Digital Transformation of Education as Overcoming the Global Digital Inequality within the Framework of Sustainable Development of Civilization

A. V. Chelovechkova [a], Yu. V. Adamenko [b] and A. A. Medvedev [c]

Institute of Mathematics and Intelligent Systems, Kurgan State University,
63, Sovetskaya st., building 4, Kurgan, Russia

Keywords: Digital University, Information Technology, Roadmap, Educational Process, Strategy, Development, Digital Transformation.

Abstract: By the end of 2023, all state universities want to introduce elements of a digital university. Projects related to the Internet are becoming more and more relevant. Over the past 20 years, the field of information technology has become very popular in all areas, which has made it an independent industry. Recently, the attention of manufacturing companies and information technology has been focused on university education. Therefore, universities are beginning to shape their digital strategies to meet the needs of expanding learning formats. In particular, it is proposed to use "road maps" to assess the performance indicators of universities. The analysis of the materials presented by such a map should help in identifying the identification of problems in the work of individual areas within the university and increase the performance of universities. The correct use of digital technologies in educational activities is an increase in the rating and attractiveness of applicants of any educational institution. Increasing the rating leads to an improvement in the university's performance, the possibility of developing promising projects and improving the quality of educational services.

1 INTRODUCTION

In recent years, the education sector has been increasingly undergoing significant changes due to the spread of digital technologies. More and more non-profit and commercial organizations are setting new trends in the field of implementation in research activities as an integral part of the educational process. Therefore, public universities are increasingly having to think about digital transformation. The question of creating campuses and laboratories and translating scientific activities into virtual reality is becoming more and more acute. Countless innovative business models are emerging. Completely new industries emerge, while old ones disappear. The nature of the educational process itself is changing. Universities compete for students, faculty, funding. In addition, traditional technical means used in the educational process are being replaced by digital analogs. And each university understands that only by keeping pace with the times and using new digital opportunities, it will be competitive and will have a significant advantage in the new era.

2 RESEARCH METHODOLOGY

Regardless of which strategy is chosen by the university, everyone must go through a number of significant changes, including digital transformation and the introduction of processes that optimize the change in the construction of the educational process (Manikovskaya, 2019). This becomes possible when building a new learning model. Its peculiarity lies in the use of a digital trail of students. But when developing digital strategies, not everyone, unfortunately, has enough aspiration and

[a] https://orcid.org/0000-0003-0236-9402
[b] https://orcid.org/0000-0003-4409-1963
[c] https://orcid.org/0000-0003-2810-0866

opportunities to effectively understand digitalization. As a result, the invested funds do not produce results and the expected benefits. The biggest mistake that universities do not want to notice and recognize is that digital strategies for the development of one area, for example, a technical one, are not enough. It is necessary that IT technologies fully cover all the activities of the university, all areas in which it works (Chelovechkova et al., 2020). This is due to a number of factors.

First, given the globalization of the struggle for students, universities must understand the need to go international. The introduction of new technologies, readiness for changes in the educational system will determine the competitiveness of universities. For the regions, the personnel problem remains especially acute, the lack of readiness of teachers to introduce high technologies into their professional activities.

Secondly, all students of the new generation are inclined to use new digital technologies in everyday life. IT-technologies are used by them not only in professional activities, but also for constant communication, as well as a means to keep abreast of all the news and events taking place in society. Therefore, digitalization will make the university more understandable, more interesting to attract students. Modern students are more inclined towards visual perception of information. The traditional format of education no longer meets their needs, it is boring and uninformative. A more lively, dynamic educational process requires creative educators who are ready to promote the digital transformation of the university on the ground. The teacher must be ready for constant changes, the search for new ideas, self-realization and self-education.

Thirdly, digitalization of all processes taking place inside the university is necessary. This will increase the efficiency of interaction and work between all departments of the educational institution. This change is especially relevant for the scientific environment. With the advent of big data analysis tools, it became necessary to accumulate a digital footprint of both the students themselves and their mentors. Consequently, the teacher must learn, not only master new tools for accumulating knowledge, but also be able to interpret them correctly, be able to draw the right conclusions and make promising decisions in their activities.

The majority of universities are still unable to fully appreciate the benefits of digital technologies. Many teachers, due to their age, try to avoid using digital devices, as this puts them at a disadvantage for students. But, despite the fact that modern students cannot do without mobile devices, not everyone can correctly use them in the educational process (Butsyk, 2019).

