technical Information of the Republic of Uzbekistan under the Republican Council for Science and Technology.

Scientific research on the history of the development of scientific and technical information resources is being conducted in many countries around the world. It should be noted that such research is rarely conducted in the Republic of Uzbekistan. In particular, research work on this topic can be divided into three groups: research in the Soviet period, the years of independence and foreign literature.

Among the research and publications published during the Soviet era was I. Mo'minov, A. Yushkevich, M. Hayrullaev, A. Irisov, Yu. Koplevich, P. Bulgakov, B. Rozendfeld, A. Ahmedov, G. Sodiqova, M. Madrahimova, X. It is possible to include the work done by the Yakubovas. They mainly reflect the life and work of Central Asian scientists, their scientific heritage, who have made a worthy contribution to the development of various fields of science. The spiritual and social aspects of scientific and technological progress have also been studied [25,26].

During the years of independence, F. Sulaymonova, A. Djumaxodjaev, B. Abduhalimov, S. Karimova, G. Masharipova, A. Azizkulov, T. Toshpo'latov, G. Reuka, T. Tursunmuratov, N. Nomozova, M. Niyazymbetov, A. Ahmedov, O. Mahmudov, M. Rakhmatullaevs conducted research on some aspects of the subject. Some collective articles on the subject have also been published [27,28].

As an example of foreign research on the issues under study, A. Rakitov, V. Polikarpov, N. Osipova, M. Shevchenko, A. Ryazanova. such as the work of researchers.

Although the above research covers certain areas of development of scientific and technical information resources, it is not enough to reveal the historical features

of the development of scientific and technical information resources in the Republic of Uzbekistan in 2000-2019. This suggests that there is a need to study the problem as a separate research object [29,30].

**DISCUSSION AND RESULTS**

The word intellect is derived from the Latin word Intellectus, which means the human mind, consciousness, ability to think. Intellectual activity is related to the scientific and technological potential of different countries and determines the changes and rates of economic growth. At the same time, it sets tasks for the state to increase its scientific and technical potential, develop production, technically re-equip, and create competitive products. Intellectual activity is mainly closely related to inventive activity. This requires the strengthening of their rights to the results of intellectual activity, the legal regulation of patenting, use of inventions, sales [31].

In accordance with the Decree of the President of the Republic of Uzbekistan No. PF-345 of February 18, 1992, the Republican Center for Science and Technology and Patent License Information (UzFTPA) was established under the State Committee for Science and Technology of the Republic of Uzbekistan. According to the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 71 of February 19, 1992, the Tashkent branch of the All-Union Center for Patent Services of the USSR State Committee for Inventions was reorganized and its functions were transferred to the Republican Center for Science, Technology and Patent Licensing.

It is an institution under the State Committee for Science and Technology of the Republic of Uzbekistan. , organization of copyright protection system, coordination of patent-licensing activities, formation of a patent fund to protect the rights of citizens, modern structures of the information network focused on the needs of the national economy of scientific and technical, patent and economic information and relevant tasks of state scientific and technical policy issues such as formation [32].

On December 28, 1992, the Resolution of the Cabinet of Ministers No. 596 "On the development of inventions and rationalization activities" was published. According to him, the Society of Inventors and Rationalizers of the Republic of Uzbekistan is responsible for control over the normative-methodological, organizational support of inventors and innovators and protection of their interests [33].

"Trademarks, service marks and place names of origin", "Inventions, utility models and industrial designs", "Legal protection of computer and database programs", "Selection achievements", "Copyright" related to inventive activity and

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

copyright and related rights, ”“ Legal protection of the topology of integrated microcircuits, ”and other regulations [34].

The "legislative pyramid" in the field of protection of intellectual property rights is completed by the normative acts of the competent ministries and departments. These documents regulate the mechanism of certain processes related to the protection of intellectual property. Examples of such documents are the rules for filing and filing applications, various guidelines for conducting state examinations. In addition, the Republic of Uzbekistan has acceded to the Copyright Treaty of the World Intellectual Property Organization (Geneva, December 20, 1996) in order to protect the interests of phonogram producers from illegal duplication of their phonograms in order to protect copyright in the international arena.

