

## INTELLIGENT INFORMATION SYSTEMS IN IMPROVING THE EDUCATION MANAGEMENT SYSTEM IN UZBEKISTAN

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### ABSTRACT

Information and knowledge are becoming a major factor in the development of modern society. It is already impossible to imagine a modern society without the influence of information technologies. The performed work is related to the ongoing fundamental reforms in the educational system of the Republic of Uzbekistan. In particular, the need to study the introduction of market instruments in the practice of educational services institutions and the organization of effective management of educational processes in modern conditions is especially relevant. The purpose of the study is to create a model of an intellectual system that can reduce the influence of the human factor on managerial decision-making, providing objectivity and transparency in the management of the educational process using the example of Tashkent State University of Law. In the study the theoretical foundations of the study of intelligent systems in the management of the educational process was characterized; there were identified the shortcomings of the existing model of education management and analyze the features of the use of intelligent systems in the management of the educational process; there were evaluated the problems that exist in the education management in our country; analyzed the existing situation and assess the prospects for the use of intelligent systems in decision making and educational process management; created and proposed a model for managing the educational process using an intelligent system and the latest information technologies that contribute to ensuring the effectiveness of the education management process.

**Keywords:** Education management system, management efficiency, higher educational institutions.

### INTRODUCTION

Modernization of the educational system in Uzbekistan is one of the priority areas today, where not only internal transformations are highlighted, but also special attention is paid to the education management system. The national training system has undergone tremendous changes over the past few years. But despite this, the question of optimizing and improving the existing university management system remains one of the most demanded problems. Scientific and technological progress and the development of information communication systems, the transition to a market economy poses new requirements for education not only in terms of training highly qualified personnel that meet international standards, but also in the organizational structure for managing the educational process in higher education institutions. Scientific and technological progress and an innovative approach to management are the main drivers of economic growth. Information and knowledge are becoming a major factor in the development of modern society. In the modern world, the authority of the state is determined not so much by the availability of natural resources, the size of the territory or military potential, but by the level of development of high-tech industries and information and communication infrastructure based on knowledge and the latest technologies. The contribution of information communication technologies to the development of a country's economy and economic growth

is determined by many factors. Moreover, open access of the population to information that gives a wide range of consumers the opportunity to participate in the management and decision-making and in the state educational structure of the country is of particular importance. At the same time, reduce the influence of the human factor on the objectivity of problems being solved, increasing the capabilities and potential of intelligent systems in decision-making and management of educational institutions.

One of the main tasks for the development of a progressive training system is “ensuring the effective integration of education, science and production, developing mechanisms for shaping the needs of the state, as well as ordering non-governmental structures, enterprises and organizations for the quantity and quality of trained personnel” based on the achievements of modern science and technology. Based on the foregoing, it can be argued that the most important task for Uzbekistan is the creation and provision of favorable conditions for the improvement and further development of the country's educational system by introducing intelligent systems and the latest technologies to ensure management efficiency in the management process of higher educational institutions.

Today, computerization has practically covered all spheres of human activity, which in turn has led to the expansion of the information space as a whole. It is already impossible to imagine a modern society without the influence of information technologies. One of the most important features of information communication technologies is the ability to create a global scale for the activities of all economic objects of the world economy. The development of high technology is changing the structure of world production and the market, so it is necessary to lay a solid foundation for building capacity in the implementation of intelligent systems and the latest technologies to ensure the country's accession to the global economy. In the context of globalization, our country cannot develop in isolation from the global economy, it is necessary to change the existing model for managing the educational system in the country. But at the same time, it could not be allowed copying existing models of managing educational systems, since the national mentality of our state takes into account not only the training and transfer of knowledge, but also the upbringing of the younger generation in the spirit of patriotism and spiritual values of humanity.

The main goal of all our reforms in the field of economics and politics is human. That is why the task of education, the task of educating a new generation capable of realizing the idea of national revival, will remain the work of the state, one of its highest priorities. In recent years, large-scale measures have been taken in the country to create a higher education system that meets the priority areas of socio-economic development and the requirements of international standards. The creation of new higher educational institutions in the regions, the opening of modern areas of education and specialties for training personnel, as well as different forms of education, such as distant learning and so on, an increase in quotas for admission to higher educational institutions are important reforms in this direction.

