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ORGANIZATION OF SCIENTIFIC AND RESEARCH PROCESSES BASED ON INFORMATION AND DIGITAL TECHNOLOGIES IN HIGHER EDUCATION

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Abstract: In this article, the ways of using digital technologies, the stages of their implementation, and the analysis of the results are highlighted. This work recommends what to pay attention to when monitoring and evaluating research, as well as the sequence of organizing and conducting research in higher education.

Keywords: Scientific research, digital technologies, platforms, international cooperation, data analysis, result, problem, process, automation, monitoring.

Introduction. Digital technologies play an important role in increasing the efficiency of scientific research, accelerating it, and strengthening international cooperation. Modern scientific research processes are closely related to digital platforms and tools. In organizing these processes, digital technologies not only facilitate the work of researchers, but also enable the rapid introduction of innovations, information exchange, and cooperation [1,2]. Let us consider the main aspects of organizing scientific research processes based on digital technologies.

Using digital platforms in organizing scientific research

• Digital platforms and databases: It is important to use digital platforms to collect, store, analyze, and distribute data in scientific research processes. In the fields of education and research, MAXQDA, EndNote, Zotero, Mendeley, and other programs focused on data management and analysis help increase the efficiency of scientific work.

• Data sharing and collaboration platforms: Platforms such as Google Drive, Dropbox, OneDrive, ResearchGate allow researchers to share information and collaborate in social scientific networks. These platforms help to coordinate and monitor the work of researchers in a centralized manner.

Use of data analytics and artificial intelligence (AI) technologies

• Data analysis: With the help of digital technologies and artificial intelligence (AI), it is possible to analyze large volumes of data quickly and efficiently. For example, machine learning, neural networks and data visualization technologies help researchers to interpret data accurately and correctly. This is important for identifying specific issues and trends.

• Artificial intelligence-based models: Models built on AI are widely used in modern scientific research to analyze complex systems, extract new knowledge from data and make predictions. Artificial intelligence increases the speed and accuracy of research.

Data protection and security through digital means:

• Data security: Digital technologies play an important role in ensuring the security of data used in scientific research. Security protocols and technologies (e.g. SSL, VPN, encryption) that are used to store, encrypt, and transfer data help protect the work of researchers.

• Legal issues and intellectual property: Implementing systems based on digital legal protection in scientific research processes helps protect the work and research of researchers in accordance with the law. Intellectual Property Management (IPM) and Digital Rights Management (DRM) technologies are useful in ensuring the legal security of scientific work.

Research Process Automation

• Research Process Automation: Automating time-consuming, repetitive tasks in research is essential for achieving accurate and fast results. Through automation, researchers can focus only on important decisions and results. For example, automatic data collection, identification, analysis of experimental results, and report generation can be automated.

• Digital Research Project Management: Implementing digital project management tools (e.g., Jira, Trello, Asana) can increase research efficiency and allow projects to be organized according to specific plans.

Collaboration and dissemination of results through social science networks

• Social networks and science blogs: Dissemination of research results through social media and science blogs helps to publicize the work of researchers and teams. Platforms and networks such as ResearchGate, Academia.edu, and LinkedIn are used to disseminate scientific results to a wide audience.

• Publishing articles and works on online platforms: Distributing research results through Open Access platforms, such as arXiv, SSRN, and BioRxiv, helps to attract the attention of the scientific and academic community.

Digital experience centers and laboratories for scientific research

• Digital experience centers: The creation of digital laboratories and experience centers for research projects is important in introducing modern digital tools for scientific research. These centers will be designed to conduct digital education and research in new areas of science, such as bioengineering, molecular biology, physics, or geoinformatics.

The introduction of digital technologies in the organization of scientific research processes offers researchers great opportunities. Digital platforms, artificial intelligence, data analysis, and automation technologies increase the efficiency of research, encourage collaboration, and help to disseminate research results to a wide audience. All these processes serve to raise scientific research to a higher level and adapt it to modern requirements.

Scientific collaboration and results dissemination platforms

ResearchGate is a social network for the scientific community for discussions, articles, exchange of experiences and dissemination of results. Publication of scientific research results, communication with the scientific community. The opportunity to collaborate with international researchers and highlight scientific research.

