Ways to Develop Information Security in Public Education Activities

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ABSTRACT

The following article deals with the digital transformation, ways to improve information security in public education, where the exchange of information and the creation of new databases in public education, as well as their security is an important factor.

The role of digital technology in the management system in the organization of the mechanism of development of information security with the help of information technology in the activities of public education in the digital economy is a complex multifaceted process, which is characterized by unique features and patterns. The process of information security management has an existing systemic nature, which provides for the creation of an appropriate management mechanism, identifying solutions to a particular problem, monitoring the relationship between individual databases, organizing the operation of the entire system in complex planning.

KEYWORDS: *Digital economy, public education, information security, information technology, risk assessment, software, database, identification.*

In particular, the ongoing reforms in the field of education in Uzbekistan are aimed at forming and improving the quality of the education system that meets international standards. Today, from the world experience, new, modern methods and tools of teaching are entering the educational process of our republic. Social development in the XXI century also requires the development of information security in public education in the context of the digital economy with the help of information technology, qualitative changes in the content of all areas of education. Naturally, the development of each country and ensuring its competitiveness is assessed by the degree to which modern information and communication and digital technologies are introduced in all spheres of society and state life.

In order to identify priorities for the systemic reform of general secondary and extracurricular education in the Republic of Uzbekistan, to raise the spiritual, moral and intellectual development of the younger generation to a qualitatively new level, to introduce innovative forms and methods of education in the educational process. In accordance with the Decree No. PF-5538 "On additional measures to improve the management system of public education" dated September 5, 2013, a number of measures have been developed;
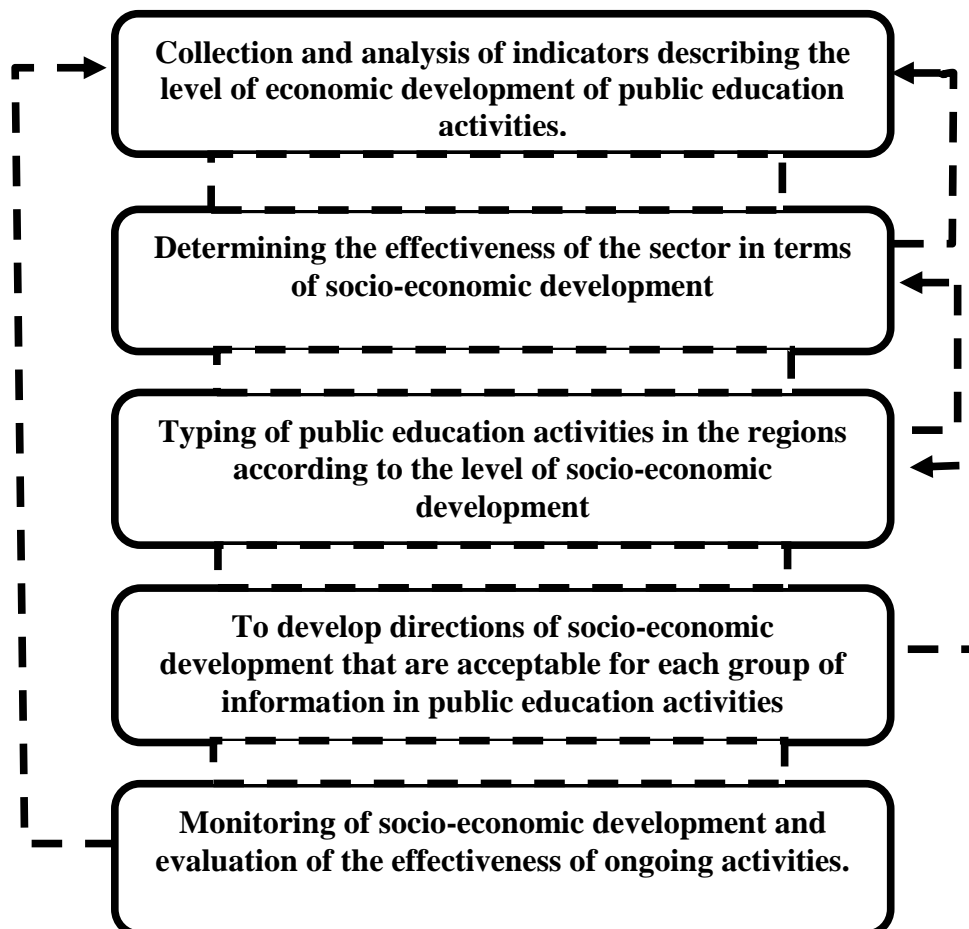
➢ PISA (The Program for International Student Assessment) is one of the top 30 countries in the world in the ranking of the International Student Assessment Program;