3 RESEARCH RESULTS

Higher education institutions are faced with a difficult task - to move to digital technologies, create a digital educational environment that will help in monitoring the educational work of students. The new learning environment must be able to be used anywhere, anytime. In addition, it should be able to update, provide free search and copying of information. To do this, universities need to develop the right business model that includes a wide range of new ways of organizing work. I would like to note that there is no universal solution to this problem. Any digital project within the university must be supported at the level of all constituent units - institutes, faculties, departments. In this case, the work plan of a single unit should coincide with the general strategy of information development. It is impossible to improve IT - technologies only in the technological direction. First, it is a separately taken component of the entire digitalization process. Secondly, the level of applicants entering technical specialties is currently low, since there is a problem of preparing students in the field of physics, computer science, mathematics (Chelovechkova et al., 2020; Nikiforova et al., 2017). It is necessary that all parties - the administration of the university, the scientific and pedagogical staff, the students were stimulated to introduce and use digital technologies (Boronenko et al., 2019).

4 DISCUSSION OF THE RESULTS

The development of any project in recent years is recommended to start with the preparation of a roadmap, which should help in identifying the strengths and weaknesses of the university. We want to present one of the simplest versions of such a map, which considers one of the most urgent tasks – attracting students.

One of the main goals of universities at the present time is to attract applicants. These are potential consumers of educational services, which play an important role in building a strategy for the development and work of the university. Informing becomes the main stage in the phase of achieving the set goal. Communication allows you to explore options for exam preparation courses. In the process

of searching for information on courses, information is also viewed about the directions of work of the university, specialties that are offered by universities for education. In this case, the applicant must be motivated to obtain higher education. And for this he needs to understand how the training scheme and the education scheme work. The future student at this stage of his work should not be scared by the questions: what would I like to do, what universities can offer me, whether I can get the necessary knowledge for mastering information technologies, which are necessary not only for study, but also for the future profession.

When the questions are formulated, you need to get answers to them. And then the applicant must proceed to the second stage in the goal setting phase - research. At this stage, the final criteria for choosing an applicant are determined. He will be able to draw conclusions for himself on the preparation for exams, find interesting proposals for choosing his future specialty. In addition to receiving education, within the framework of additional programs, you can take various kinds of practices, retraining courses to improve your skills in the acquired profession. This is especially relevant now, when the rapid development of information technology dictates its conditions in improving the skills of information systems.

The next step is to reduce the choice of training programs. Currently, according to the new requirements, from 2021, an applicant can apply to a university by choosing five areas of training, and only one of them should become a priority in choosing a future specialty. This will be a program that will allow you to study in an area of interest, which should be promising, interesting, and highly paid in the future (Shinde and Prasad, 2019). And, of course, the most satisfying all the needs of the student. A prerequisite for training is a highly qualified teaching staff, with experience in the direction. The availability of a modern material and technical base will also be important.

The final stage in goal setting will be the adoption of the final decision and execution of all the necessary documents for admission to the university.

In order for this process of defining the training program to become understandable, accessible and open, it is necessary that all information on the university website is timely updated and up-to-date. In addition, good feedback is needed so that applicants can receive timely answers to all questions that arise.

Social networks also play an important role in making a decision by a future student. This is convenient because students spend a lot of time communicating in various groups. But here it should be remembered that information in the networks does not always carry a positive assessment of the activities of an educational institution. Therefore, there is a possibility of loss of students for universities.

It is a big misconception to think that digital transformation is something that can only be associated with digital technologies. This cannot be denied, but technology in this case will play only one role. Acquiring new platforms for the digitalization of institutions, universities are not always aware of the possibility of their widespread application and use in the university. Such spontaneous decisions may not always give the expected results.

For the benefits of digital technology to be tangible, it is necessary to invest not only in the education of students and the work of the faculty, but also to constantly update the platforms for potential students - applicants. For this, it is simply necessary that all programmatic changes would be clear and understandable in a common vision. Then they will not be uncompetitive in the rapidly changing digital environment. Universities must provide digital learning on an ongoing basis. Starting from the moment of admission, with the subsequent monitoring of their work, so that they, too, could be participants in the digital transformation process.

At the same time, any management should be able to listen and, of course, perceive the criticism adequately from our direct consumers of services - applicants and, subsequently, students. You can not neglect any information that can help in the analysis of the activities of the university. To do this, you can conduct regular polls in various social networks. But not everyone knows how to properly use social media, without the necessary support, in the interests of the university. Many are wary of private spaces, as students may leave negative comments there. But this is also a certain experience and result. Currently, many educational institutions use the positive impact of various groups on potential consumers of educational services - applicants, who can rely on the feedback of university graduates and students. In a social group, it is much easier to keep everyone updated on the latest information. Since the attendance of such groups is several times higher than the attendance of the websites of universities. Everyone should have their own strategic approaches to such issues. But expanding the boundaries of communication should have a positive effect on the introduction of new digital technologies.

