

# Digital Transformation Applications in Higher Education in COVID-19 Pandemic Process<sup>1</sup>

Mustafa KOCAĞLU<sup>1\*</sup>, Hikmet Salahaddin GEZİCİ<sup>2</sup>

<sup>1</sup> Necmettin Erbakan University, Konya / Turkey

<sup>2</sup> Şirnak University, Şirnak / Turkey

\*Necmettin Erbakan University Köyceğiz Yerleşkesi, Köyceğiz Mh. Demeç. Sk. No:42/3 Faculty of Applied Sciences, Management Information Systems Meram/Konya, kocaoglumustafa@gmail.com

## ABSTRACT

Throughout history, human beings feel the need to make some classifications, depending on some important developments that they regard as turning points. The classification on hunter-gatherer (Primitive), agriculture, industry, and information society is always a result of this approach. The information age and the information society emerging related to it exist on a very different ground than the previous ones. Nowadays, almost every phase of human life comes under the influence of digitalization that becomes evident with the development of technology. Therefore, the fact that should be emphasized and paid attention first is ‘digital transformation’. It is stated that a multi-directional change and accordingly transformation start with the digital transformation process, not only individually but also organizationally.

With the COVID-19 pandemic process, institutions of higher education also feel the need to adapt themselves to digital transformation more quickly. With the pandemic, higher education institutions are now shaping all their managerial processes, their relations with internal and external stakeholders with the effects of digital transformation. It is envisaged a holistic transformation of human, business processes, and technological elements within the framework of changing social needs from the opportunities offered by information and communication technologies for the organization to function more effectively and efficiently.

By the COVID-19 pandemic, the versatile effects digital transformation in worldwide influence Turkey at the same direction and intensity. The efforts to keep up with the pace of digital transformation in higher education, as in many other fields, have been increasing recently. The universities that are seen as the actual application platform of digital transformation among the primary institutions in Turkey make a point of taking action without departing from goals of digital transformation and in accordance with the spirit of these objectives while conducting basic activities. As a matter of fact, the Council of Higher Education has started to implement the Digital Transformation Project in Higher Education and has shown the importance given to digital transformation at higher education level.

In this study, a conceptual framework for the concept of digital transformation is drawn firstly. After discussing digital transformation conceptually and theoretically, it is focused on the subject of digital transformation in higher education that gains importance by the effect of the COVID-19 pandemic. Finally, it is shortly mentioned the work done in this field in Turkey and discussed the Digital Transformation Project in Higher Education in detail. Therefore, on the one hand, the current situation is evaluated regarding the project in question and on the other hand, it is made future projections on the subject.

## Keywords

CHE/YÖK, Digital Transformation, the Digital Transformation Project in Higher Education, the COVID-19 Pandemic, University.

<sup>1</sup> This study was presented at the 17th International Public Administration Forum (KAY-FOR 17) organized in Karaman on 24-26 October 2019 and published in the proceedings book with the name “the Digital Transformation Project in Higher Education as a Digital Transformation Application”. This study is its revised and developed version.

## Introduction

The most important developments shaping the history of humanity and the basic determinants of these developments have always been directly related to human needs. On the basis of these needs, there is a motivation of human to reach the being better by improving himself. For example; the realization of the acquired knowledge and skills played an important role for the transition from the primitive periods -expressed as hunter/gatherer- to the agricultural society. In the transition from the agricultural society to the industrial society, it is seen that a technological invention, such as the invention of the steam engine, became a turning point. Therefore, it is understood that technological developments were determinative in this period, and many technological developments of which effects are still continuing emerged in this time. These characteristics of the industrial age brought along the developments that increased the importance of knowledge, and a period of more knowledge production and consumption has started by this way.

The development of technology causes some inevitable developments to occur in all aspects of the world. The advancement of the internet technology and its intensive use by very large masses begin to deeply affect not only the individual but also the organizations. It is clearly seen that there are some developments in the same direction and even more intense in business life, while the variables that determine social life influence daily life to the finest detail. Every

organization that survives and maintains administrative processes, regardless of differentiation of public and/or private sector, is more or less affected by this transformation. Thus, organizations have to change their business practices. In this context, it is becoming a necessity for institutions to change the interaction process with the target audience and the way they produce goods and services.