➢ qualitative updating of the content of the system of continuing education, as well as training, retraining and advanced training of professionals;

➢ improvement of teaching methods, gradual application of the principles of individualization in the educational process;

➢ introduction of modern information and communication technologies and innovative projects in the field of public education;

- ➢ strengthening the material and technical base of public educational institutions and increasing the efficiency of budget funding;

- ➢ introduction of modern methods and directions of extracurricular education in educating young people and ensuring their employment;

- ➢ expanding the competitive environment in the public education system through the development of public-private partnerships;

- ➢ Implementation of five initiatives, including comprehensive measures to create additional conditions for youth education;

- ➢ Gradual increase in the level of remuneration, financial incentives and social protection of employees of general secondary education in order to increase the attractiveness of the public education system;

In building a new Uzbekistan, of course, we can see that in the digital economy, the process of digitization of all areas is underway, and the exchange of information and the creation of new databases and ensuring their security is an important factor in public education. The system of effective management of public education is a separate element of the overall state policy, in which the socio-economic development of the sector is undoubtedly a priority of the state. Formation of modern approaches to the implementation of strategic objectives of the development of the Republic of Uzbekistan requires the formation of new methods of organizing evaluation activities in the field of resource efficiency.

Due to the uniformity of public education activities, it is possible to cite the main influencing factors that allow a more objective assessment of the implementation of socio-economic activities **(Figure1).**


Collection and analysis of indicators describing the level of economic development of public education activities.

Determining the effectiveness of the sector in terms of socio-economic development

Typing of public education activities in the regions according to the level of socio-economic development

To develop directions of socio-economic development that are acceptable for each group of information in public education activities

Monitoring of socio-economic development and evaluation of the effectiveness of ongoing activities.

Figure 1. **Influencing factors in assessing the level of socio-economic development in public education**

Summarizing the existing influencing factors and the developed author's approaches to study the algorithm for assessing the level of socio-economic development of public education and the factors influencing the economic development of the industry not only generalize and systematize the basics, but also allows you to fill.