In accordance with the Resolution of the President of the Republic of Uzbekistan dated February 8, 2019 No PP-4168 "On measures to improve public administration in the field of intellectual property", the activities of the Intellectual Property Agency and it was transferred to the Ministry of Justice system. Then, in accordance with the Decree of the President of the Republic of Uzbekistan No PP-4380 (01.07.2019) "On measures to organize the activities of the Intellectual Property Agency under the Ministry of Justice of the Republic of Uzbekistan", the Intellectual Property Agency was established under the Ministry of Justice [36].

The study, in collaboration with the Agency and the State Unitary Enterprise "IP-Center", provides practical assistance in commercializing IMOs on the ground, legal protection of trademarks and service marks, advising manufacturers on issues related to their protection, improving the timing and quality of expertise, BPR - Research also focuses on the optimization of business processes, the regulatory framework of the industry and the systematic improvement of staff skills.

On the introduction of modern criteria for evaluating the activities of employees, improving the patent information system, ensuring the effective functioning of organizations managing property rights on a collective basis, the preparation of Uzbekistan to sign a TRIPS agreement with ministries and departments, ensuring copyright in digital environment in cooperation with WIPO measures such as conducting events, improving the system of monitoring violations, improving the legislation to increase liability for violations in the field of intellectual property, increasing legal literacy, strengthening advocacy, prioritizing the interests of the state in any decision-making. The research also analyzes the objects of intellectual

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

property acquired in the Republic of Uzbekistan, the state, problems and prospects of their protection.

The law "Intellectual Property" is, in essence, a set of norms governing the relations related to the creation, use, circulation of products of human creativity, as well as the protection of rights to intellectual property.

The first law on the patent system of inventions and inventions in the world was the Declaration of Patent Law, adopted in Venice in 1774. According to him, the invention was patented for 10 years, during which time only the author had the right to produce his invention. By the end of the 19th century, when the products of intellectual activity became a determining factor in development, an international scientific and technological market emerged, and there was an objective need to harmonize the laws governing this field in different countries. As a specific expression of this, the concept of "industrial property" has emerged, the features of its legal regime are enshrined in the "Paris Convention for the Protection of Industrial Property" of March 20, 1883. In turn, such a process took place in the field of copyright, which is reflected in the 1886 Berne Convention for the Legal Protection of Literary and Artistic Works. The Convention on the Establishment of the World Intellectual Property Organization (WIPO), adopted in Stockholm on July 14, 1967, defines the scope of intellectual property rights .

The Patent Law was passed in Japan in 1959, in Germany in 1980, in Spain in 1986, in the United States in 2011, and in France in 1992.

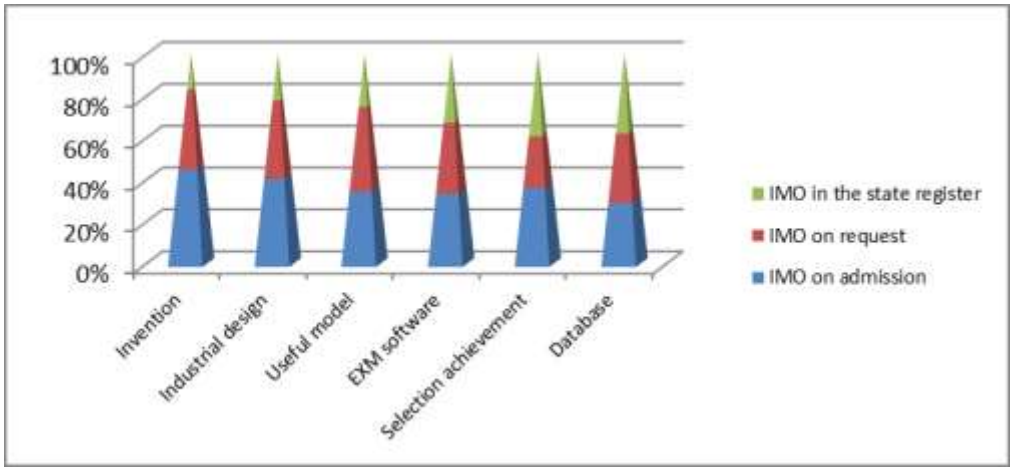
In Russia, Alexander I (1777-1825) signed the Manifesto "On Privileges for Various Inventions and Discoveries in Arts and Crafts" on June 29, 1812. The benefits under this law were 3.5 and 10 years, respectively.