This situation of change and transformation occurring with the development of technology is called “digital transformation”. Thus, institutions have to operate in a knowledge-based and intense competitive environment. For this reason, they make an intense effort to improve their managerial understanding and to determine new policies and strategies for digital transformation. The issues that have now become an absolute necessity for organizations are ‘building new digital business models in order to adapt to digital transformation’, ‘developing digital corporate strategies’, and ‘adapting the corporate culture to digital transformation’.

One of the areas where the digital transformation process manifests itself most clearly is higher education. In an environment where information is the main element, it does not seem possible that issues such as the acquisition, processing, and use of information remain unchanged. In this context, it is seen that universities that are higher education institution are obliged to use all components of digital transformation to keep up with the developing technology. Turkey has not been indifferent to it. In parallel with this trend in the

world, it is understood that an important step has been taken in this regard with the “Digital Transformation Project in Higher Education”, which was put forward by the Council of Higher Education and is still being implemented as a pilot in some universities.

In this study, digital transformation is examined theoretically and conceptually first of all, and a conceptual framework is drawn. Then, “digital transformation in higher education” is handled in a historical process by using various examples and numerical data from different countries. Finally, it is touched on digital transformation applications in the higher education of Turkey so far as well as “the Digital Transformation Project in Higher Education” is discussed in detail.

### **Digital Transformation: A Conceptual Framework**

With the advent of the first computers, it is seen that the process revealing digital transformation started. Although this process emerged with the 1960s, the development that really increased the speed of digital transformation is the rapid use of the internet by large masses and intensely. With this technology, which has a history of about 30 years and is called the “world wide web”, a way for a great, rapid, and versatile change has been opened in human life (Gil-Garcia & Dawes, 2007: 231). Especially since the 1990s, “digital” has not only been related to machines but also to people. People are almost encouraged to be “digital” every day. In fact, human beings living in a physical world surrounded by material things are

now expected to be ready to live in a world expressed by binary codes. The continuation of such a life shows that the objects made of atoms will be replaced by bits, the smallest unit of information (Varanini, 2018: 13).

Many institutions and individuals try to fully define and discuss the concept of digital transformation. First of all, it is understood that digital transformation consists of constructive innovations based on Information and Communication Technology (ICT) (Zinder & Yunatova, 2016: 155); the latest technologies are changing the daily work of modern organizations at every level and way as soon as possible (Kokkinakos, Markaki, Koussouris & Psarras, 2016: 96). Digital transformation is “the process of using digital technologies to build or change new and/or existing operational processes and culture to fulfill the almost instantly changing needs of individuals, institutions, and society” (Öztemel, 2018). The process of reconstructing all the processes related to the requirements of this era, which we stand by, can be expressed as ‘digital transformation’. In other words, digital transformation refers to “the rethinking and radical redesign of systems and processes in order to improve business performance, service quality, and capacity utilization in a noticeable way through the effective and intelligent application of management skills through modern information and communication technology” (Kocaoğlu & Gezici, 2017: 243).

Organizations have been equally affected by digital transformation and ensured that data are

processed through information technologies and accordingly processes are automated and become more effective and efficient. Thus, almost all organizations operating in different sectors have been affected by it. In this context, organizations from all sectors have had to transform their relations with both internal and external stakeholders in terms of content and formation. With the emergence of different communication and interaction processes, the change in organizational processes have brought about a change in social terms over time. It is seen that this process, which has all these versatile and profound effects, is almost a “revolution”. After the Industrial Revolution, this period is called “digital revolution” due to its nature including information and technology (Chalons & Dufft, 2017: 13; Demuru & Katinis, 2018: 91).

By the start of the digital transformation process, it is stated that organizations have some innovations and competencies. From this aspect, the managerial elements that digital transformation has the opportunity to realize by gaining new competencies are as follows (Bongiorno, Rizzo & Vaia, 2018: 2):

- With digital transformation, managerial decisions are radically affected and shaped.
- With digital transformation, development of new products and services often is aggressively transformed.
- With digital transformation, organizations can find new focusing ways of customer

by understanding their needs in a better way.

- With digital transformation, they have the opportunity to constitute new resources and generate revenue by changing existing business processes and models.
- With digital transformation, they can change the existing industrial structure and competitive environment.
- With digital transformation, it becomes possible to increase the quality of managerial decision making.
- They can easily change their current business processes and business models.
- They can reasonably influence industry structures, customer experience, and market strategy.