To assess the level of socio-economic development, of course, the indicators of economic, social and political aspects proposed in the mechanism of development of information security using information technology in public education in the digital economy are shown in **Figure 2.**
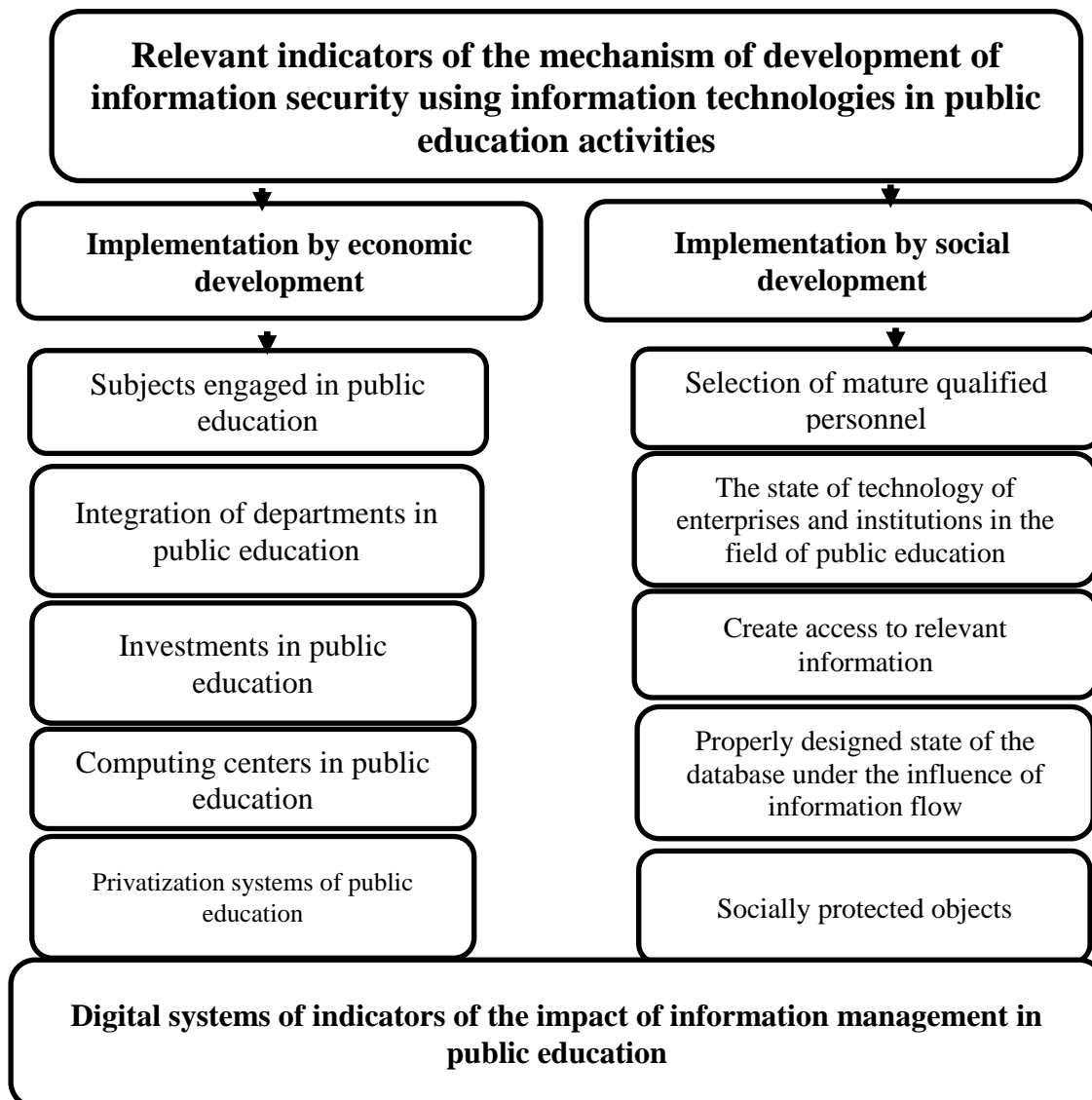
Figure 2. The main relevant indicators of the mechanism of development of information security with the help of information technology in public education

It should be noted that the selection of a set of indicators to assess the level of socio-economic region is controversial and can be supplemented depending on the tasks of conducting analytical procedures. It can also be modified to take into account the specifics of the activity.

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public education in the digital economy is a complex multifaceted process, which is characterized by unique features and patterns. The process of information security management has an existing systemic nature, which provides the creation of an appropriate management mechanism, identifying solutions to a particular problem, monitoring the relationship between individual databases, organizing the operation of the entire system in complex planning.

The information security management system in public education activities is multifunctional, so it has a complex structure and based on our scientific research, we have proposed the following system. **Figure 3.**
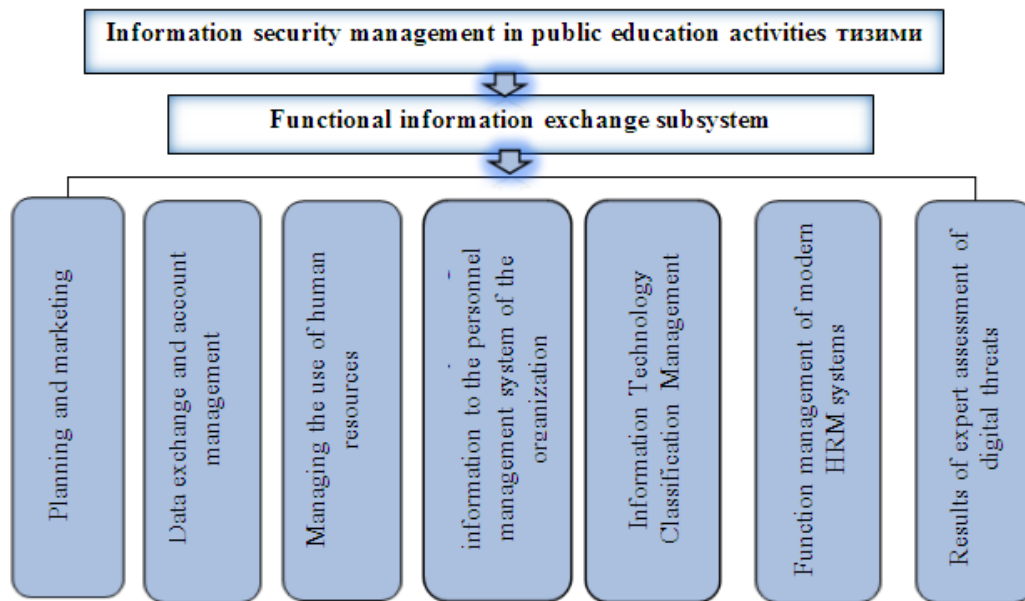
Figure 3. The main links of the information security management system in public education activities