### **Statement of the problem**

It is known that a wide interest in the problem of managing an educational institution on the basis of an automated information system and its individual aspects in our state appeared only in the late 90s of the last century. But certain studies in this area were begun by foreign researchers much earlier. The study of the problems associated with the study of the introduction of information communication technologies and intelligent systems in the management of the educational process is the work of both foreign and domestic scientists. When studying the issues of improving the management of the educational process in

universities, the works of such domestic scientists as R.A.Rakhmanbaeva, K.Kh.Abdurakhmanov, S.S.Gulyamov, Sh.Kurbanova, A.S. Kucharova, D.Kh. Nabiev, M.Kh. Saidova, E.A. Seitkhalilova, I.S. Tukhlieva, B.Yu.Khodieva, D.A.Nasimova and others, as well as foreign authors - M.A.Goncharova, A.G.Larkina, A.P.Egorshin, scientists O.Arefyev, A.Arutyunova, T. Burmenko, R.Dzhaparova, N.Yeletsy, B.Morgoev, O.Saginova, I.Romanova, N.Tereshchenko and others. Thus, developments in the field of improving the general management methodology and its mechanisms, as well as theoretical research and practical research, which formed the basis of various classes of automated information systems, conducted by W. Beck, J. Plosl, A. Sloan, O. White and others. Studies of the problems of the practical application of information systems, forms, methods, methods of their operation and the possibilities for further development and the search for new applications are described in numerous works by both foreign authors – S.Voznyak, M.Dell, F.J.Rogers, S.Walthan, and domestic authors S.Gulyamov, B.Khodiev, B.Begalov , as well as Russian researchers – I.Balakhanov, S.Volchkov, A.Khokhlov and others. Separately, it should be noted the work of B.Gates, putting forward the conceptual basis for the use of intelligent information systems.

The problems of the relationship of economic sectors with the education system are described in the works of domestic scientists G.N.Akhunova, R.Alimov, B. A.Begalov, N.M.Makhmudov, T.Sh.Shodiev and others.

Despite the large-scale results obtained, a number of insufficiently studied problems remain in this area. In particular, the need to study the introduction of market instruments in the practice of educational services institutions and the organization of effective management of educational processes in modern conditions is especially relevant. Thus, it should be noted that the problems under consideration for evaluating the effectiveness and building intelligent information systems as tools for supporting and making informed management decisions are not well understood, which makes it possible to further in-depth research. These circumstances provoked the choice of research topics, goals and objectives of the dissertation, which distinguishes this study from previous works.

As was mentioned above, the issue of managing the educational process based on the introduction of information and communication technologies in our country began to arise in the nineties after independence. The adoption of the Law of the Republic of Uzbekistan “On the national training program” of August 29, 1997 and the decree of the President of the Republic of Uzbekistan “On further development of computerization and implementation of information and communication technologies” of May 30, 2002 was the impetus for the beginning of reforms in the educational sector of the Republic of Uzbekistan. A lot of work has been done in this area, but nevertheless, the issue of training personnel remains the most vulnerable spot in the Action Strategy of the current President of the Republic of Uzbekistan.

It is necessary to understand that the problem of training qualified specialists, that is, the provision of educational services by universities, and the assessment of the quality of training are systemic. In turn, this is a kind of system, which is an inextricable chain in meeting the needs of the labor market by specialists in demand [1]. Currently, there is a lack of high-quality qualified specialists, as the development of new technologies leads to a reassessment of the needs of the modern labor market.

One of the main indicators that determine the level of development of the state is the competitiveness of its education system, the relationship with science and technology transfer. This factor ensures the innovative nature of the economy; therefore, in the countries of the

European Union they attach great importance to the continuous development of this sphere. The solution to this problem requires not only constant investment in education, but also a proper organization, which should be flexible in relation to new tasks and modern requirements. The education system must be able to adapt to new challenges in the economy and society in the era of globalization.

Along with the issue of “ensuring the quality of education”, an equally important issue is the issue of “accessibility of higher education”. Currently, the level of coverage of the population of Uzbekistan with higher education remains the lowest in the Central Asian region (8.3%). Moreover, from year to year the share of girls in the total volume of university students is decreasing. In this regard, it is extremely important to ensure greater access to higher education in law and subsequent participation in the management of state and public processes of female representatives. Based on the aforementioned problem, the goal of the project under consideration is to create a unified integrated local educational platform “Electronic University” at Tashkent State Law University. The concept of the project is to radically improve the quality of educational services in the field of higher legal education and expand its coverage, taking into account the great need for legal personnel in certain regions of the republic.