In 1918, the Council of People's Commissars of the RSFSR adopted the "Temporary Procedure for Registration and Certification of Applications for Inventions", as well as the "Basic Principles of the Regulations on Inventions" (July 30, 1919). They were replaced on September 12, 1924 by the Law of the Central Executive Committee of the USSR and the Council of People's Commissars of the USSR "On Inventions". Subsequently, on April 9, 1931, the "Regulations on Inventions and Technical Improvement", on March 5, 1941, the new Law "On Inventions and Technical Improvement", on April 24, 1959, "On Inventions and Inventions" were approved. On March 8, 1965, the USSR acceded to the Paris Convention for the Protection of Industrial Property.

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

The Republic of Uzbekistan has been paying great attention to this issue since the early years of independence. In particular, the formation of legal mechanisms for the development of science and innovative technologies, the implementation and protection of intellectual property rights was important. On August 8, 1992, the first President of the Republic of Uzbekistan adopted a resolution "On state support of scientific and innovative activities." According to him, measures have been identified to further strengthen the scientific and technical potential, mobilize it to address the most pressing issues of socio-economic development and be one of the first in the Commonwealth to intensify innovative activities. In a short period of time, the legal framework for the protection of intellectual property owners and their rights has been formed in the country, and in 2003-2006 about 7,000 scientific and technological achievements were registered, while in the last 5 years the figure has exceeded 10,000. In particular, in the field of astronomy, a new planet was discovered in the solar system, 30 new variable stars were identified, and a table of stars was compiled, which required a lot of time for photometric monitoring.

In the field of physics, for the first time in the world, the mechanism of formation of solitons and soliton complexes was determined, the theory of optical solitons and the theory of propagation and evolution of nonlinear waves in different environments were developed. In the field of mathematics - new methods for solving problems of quantum probability theory have been discovered. The world's first information technology for the complete rarefaction of semi-rare minerals has been developed. As a result of the introduction of energy saving devices in Almalyk TMK, Navoi TMK and Uzmetkombinat, an average of 377.4 mln. It is possible to save 24 billion soums of energy per kWh of energy.




**1-Figure. According to the main indicators of the Agency for 2017**

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

- The number of applications for IMOs was 8059, which is 17.1% higher than in 2016. In particular, the invention - 553, utility model - 146, industrial design - 232, trademark - 6232, selection achievement - 38, computer program - 845, database - 12;

- State examinations of 8083 IMOs were conducted on applications, and compared to the end of last year, this figure increased by 2.7%. In particular, the invention - 455, utility model - 165, industrial design - 205, trademark - 6393, selection achievement - 25, computer program - 827, database - 13;

- 3590 IMOs were registered in the state registers, an increase of 24%. In particular, the invention - 205, utility model - 104, industrial design - 124, trademark - 2300, selection achievement - 40, computer program - 802, database - 15.

The development of science and technology is inextricably linked with the emergence and development of large-scale production in each field of science, which is based on the expansion of scientific and technological achievements. It enables the deployment of natural forces and resources through human service, turning them into a technological process of conscious application of scientific information in production.

Scientific and technological progress has two forms: evolutionary and revolutionary. This involves a relatively slow and partial improvement of the traditional scientific and technical basis of production. These forms are interrelated, the quantitative accumulation of relatively small changes in science will eventually lead to fundamental qualitative changes in the field, and after the transition to a radically new technology, revolutionary changes will occur gradually.

The subjects of scientific and technological development are scientists, researchers, doctoral students and others. In order to reach the highest peak of scientific and technological progress, the scientific and technical potential must be high. There are 3 different forms of scientific potential:

- Scientific potential - information on the number of personnel with a general scientific degree in the Republic;
- Scientific and pedagogical potential - the sum of scientific staff working in higher education institutions;
- Scientific and technical potential - Understands the participants of state scientific and technical programs.