With the digital transformation, the thinking styles, managerial processes, and corporate culture of organizations formed and stereotyped over many years have also been transformed in a wide range. The necessity of this transformation for institutions is due to the rapid change in information technologies (Dawes, 2008: 110-112). Digital transformation necessitates especially a paradigmatic shift regarding the nature, scope and effects of decision making in organizations, a re-design of decision-making processes within this framework, and a reconstruction of theoretical framework in this context (Bounfour, 2016: 21). Such a radical transformation requires cultural change and reconstruction of organizational structures in all systems. On the edge of the digital age, knowledge and experience that know and

guide this journey for all humanity becomes a necessary necessity. The main actors that can transfer knowledge and experience to the general public are educational institutions. Especially, higher education institutions that will be able to provide original trainings in specific areas and be the actors of the process both to raise awareness about digital transformation and to assume the role of being a subject are of great importance in this regard (Kocaoğlu & Gezici, 2017: 244).

### **Digital Transformation in the Field of Higher Education**

The most important element of the digital transformation journey from past to present has been universities and academics. The invention of computers forming the basis of digital transformation took place in universities. In the ongoing process, universities played a major role in the establishment and development of the first computer systems. On the other hand, especially in the period corresponding to the second half of the 20th century, many computer engineers and many people working and managing in the field of digitalization were trained in universities. Moreover, with the effect of university-private sector collaborations, faculty members have started to contribute to the development of information technologies and the acceleration of digital transformation in the field by going beyond the campuses (Bertrand, 2010: 106-107).

Universities revealed reservations especially in the first periods in terms of institutionally using information technologies. Some researches

observe that academicians have some difficulties for using information technologies in a professional sense and developing themselves in this way. It is understood that in almost all countries adopting digitalization, especially in the United States in the 1990s, higher education institutions are among the leading institutions of digital transformation (Cortada, 2008: 284-285). However, in the digital age where we are in a very rapid change process, higher education institutions have to keep up with this speed and take initiatives in accordance with the requirements of the era. Today, information and communication tools and also internet are extensively used in education and training processes. Therefore, a closed higher education structure is in an unacceptable situation. A higher education process in which harmony with the outside world is ensured. Additionally, new digital opportunities and possibilities are used in the most effective and efficient manner has made digital transformation an absolute necessity for universities. As a matter of fact, certain features that characterize universities come to the fore in the digital transformation process. These are “learner-centricity”, “financeability”, “lifelong realization”, “interactiveness and collaborativeness”, and “smartness and adaptableness” (Duderstadt, 2001: 69-70).

Digital transformation in higher education has also greatly changed individuals’ access to information and different learning methods. The web interfaces on the websites enable users to have access with a more flexible and horizontal



hierarchy. In this way, teaching techniques and tools in the classical sense also change, causing printed resources to fall into the second plan (Watson & Watson, 2014: 48-49). On the other hand, it is seen that traditional institutional structures have become questionable. Providing a faster information acquisition with less cost and effort increases the importance of digital platforms, and transforms a traditional understanding and practice of higher education in a multifaceted way (Davidson, Goldberg & Jones, 2009: 24-25). Another aspect of this change is that governance which is a multi-actor and participatory management approach has become a more easily applicable concept in higher education processes. Digital environments are formed in a content where administrators, academicians, civil servants, students, and parents in the higher education process can participate more easily as stakeholders (Bowen, 2013).

In the process of higher education, mass, open and online courses are offered to individuals not only by universities but also by private digital platforms. On these platforms, it is possible to access individual learning opportunities for paid or free of charge. With many digital education platforms such as Udemy, Coursera etc., individuals in higher education age can easily benefit from diversity of opportunities in an easy accessibility. All these factors force higher education institutions to an institutional and structural change and transformation. In this context, adapting to the digital transformation process that takes place at a dizzying speed has

become a necessity for higher education institutions as well (Kocaoğlu & Gezici, 2017: 245).

It is predicted that higher education institutions are to be differentiated structurally and functionally by the digital transformation process. With the increased use of information technologies and intensive digitalization, it is likely that higher education institutions will remain and function as a physical structure and a cultural center where scientists gather in the short term. Therefore, existing higher education norms can be rearranged with the expectation that online and virtual universities become widespread (Duderstadt, 2001: 71-72).

When looking at digitalization in terms of higher education specifically for students, some results emerge here. Firstly, it is clear that universities need to prepare their students for the rapidly changing and developing digital age. However, it should be made some attempts to provide them with the basic equipment that enable them to be employed in the future (Brown, 2001: 70-72). Another point is to reconsider the curricula. It is now a necessity to reconsider the current curricula, which include new developments in the world, in accordance with the digital transformation process. In order to finally adapt to digital transformation, it is of great importance for individuals to be equipped with appropriate education and training methods from an early age and to be educated in many different subjects, especially digital literacy (Balkun, 2011: 20-22; Burquel & Busch, 2018).