ORCID is a personal identifier for researchers, which helps to organize their scientific work and results in a targeted manner. Monitoring and scheduling scientific activities and results allows managers and researchers to effectively manage activities and systematically describe results.

Digital tools and platforms ensure the effective work of management personnel, are of great importance in providing them with the necessary information, data, resources and commutative tools in organizing and managing scientific research. Digital technologies provide managers with the opportunity to effectively manage projects and processes, make strategic decisions and collaborate with researchers.

Analysis of the results obtained in the study.

When research results are obtained, it is important to analyze them accurately, understand the scientific and practical significance of the results, and determine their application [3,4,5]. Analysis of research results helps to better assess the main directions and details of the data obtained at each stage and stage of the research. In this section, the research results are analyzed and their scientific and practical application is discussed.

Research results should be aimed at finding solutions to the research goal, developments, and scientific problems. These results can provide new knowledge, experiences, or useful decisions for young researchers in the field of research. Research results can mainly consist of the following areas:

1. Solving scientific problems: The concept of scientific and research collaborations in the context of digitalization and new indicators of their effectiveness.

2. Improving research methods: Effective management of the research process through modern platforms, digital technologies, and working methods.

3. The role of management and leadership: To identify the role of leadership and develop their digital skills for effective management of scientific and research processes.

The new knowledge obtained in the study will help to deepen the concepts, theoretical and practical knowledge in the scientific field. For example, the scientific aspects of digitalization, their impact on educational and research processes.

Indicators and algorithms will help to create new algorithms and indicators in scientific research, monitor and analyze their changes. Innovations, in turn, will allow to improve scientific activities through digital technologies and platforms.

Making new decisions based on the results of research work will help to implement the results of scientific research into practical life in the process of digitization, improve the decision-making system, increase the efficiency of collaboration, and strengthen the opportunities for qualified leaders and scientific and practical work among collaborations.

Monitoring and evaluation of research results

To effectively analyze the results of work, clear mechanisms for evaluating the results are required. In addition, regular monitoring of the results will help to increase the efficiency of the research process and ensure the accuracy of strategic decisions in the future.

Data collection and analysis: Objective and impartial analysis of the data obtained during the data collection process. Evaluation of each result according to established indicators.

Technical and statistical evaluation of results: Determining the reliability of scientific results through statistical analysis. For example, checking the effectiveness of the results using programs such as SPSS or Tableau.

Digital data monitoring: Identifying changes in results through digital platforms and online systems.

Public communication and dissemination of research results

Communicating research results to the public, science and business communities is important. This is necessary for the useful implementation of the results and their correct application.

Data dissemination: Publish research results on online platforms of researchers, universities and scientific communities. Publicize the results through articles, conferences and seminars.

Public relations: Communicating the results to the general public, their production and ensuring the specific application of the research in practice.

Dissemination of scientific results in the form of recommendations: Providing practical recommendations and directions based on the results, presenting them to government bodies, educational institutions and the private sector.

Effective application of research results.

In order for research results to be effectively applied, they must be applied in practice. For this, it is necessary to develop clear mechanisms and methods for applying the results.

- Application of digital technologies in production: Making effective decisions through digital technologies in production and education.
- Application of scientific results in strategic decision-making: Developing strategies based on research results and implementing them.
- Development of digital platforms and methods: Developing new digital platforms and methods based on research results.

Analysis of research results and their application determine the social and scientific significance of research. Effective evaluation and application of research results in practice helps to develop science by showing changes in the scientific and practical sphere. In addition, the dissemination of results across sectors and areas contributes to their widespread dissemination and use.

A number of practical recommendations can be given to effectively manage research collaborations in higher education institutions and get the most out of them.

These recommendations will help improve the activities and scientific research of educational institutions in the process of digitization.

In order to develop the digital skills of students and professors, it is necessary, first of all, to organize special courses, trainings and workshops to form the digital skills of students and professors of higher education institutions. In this regard:

- Teaching skills in using digital education and research platforms.
- Organizing trainings for professors and teachers on the use of modern digital resources.
- Teaching students to effectively use digital tools for research work.