In accordance with the decree of the President of the Republic of Uzbekistan dated April 28, 2017 No. PP-2932 “On measures to radically improve the system and increase the effectiveness of training at the Tashkent State Law University,” the university, as a basic higher educational institution, is constantly improving the quality of the educational process, filling it with innovative content, introduced and is constantly working on improving the student knowledge assessment system, provides a close connection between theoretical Preparing to enforcement activities aimed at building skills to independently acquire and use new knowledge. In accordance with the decree of the President of the Republic of Uzbekistan dated July 1, 2013 No. P – 4094 “On measures to strengthen and expand the material and technical base of the Tashkent State University of Law (TSUL)”, reconstruction and overhaul of the complex of buildings of TSUL, including those transferred to its balance, were carried out buildings of the former Central House of Officers of the Ministry of Defense of the Republic of Uzbekistan.

Over the past three years, 33 conferences, 41 round tables, 148 scientific seminars have been held as part of the research activities of the Tashkent State University of Law, 119 draft regulatory legal acts have been reviewed, and relevant proposals have been prepared, 45 monographs, 44 brochures, 35 collections of conference materials have been published and published over 1100 scientific articles and abstracts in collections of materials of conferences and round tables, magazines and collections, including in foreign ones. Work is underway on research projects, of which 3 are fundamental, 2 are applied, as well as 1 is a scientific project for young scientists on basic research programs. On the basis of existing bilateral agreements, the Tashkent State University of Law cooperates with 13 foreign educational and research institutions, including the Nagoya University, the Universities of the Moscow Institute of Economics and Osaka (Japan), Northwestern University of Politics and Law (China), Vilnius University (Lithuania), Sofia University them. St. Clement of Orchid (Bulgaria), Faculty of Law, Kyiv National University named after T. Shevchenko (Ukraine), Tyumen State University (Russia), University of Toulouse Capitoul 1 (France), East China University of Political Science and Law, etc.

The purpose of the study is to create a model of an intellectual system that can reduce the influence of the human factor on managerial decision-making, providing objectivity and

transparency in the management of the educational process using the example of Tashkent State University of Law.

### **The objectives of the study**

The implementation of this goal involves solving a set of interrelated research tasks:

- characterize the theoretical foundations of the study of intelligent systems in the management of the educational process;
- identify the shortcomings of the existing model of education management and analyze the features of the use of intelligent systems in the management of the educational process;
- evaluate the problems that exist in the management model used;
- analyze the existing situation and assess the prospects for the use of intelligent systems in decision making and educational process management;
- create and propose a model for managing the educational process using an intelligent system and the latest information technologies that contribute to ensuring the effectiveness of the education management process.

The object of the study is intelligent systems and information technologies that contribute to ensuring the effectiveness of the management of the educational process in universities using the example of Tashkent State University of Law.

The subject of the study is the features and nature of the influence of intelligent systems and information communication technologies on ensuring the effectiveness of the management of an educational institution.

### **Research Methods**

To achieve the goal and solve the tasks, the following set of methods was used: analytical and literary review, comparative analysis, observation, conversation, questioning, interviewing, experiment, mathematical and statistical analysis of the results.

### **The scientific novelty of the study**

The scientific novelty of the results of the thesis consists in the development of theoretical and methodological foundations, as well as the implementation of practical aspects of creating an intellectual information system for managing the educational process, which should be an interconnected set of tools, methods and personnel used to store, process and issue information to achieve the goal of management. Most modern information systems do not transform information, but data, that is, they are, in fact, data processing systems. Unlike them, the proposed intellectual system is aimed at supporting decision-making regarding the coordination of not only the main goal of the educational institution, but also to assess the scientific, spiritual and methodological activities of the university staff as a whole. As part of the research activities, the following works were performed:

- a) in the scientific and theoretical aspect:
  - scientific and conceptual foundations for the creation and implementation of an information system for managing the educational process in HEU, in particular, in TSUL with elements of intelligent data processing systems, have been developed;
  - a scientific and theoretical approach to the formation of an automated information system for managing the educational process based on intelligent and expert systems has been proposed;
  - the concept of an automated information model of an electronic university is formulated and proposed to ensure effective university management;
- b) in the scientific and methodological aspect:

- a comparative analysis, generalization and systematization of foreign and domestic experience in managing the educational process in universities;
- a mechanism for managing the educational process using expert systems was developed and proposed;
- c) in the practical aspect:
  - an algorithm for identification, classification and systematization of the data necessary for effective management and optimal decision making was proposed and implemented;
  - an assessment algorithm is proposed and implemented based on preliminary diagnostic methods in the context of an innovative strategy and the integration of education with the labor market;
  - an algorithm for processing big data based on intelligent systems and the formation of an individual curriculum in accordance with the conditions of the labor market are proposed;

### **The practical results of the study**

When assessing the impact of intelligent information systems on the effectiveness of university management, there was taken into account not only their direct contribution to performance, but also the indirect benefits of system users (reducing the time for physical contact between users, reducing costs by reducing operating costs and errors, organizational changes in universities, growth labor productivity; increasing the overall efficiency of the use of internal resources for educational purposes, increasing the competitiveness of the educational institution, etc.). IT is a potential factor in economic growth, which determines the transformation of an IT factor from a potential into a real one: the so-called “readiness for electronic interactions” of the national economy and business (Internet distribution, development of telephony, availability of specialists, etc.), an active government policy that promotes IT implementation (creating conditions for financing the development of IT in enterprises, universities and research institutes; maintaining competition in the IT technology markets; raising the level of IT literacy of the population); expanding private and public investment in IT technology.