## **Digital Transformation in the Turkish Higher Education, the Digital Transformation Project in Higher Education and COVID 19**

Today's university students have been surrounded by technology almost from the moment they were born. The daily life and practices of this mass are shaped by the use of social media, smartphones, tablets, and internet. Digital technology deeply affects the living and learning behaviors and methods of this age group. It is widely believed that new technologies transform human life at this rapid pace greatly affects the nature of learning and literacy. There is a strong belief that digital technologies, in conjunction with other social and economic factors, have as much impact on learning and literacy in the long run as the printing press. In this framework, it is predicted that the learning style of the future will be digital (Warschauer, 2007: 41-42). Young people who grow up with computers, interactive games, internet and mobile phones are also called "Digital Natives". It is considered essential to thoroughly review pedagogy, learning psychology, and learning methods in order for young people, also known as "digital natives", to enable digital learning (Burdick & Wills 2011: 547-548).

It has become necessity for the digital transformation in higher education to begin by the "Z" generation, which is defined as digital natives; in other words, digital born, begin the university life. It is a must that this mass who has a significant share of the population in Turkey uses digital media and tools in education and teaching. As a matter of fact, the expectations and

demands of today's university students and individuals who studied at universities in the past have undergone a radical change. Young people who are skilled in using digital tools and accessing media have become a part of virtual life. All these conditions make it inevitable to produce policies for the realization of digital transformation by analyzing very well by all stakeholders in higher education. Because it is a necessity for countries which want to be strong in the digital life of the 21st century to realize digital transformation, especially in education (Parlak, 2017: 1743).

The importance and necessity of digital transformation in higher education has been better understood with the rapid spread of COVID-19 disease in the worldwide, leading a pandemic. In line with the pace of the spread of COVID-19, growing concerns about the disease, and calls to contain the virus, many educational institutions have ended face-to-face lessons. The virus has revealed a security hole in many areas of life. Because human beings are facing an unpredictable future, all societies need flexible and resilient education systems. The online learning software, which provides flexibility in question and eliminates problems that may be encountered in case of applying traditional educational approaches, offers important opportunities to all educational institutions. On the other hand, this crisis environment emerged by the global pandemic provides a test milieu for seeing the gaps of educational technologies and producing solutions in fact (Houlden & Veletsianos, 2020).

It is an important problem how higher education institutions will adapt to the digital transformation experienced all over the world and in all sectors. It seems inevitable that digitalization that can now be called the dominant actor of daily life will also shape education life (Taşkıran, 2017: 96). Higher education institutions are expected not only to digitalize but also to shape digital life and tools. Because universities are now included in our lives as institutions that not only produce knowledge but also obtain concrete outputs through R&D studies. Therefore, higher education institutions should adapt to the digital transformation trend in order to be harmony with the conditions of the changing age.

Digitalization has started in the field of education in Turkey in accordance with the requirements of the era as well as in other areas. The concept of ‘digital transformation’ recently has entered into Turkey’s agenda with a process begun with the name “The Move of National Technology and Digital Turkey” (Digital Transformation Office of the Presidency of Republic of Turkey, 2019). As a part of this process, the scope of existing digital applications to provide digital transformation in education has been further improved, and new applications have been implemented in this framework.

To take advantage of the opportunities that digitalization leads on education and to adapt to the conditions of the age, it has been developed several projects in Turkey. In this framework, various digitalization practices such as the FATİH Project (Movement of Enhancing Opportunities

and Improving Technology), E-School, EBA, and the coding trainings have been formed. 38 universities to benefit from the digital possibilities by distance education are offered many students with various educational opportunities under the Higher Education from Turkey and the surrounding countries. There are very few universities that provide opportunities for the realization of these trainings through mobile applications while distance education is carried out on the web (Bingöl 2016: 730-731).

The most visible and remarkable activities of digital transformation in the field of education are undoubtedly virtual learning platforms designed to ensure distance education. Virtual platforms allow training services in a wide variety of fields. Distance education systems offer innovative solutions that eliminate the face-to-face education constraints of traditional teaching. These new digital environments have made it possible for many people who do not allow physical access to high quality educational contents. It paves the way for the use of many modern methods in the presentation of information, and thus to achieving success in attracting the attention and interest of the young audience who it addresses. Providing information with text, audio, video, 3D, multimedia, animations, and different virtual options makes distance education attractive (Khitskov et al., 2017, p. 856).