Providing information on a system consisting of several subsystems in the field of public education, taking into account the process of digital transformation - this can be a set of solutions implemented in terms of their size, location and form.

At present, it is impossible to develop the public education system without information technology. Public education management organizations and schools are constantly faced with the problem of mastering information technology in their work. Information technology is a necessary condition for the international integration of public education as an information-saturated field. When researching educational potential and developing and mastering their programs, professionals come across a lot of information that represents different aspects of the space. Geoinformation systems today are an indispensable tool for processing this type of information.

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Today, the number of users of social networks, which have become popular, is in the millions. Social networks are sites that are able to perform tasks such as making friends, communicating, and sending files within a certain circle. Today, most of the conversations take place on social media. The most popular of these include Facebook, Twitter, LinkedIn, Instagram and YouTube. It is noteworthy that news and messages in the process of virtual communication spread faster and more widely than in

normal communication.

The roots of the globalization process go back a long way in human history. Trends in globalization have been reflected in all stages of development of human society. The uniqueness of the historical period depends on the characteristics of economic and political development, for example, globalization in trade, military globalization in the time of Alexander the Great, later globalization with the formation of world religions in the Middle Ages, Renaissance and more scientific and cultural globalization in the New Age. appeared. As a result of the widespread development of capitalism in Europe and the colonization of new territories by major powers, the pace of globalization has accelerated, and its geopolitical, ecological, and cultural forms have emerged.

Therefore, the manifestation of this process is specific at different stages of development of society, which reflects the essence, nature and trends of this historical period. The global changes taking place in the world today are also affecting the field of education and upbringing. On the one hand, this requires an objective study of the impact of global change on areas of human life as an objective process. Second, as global changes also affect the educational process, it is of practical importance to know the achievements and challenges associated with them and to draw appropriate conclusions. Globalization is creating new opportunities for education in the field of information and communication systems, the Internet and modern pedagogical technologies. Achieving its effectiveness through the use of interactive methods instead of traditional methods of education remains relevant.

The integration of relations between public educational institutions is carried out today with the widespread use of modern media. The globalization of the educational process, the formation of integration between public educational institutions not only within the country, but also with foreign countries, of course, requires the introduction of the most advanced innovative methods. On the basis of such integration it is possible to carry out video conferencing, mail conferences, types of distance learning.

As a global experience in the implementation of public education institutional integration management and its development in terms of security, today Information Security is based on several methodologies of risk analysis and management CRAMM, FRAP, RiskWatch, NIST SP 800-30, OCTAVE, Microsoft Security Assessment Tool (MSAT), GRIF, CORAS. The methods used in these software tools can be divided into methods such as qualitative assessment, quantitative assessment, and mixed assessment, depending on the form of risk assessment. Below are the main tasks and shortcomings of this software, so we considered the following steps of NIST SP 800-30, developed by the US National Institute of Standards and Technology, one of the most developed countries in the world, as one of the top steps in security, and they include:

➢ description of system characteristics;

➢ identification of threats;

➢ vulnerability identification;

➢ analysis of protection measures;

➢ probability determination;

➢ risk identification;

➢ suggest protective measures;

➢ document the results.