In order to help the applicant in the research, to reduce the choice, and subsequently to make the final

decision, the university needs to perform many different functions, present and adhere strictly to its strategy, which would greatly distinguish it from competitors. A clear balance is needed, realizing that today's students are very different from those that were before. They have their own requirements, their own concepts, their own expectations. And to all this, modern higher education institutions must correspond as providers of educational services. Having tremendous opportunities, thanks to digital interaction, we also have huge problems, since everything changes - the conditions for information, training, interaction, payment. The digitalization process is different for each university. With the help of our map, we wanted to highlight a number of common problems, which, as a rule, are leaders in the issue under discussion.

First, the map should clearly reflect all the information that could be easily found, and provide answers to the questions: what to study and where to go. These materials are reflected on the websites of the university and in social groups. All materials must be fully consistent with the study of goals and "pain" of our main segment of the client base - school applicants.

Secondly, the maximum impact of the work of social groups is needed. What is needed is a simplified registration system for sites and a well-defined feedback. At the initial stages of the search, the prospective student should be able to track the process of interaction work in order to make a positive decision in favor of choosing this university.

Thirdly, any site, any social group should strengthen the image of the university. To do this, you can use corporate identity, present the university's rating in holding various kinds of conferences, events, not only internal, but also external scale, acquaint with talented people, graduates of this university. It is necessary that at the stage of identification, the future student sees the potential of the highly qualified staff of the university.

The digitalization process is a set of activities carried out to achieve a high level of transformation of a university into a digital university. It is necessary that a single information space be organized, the collection of up-to-date data reflecting the state of the university's activities is established, there was an opportunity to evaluate the services and services offered by the educational organization. This will help tracking new trends and directions in the development of information systems, considering new opportunities for their use in the work of the university. The policy of stimulating the payment of teachers and students should be reviewed, especially

when developing and implementing new projects. The use of digital communication channels to attract international students, especially through social networks, should not be neglected. The International relations department can help the university with this, for the correct translation and presentation of the necessary information. The marketing department should fully interact with potential students, students, graduates, and scientists and use monitoring to clearly determine the image of the university in the educational services market (Minina and Mabruk, 2019). This will help the university to develop a clear strategy to attract consumers-applicants.

5 CONCLUSIONS

As much as we would like to, but digital reality is increasingly entering our life. Every day we work with a mobile device, communicate on social networks, use various programs in the field of computing, payment, providing all kinds of services without leaving their home, it is more and more difficult for us to do without new geolocation data. The list could be continued. And all this changes the horizons of higher education, having a direct impact on it.

The transition of universities to a new era of digitalization scares not only consumers of educational services, but also universities themselves. Each university must understand that when developing the right business strategy, a lot of new and interesting opportunities open up for it. There is no single way to achieve results using digital technologies. Each university will have its own development path. To do this, you will have to try out many ways of working with new information systems before deciding on the right strategy and personality. It may be necessary to rethink the stated goals in training, improve modern standards in accordance with the requirements of the new information environment, and move away from the usual form of working with work programs. And it depends only on ourselves how correctly we will be able to take advantage of all the benefits that the new digital era gives us.

REFERENCES

Baumeol, U. and Boksheker, A. (2017). Evolutionary Changes in Higher Education Driven by Digitalization. *16th International Conference on Information Technology-Based Higher Education and Learning.*

Boronenko, T., Kaisina, A. and Fedotova, V. (2019). Development of digital literacy of schoolchildren in the context of creating a digital educational environment. *Scientific journal*.

Butsyk, S. (2019). Digital" generation in the educational system of the Russian region: problems and solutions. *Scientific journal*.

Chelovechkova, A., Polyakova, E., Tetyusheva, S., Sidorova, O. and Dick, D. (2020). Problems and prospects of modernization of higher education based on the implementation of professional standards in the field of information technology, *Materials of the International Scientific Conference "Far East"*.

Makarova, I., Boyko, A., Giniyatullin, I., Pashkevich, A., and Mukhametdinov, E. (2020). Changes in Engineering Education in the Transition to a Digital Society. *21st International Conference on Control in the Carpathians*.

Manikovskaya, M. (2019). Digitalization of education: challenges to traditional norms and principles of morality. *Scientific journal*.

Minina, A. and Mabruk, K. (2019). Transformation of the University Communication Strategy in the Context of Digitalization. *Workshop on Communication Strategies in a Digital Society*.

Nikiforova, T., Polyakova, E., Chelovechkova, A., Zmyzgova, T. and Dmitrieva, O. (2017). Development of an educational web resource as an example of the development of professional competencies of a future engineer. *Materials of the III All-Russian Scientific and Practical Conference*.

Serditova, N. and Belotserkovsky, A. Education, quality and digital transformation. *Scientific journal*.

Shinde, D. and Prasad, R. (2019). Digital Transformation in Technical Education. *22nd International Symposium on Wireless Personal Multimedia Communication*.