On the basis of the Decree of the President of the Republic of Uzbekistan dated February 16, 2017 No PF-4958 "On further improvement of the system of postgraduate education" was transferred to 2 systematic academic degrees. In

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

addition, the replenishment of higher education with potential scientific personnel ... decrees and decisions were made. As of July 1, 2017, when analyzing the scientific and pedagogical potential of the Republic, there are 64 academicians, 2187 doctors of sciences, 8169 doctors of philosophy (PhD).

Executors of state scientific and technical programs carry out fundamental, applied research and innovative scientific and technical projects, which are the state order, at the expense of funds allocated from the "FAN" part of the budget. Fundamental research is long-term (4 or 5 years), in which the most potential scientific staff conducts research.

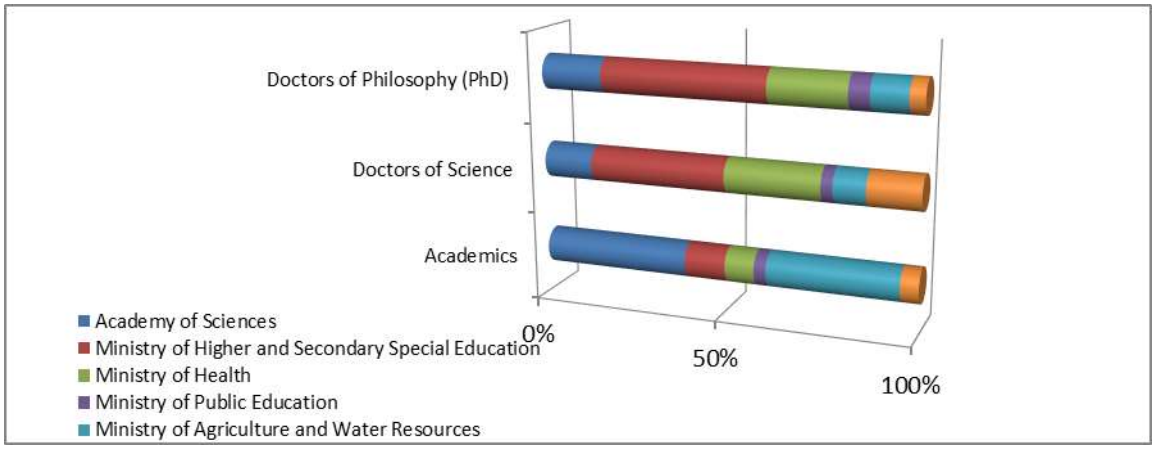



**Figure 2 In ministries and departments scientific and pedagogical potential**

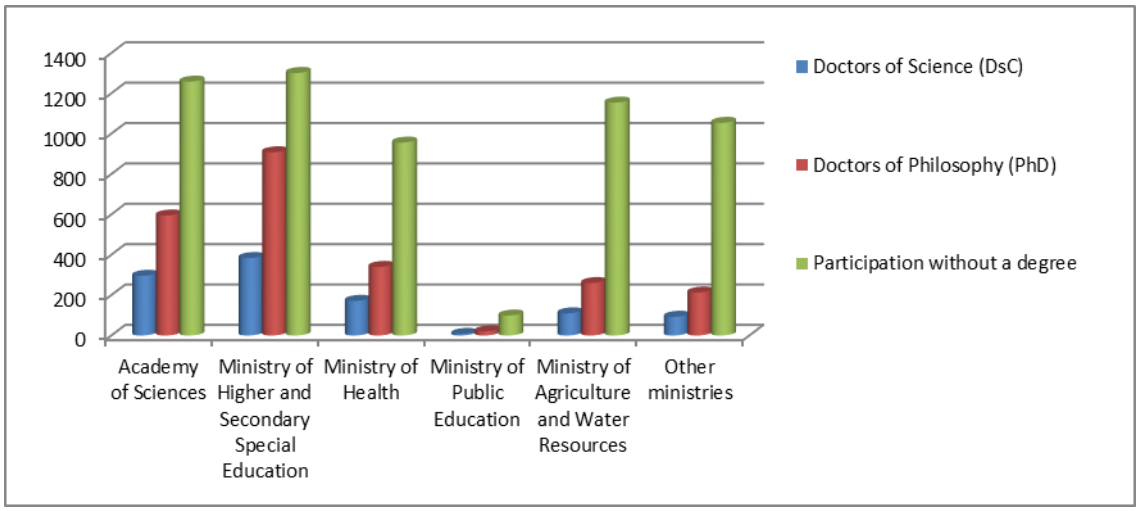



**Figure 3 State Scientific and Technical program participants**

The main scientific result of fundamental research is the introduction of new knowledge or laws into science. Applied research is medium-term (2 or 3 years) with the participation of both technical and research staff. The result of applied research is

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

the creation of a prototype or industrial design of a particular scientific and technical product. It is the largest part of the funds allocated from the state budget will be used to finance applied research.