The study of information security threats is the study of actions and events that may adversely affect the data processing system. Due to the continuous development of information and communication

technologies, the increase in the volume of confidential information and changes in the goals and attitudes of mankind to information lead to new types of attacks. This, in turn, makes it difficult to build a single model of threats to information. Threats to any information system, including public education information systems, are described according to their source, purpose, signs and characteristics.
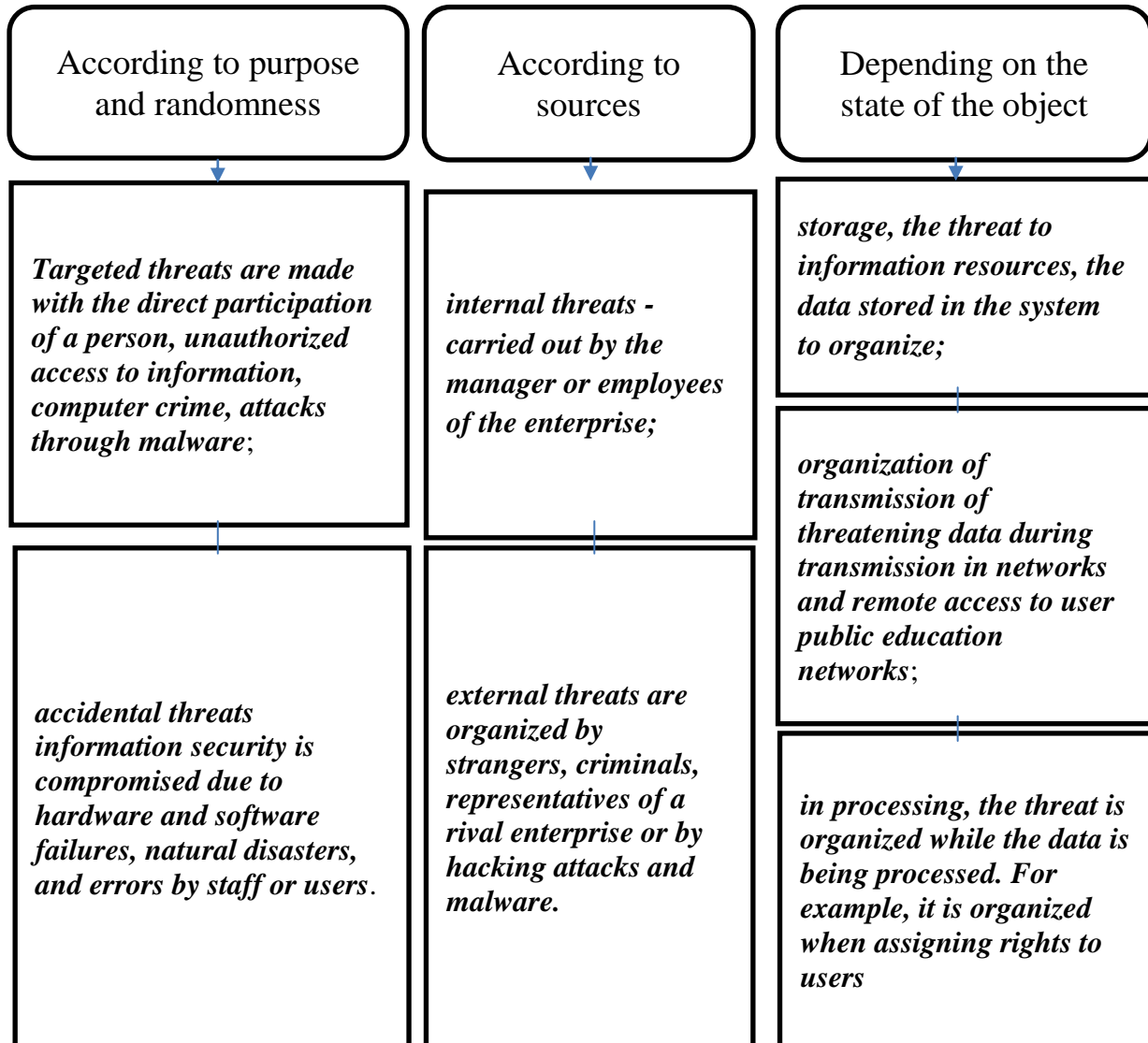
Figure 4. **Signs and characteristics of threats to the public education information system**.

As a result of the consequences of such threats, the confidentiality of the information being protected is compromised. That is, in exchange for reading and copying information, its content was exposed. Not only the confidentiality of the protected information, but also its integrity is compromised by the destruction of the information.

In a threat to the components of an information system, information resources are destroyed. The information infrastructure is disrupted and the structure of the information system is changed illegally. The software is damaged or refuses to service. As a result, copyright is acquired. When the confidentiality of information is violated, its content will be disclosed to parties who are not allowed to use it. This happens by gaining access to the system or network where confidential information is stored.

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