The reliability of the research results is ensured by the use of methods, approaches and theoretical information from official sources, the implementation of a set of mutually checking, adequate research methods, representativeness, reliability, validity of the sample, the validity of the above analyzes and the effectiveness of experimental work by means of mathematical statistics, the practical implementation of conclusions, suggestions and recommendations .

The scientific and practical significance of the research results of the dissertation work is the development and deepening of the research methodology of modern economic growth under the comprehensive impact of information systems and technologies, the harmonization of various scientific approaches and overcoming the fragmentation of scientific knowledge in this field. Practical significance lies in determining the existence of favorable conditions and creating acceptable criteria for the active development of intelligent systems and technologies in the management of the educational process in Uzbekistan, namely, TSUL, and developing a set of measures, the use of which in the future will increase the impact of IT on the effectiveness of higher education establishments of Uzbekistan both within the university and at the state level. The models, approaches and technologies of creating and implementing intelligent information systems proposed in the dissertation significantly increase the effectiveness of educational institution management processes. The introduction of modern technologies can help strengthen the republic’s position in the global educational services market.

### **Implementation of research results**

Since 2013, since the transformation of the Tashkent State Institute of Law into the Tashkent State University of Law (TSUL), large-scale organizational reforms have been carried out in the educational process.

When creating and introducing an electronic system for recording student performance rating SRS-system (Student Rejting System) in TSUL, the research results of this work were taken as a basis.

There were created the following information systems with the elements of artificial intelligence and expert systems:

- srs.tsul.uz – student rating system and evaluation;
- job.tsul.uz – a system for monitoring the practice, training and employment of graduates of the TSUL;
- portfolio.tsul.uz – a system of quality control of teaching and related activities of the university faculty;
- savol-javob.tsul.uz – a database of questions on intermediate and final tests for the formation of examination sheets without involving staff in the selection of questions;
- online.tsul.uz – a system for submitting documents to the magistracy in online mode;
- diplom.tsul.uz – the basis for verifying the authenticity of diplomas issued by the university and the formation of inserts for state diplomas.

In addition, to date, work is underway to integrate all individual systems into a single intelligent management information system as part of the Electronic University project. The last version is complete information intelligent management system of the university.

## CONCLUSION

Based on the study of intelligent systems in ensuring the effective management of the educational process in universities, the following conclusions were drawn:

1. “Smart economy” largely focuses on the use of the latest technologies in all spheres of human activity, including in the management of education. It should be conceived and developed with an emphasis on some general Internet integration, allowing the use of ICT technologies for intelligent economic development, which provides intelligent mobility based on real-time information taken from big data.

2. The development and dissemination of ICT has led to the transformation of the personality of man and society. It can be argued without a doubt that today's generation – the digital generation – for which a mobile phone, computer and the Internet are natural components of their living space, along with nature and society. Therefore, it is important to create an integrated information system for managing the educational process with elements of intelligent systems that can provide effective university management.

3. Around the world, the need arose to create a new education system – smart education – capable of providing flexible learning in an interactive educational environment based on artificial intelligence and intelligent systems. Ensuring the accessibility of education, presenting unlimited opportunities for participants in the educational process can be achieved only through new information and communication technologies.

4. Digital education is an important step towards creating a digital economy. To create high-tech production, the training of workers is important. Consequently, the use of intelligent management systems in education will help to significantly improve the national educational system and raise it to a new level, which in turn helps to raise the rating of national universities to the international level.

5. A model was proposed and implemented in the practice of an automated system for managing the educational process to ensure the effectiveness of decision-making, in which several systems that are used in the management and planning of educational activities, the use of ICT in the organization of educational activities of the university by the University's Educational and Methodological Administration at an example of the Tashkent State University of Law, when monitoring the activities of the faculty of the university. In accordance with the quality assessment of ensuring the effectiveness of the educational process management at the university, systems were developed to determine the quality of given processes, which include a number of sequential steps: specification of the goal (identification and clarification of consumer requirements); the choice of content and training technologies, as well as its design (ensuring the necessary process); development of a control system aimed at improving quality indicators for the "input" and "output" of the process and provide feedback.