Innovation projects are short-term (1 or 2 years) and involve more technicians and designers. The main scientific result of these projects is the finished product. Funding for such projects is bilateral. That is, half is financed from the state budget, and the other half is financed by the enterprise or organization interested in the implementation of the development.

**CONCLUSIONS**

Based on the results of the study, it is advisable to implement the following suggestions and recommendations on this topic:

First, it is necessary to develop a concept for the development of scientific and technical information in the Republic of Uzbekistan, to create a single database of scientific and technical information and to establish information exchange. This will create a science and technology information industry and help identify key national needs for the development of science and technology.

Second, in 2018, the scientific and technical sphere was systematized and a separate Ministry of Innovative Development was established. As a result, the demand for scientific and technical projects has increased, ie the transition to a mechanism for financing research based solely on socio-economic needs. However, in order for our country to find its place in the world community in the field of science and technology, it is necessary to create a single scientific organization in the field of scientific and technical information and constantly form their electronic database.

Third, the validity of patents for inventions in the Republic of Uzbekistan is 20 years, with some exceptions, it can be extended to 10 years. Petants obtained in the world experience are given to the author for life and are valid for up to 50 years after his death. Of the 1,295 inventions and utility models registered between 2000 and 2019, it is necessary to recommend the commercialization of the most promising (regardless of the period of validity) of the patents obtained.

Fourth, there are still no specialists in the Republic of Uzbekistan engaged in the commercialization of research results. Therefore, based on the world experience, it is expedient to open special faculties at universities.

VOLUME 2 | SPECIAL ISSUE 20
ISSN 2181-1784
SJIF 2022: 5.947 | ASI Factor = 1.7

Fifth, in the Republic of Uzbekistan there are no forecasts on the prospects of "naucometry", ie scientific work in this area. Therefore, it is necessary to organize the implementation of PhD and DSc research in the field of science.

Sixth, in the context of age and gender equality, the number of researchers involved in state scientific and technical programs over the years was 12,000 in 2012, of which 4,200 participated in research projects. no attempt was made. He gets an academic degree to be permanently engaged in scientific work abroad, but in our country the academic degree is done to improve his social status. It is necessary to organize research projects not only from the state budget, but also from the private sector - venture funds.

Seventh, it is necessary to formulate scientific and technical problems based on the specific needs of each region of the Republic of Uzbekistan and to conduct targeted research aimed at solving them.

Eighth, it is expedient to analyze the results of fundamental, applied research, innovation, promising research of young scientists conducted in the Republic of Uzbekistan in 2000-2019 in the framework of state scientific and technical programs in the field of science and consumer enterprises.

Ninth, there is a need to develop a concept for the development of scientific and technical information in the Republic of Uzbekistan.

Tenth, it is necessary to create an opportunity to identify areas that may be a priority in the future through the historical study of scientific and technical information;

Eleventh, it is proposed to approve the concept of development of scientific and technical information on the basis of documents of the Cabinet of Ministers, which will create a solid foundation for the development of this sector and serve for its full dissemination.

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21. Today, the library fund includes about three million publications. See: http://www.gpntb.ru
22. Director of the Main Library of the Academy of Sciences of the Republic of Uzbekistan Z.Sh. Special thanks to Berdieva and the library staff.
23. The processes that underlie major changes are a factor in scientific and technological progress. For example, the Internet, renewable energy sources, nanotechnology, biotechnology, robotics, artificial intelligence and others.
24. Application of science in practice consists of 4 stages: project, invention, innovation, innovation (product ready for full implementation). This is a special process and should be carried out mainly in the fundamental-practical-innovation-innovation-fundamental chain system. this chain will only be effective when scientific and technical information is well developed.
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