To strengthen scientific and research collaborations, higher education institutions should try to organize more scientific and research collaborations. This will help to increase the effectiveness of collaborations, develop new research projects and implement research results in practice.

To do this, it is necessary to take into account the following:

- Encouraging individual and international collaborations and effectively organizing collaborations.
- Organizing seminars, conferences and symposiums in the field of higher education and research among educational institutions.
- Implementing practice-oriented projects between universities and research centers.

It is important to introduce digital platforms and research tools in higher education institutions. These platforms help to effectively manage collaboration and collect and analyze research results. To do this, it is advisable to organize the use of modern digital platforms for scientific research (for example, Google Scholar, ResearchGate), introduce online platforms for students and teachers to discuss, share information and effectively conduct collective research, ensure data security and monitor their reliability.

In research collaborations, it is important to communicate and disseminate scientific results to the public. This will contribute to the application and development of the results, and the following steps will show the results of efficiency:

- Disseminating scientific results through online platforms and publishing in scientific journals.
- Organizing scientific and practical conferences to present the research results of the participants to the general public.
- Highlighting the usefulness and application of scientific results and sharing these results with the local and international business sectors.

In order to expand project financing opportunities for digitalization-based scientific research, higher education institutions should pay attention to increasing project financing and attracting grants that support the digitalization process.

- Attracting grants and financial assistance for research projects of participating organizations,
- Searching for foreign and domestic funding sources for digital projects,

- Using the university's internal financial resources to finance projects is of great importance in achieving these results.

Implementation of research results and cooperation with the corporate sector

Higher education institutions can increase the effectiveness of research by implementing research results and establishing cooperation with the corporate sector. To this end, higher education institutions should pay attention to the following:

- Developing cooperation relations with corporate sectors in the field of production and innovation.
- Developing cooperation agreements between universities and corporations to apply scientific results in production.
- Applying research results between universities and companies to production processes.

Focusing on digital and applied research

Higher education institutions should focus their research on digital and applied developments.

This will involve introducing digital technologies into the research process and using them effectively, coordinating research with applied directions, and ensuring the application of this research in the corporate sector.

Practical recommendations for higher education institutions will help to effectively organize the process of digitization of research and education. Digital technologies and platform tools contribute to improving research activities in higher education institutions, implementing research results in practice, and developing higher education in accordance with international standards.

Research collaborations have a significant impact on the development and socio-economic progress of higher education institutions. There are a number of important areas to make these collaborations more effective and promising. These areas include digitization of research and education, transdisciplinary collaboration, strengthening international ties, and the use of new technologies.

Conclusion. Development of digital technologies and platforms

To effectively organize and use collaborations, modern digital technologies and platforms should be introduced. This will increase the speed and efficiency of collaboration.

Steps:

- Develop new digital platforms, use them to conduct joint scientific research, exchange data and facilitate cooperation.
- Create innovative digital indicators and online platforms for international scientific and technical research.
- Integrate digital recording and data storage platforms.
- Encourage transdisciplinary and multidisciplinary research

To increase the effectiveness of collaborations, it is important to unite researchers from different fields and encourage transdisciplinary research.

Steps:

- Organize collaborations in transdisciplinary areas such as bioinformatics, artificial intelligence, nanotechnology and environmental research.

- Cooperate between specialists in fields such as defense, medicine, education and economics.

- Implementation of multidisciplinary projects through innovative partnerships.

Strengthening international cooperation

It is necessary to further strengthen international relations and support global research collaborations. This will have a positive impact on the quality of academic and research.

Steps:

- Develop new cooperation projects with international universities, research centers and scientific organizations.

- Organize international conferences, symposia and research studies.

- Implement research projects by applying for international grants and funding sources.

Cooperation with innovations and startups

Higher education institutions should strive to work in partnership with innovation and startup initiatives. This research can help production and the economy.

Steps:

- Involve students, faculty and researchers in cooperation with innovation projects and startups.

- Encourage innovative cooperation between universities and the business sector.

- Establish technology parks and incubators at the university to implement innovative projects.

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