In the framework of one study, it is impossible to solve all problems in the field of ensuring the effectiveness of educational process management. In this regard, it seems relevant to identify problems and directions for further research on this problem.

## REFERENCES

1. Mannopova E.T. The Use Of Intelligent Information Systems In The Legal Sphere. // "Journal of Multimedia and Information System", VOL. 2, NO. 4, December 2015 (pp. 311-316): ISSN 2383-7632 (Online) <http://dx.doi.org/10.9717/JMIS.2015.2.4.311>
2. Mannopova E.T. Issues of implementation of information systems in the management of the education system. // Conference Proceedings. "International Conference: Entrepreneurship and Industrial Management" MDIS in Tashkent, November 17th, 2016
3. Mannopova Elzara Torahanovna. Review and analysis of systems in the legal practice of the Republic of Uzbekistan. // Modern technologies: current issues, achievements and innovations: a collection of articles of the XIII International Scientific and Practical Conference in 2 parts. Part 2. - Penza: ICSN "Science and Education". - 2018. -- 218 p. - P.148-153.
4. Abduvakhidov A.M., Mannopova E.T. Intelligent information system as an educational process management tool at a university. // "Iqtisodiet va ta'lim" - Tashkent, 2018. - No. 1 - P.37-40.
5. Abduvakhidov A.M., Mannopova E.T. Theoretical approaches to the formation of intelligent systems as an instrument for ensuring management effectiveness. // "Systemic problems in the real sector of the economy, the use of information and communication technologies and their solutions. Proceedings of the related inter-university scientific-practical conference – Tashkent, 2018. - P. 239-243.
6. Mannopova E.T. Reforms in education: information technology in the training of legal personnel. // "Proceedings of the Republican scientific-practical conference "Problems of application of information technologies and information security in public administration" - Tashkent, 2018. - P.12-20.
7. Mannopova E. Problems in education and their solutions using intelligent systems. // Proceedings of the Republican scientific-practical conference "Priorities and current problems of economic development and liberalization in Uzbekistan" - Tashkent, 2018. - P. 54-58.
8. Development and automation of an integrated system of motivation in the educational process. "Modern education: current issues, achievements and innovations" collection of articles of the XVII International scientific and practical conference. Penza, 2018. P.55-58.



9. Mannopova E. Reforms in Education in Uzbekistan: Information Technologies and Preparation of Lawyers. International Journal of Research. e-ISSN: 2348-6848 p-ISSN: 2348-795X Vol 5, No 19 (2018) August/ <http://edupediapublications.org/journals/index.php/IJR/P.490-496>

10. Abduvakhidov A.M.,\_Mannopova E.T. The impact of the digital economy on education. "Economics and Innovative Technologies "scientific electronic journal. No.4, July-August, 2018. [http://www.iqtisodiyot.uz/sites/default/files/maqolalar/12\\_Abduvakhidov\\_Mannopova.pdf](http://www.iqtisodiyot.uz/sites/default/files/maqolalar/12_Abduvakhidov_Mannopova.pdf)

11. Mannopova. E.T. The impact of the digital economy on education. XXXII Plekhanov readings. "100 years of the ILO: Promoting social justice, promoting decent work" Materials of the international scientific and practical conference, February 1-2, 2019.

12. Mannopova. E.T. The integrated management structure of the educational process as a guarantee of success. II international scientific-practical conference "Strategy of the Republic of Uzbekistan: macroeconomic stability, investment activity and prospects for innovative development", May 27-28, 2019

13. Mannopova. E.T. Theoretical approaches to the study of the impact of intelligent systems on the effectiveness of education management. INTERNATIONAL CONFERENCE "SCIENCE, RESEARCH, DEVELOPMENT" # 18, Baku, June 29-30, 2019

14. Mannopova. E.T. Education management: a specific approach to the creation of an intellectual information system in the training of legal professionals. RELIGACIÓN Revista de Ciencias Sociales y Humanidades Vol. 4 • No 16 • Junio 2019 ISSN 2477-9083 <http://revista.religacion.com/index.php/about/article/view/388>

15. Mannopova. E.T. Improving the competitiveness of higher educational institutions through intelligent information systems in management. Journal of Innovation in Economics, No.1, Issue 3., P.44-53. ISSN 2181-9491 Doi Journal 10.26739 / 2181-9491 <http://dx.doi.org/10.26739/2181-9491-2020-1-6>