In order to ensure digitalization in higher education, the “Digital Transformation Project in Higher Education” started to be implemented with the motto of “Digitalized CHE/YÖK”. As a part



of the Presidency Strategic Plan of Turkey, a pilot application was launched in November 2018, involving the universities of Ağrı İbrahim Çeçen, Bayburt, Iğdır, Munzur, Muş Alparslan, Siirt and Şırnak. The lecturers of these 8 universities within the project received a 6-week course named “Learning and Teaching in Higher Education in the Digital Age” in virtual platform. Through these courses, the roles expected from lecturers in the digital transformation process in higher education were defined and focused on the development of skills related to these roles. In this framework, new learning approaches and various applications, especially lectures in digital environments, were explained. 3 thousand 93 lecturers from these eight universities participated in the education process. In the spring term of the 2018-2019 Academic Year, all students of the eight universities were given the course of “Digital Literacy” with 3 ECTS (Council of Higher Education, 2019a). This project in the field of distance education in Turkey was coordinated by the CHE and executed by Anadolu University, which is one of the oldest institutions.

In July 2019, eight more universities were included in the Digital Transformation Project in Higher Education in addition to the eight universities that were previously determined. The universities of Ardahan, Artvin Çoruh, Batman, Bitlis Eren, Gümüşhane, Hakkari, Kilis 7 December, and Osmaniye Korkut Ata, which were designated as the 2nd stage within the framework of the project, also participated in these pilot universities (Council of Higher Education,

2019b). Training studies for digitalization were also carried out at the universities that were newly included in the project. Until the COVID 19 pandemic, more than 6 thousand lecturers and over 50 thousand university students have been trained in the universities that participated in the Digital Transformation Project. Face-to-face education in higher education institutions has been terminated due to the rapid spread of COVID 19 in our country. The Digital Transformation Commission in Higher Education, composed of academicians who are experts in this field in different universities, prepared The Roadmap For Distance Education Applications in the Pandemic Period, and it was finally decided by the Executive Board of CHE. With this road map prepared to prevent interruption of education during the pandemic period, a framework for distance education has been put forward. The framework legislation for distance education has been prepared on the axis of infrastructure, human resources, contents, and application areas. With the arrangements made in the legislation, all courses have been ensured to be given by distance education for one semester. It is evaluated as a serious point advantage in terms of infrastructure during the period when this study is made, because there is the UZEMs (Distance Education Application and Research Center) in the 123 universities in Turkey. The fact that a large number of lecturers and students have been trained with the Digital Transformation Project has prepared human resources for this process in fact. It is planned to provide training and to make the prepared content available for common use, if

requested for content preparation. Universities have been allowed to provide training as synchronous or asynchronous in the application of distance education. Considering the limitations of opportunities, especially in undergraduate and associate degree programs, it is predicted that the trainings are to be made asynchronously (Council of Higher Education, 2020a).

Trainings to develop digital literacy and skills related to training in digital environments constitute one of the most important parameters of digital transformation. Because digital environments containing numerous pieces and dimensions of information and offer an almost chaotic appearance make it inevitable to acquire various methods at the point of first recognition and finding information. In this context, various trainings related to digital transformation have a wide scope including technical, psychological, learning skills, and interpersonal communication. As a matter of fact, the way to keep up with the digital transformation and to carry out both public and private transactions is to have the information provided with this training (Sezgin & Karabacak, 2020: 20-21).

With the lectures given within the framework of the Digital Transformation Project, it is aimed to increase the knowledge and skills of the lecturers regarding digital platforms. The course for lecturers has a 6-week curriculum. After the weekly lectures, it is required to answer the quizzes consisting of the questions about the lecture taught in that week and to prepare a project at the end of the lecture period. Those who are

successful in these stages are entitled to receive a certificate (Siirt University, 2018). In the context of the project, digitalization is addressed in all aspects with the digital literacy course taken by undergraduate students. The courses in question were given to undergraduate students of all universities within the scope of the project over Anadolu University's e-Campus system (Munzur University, 2018).

The Distance Education Platform, which is called the 3rd Phase of the Digital Transformation Project in Higher Education and developed by Sakarya University entirely with domestic resources, was offered to the common use of 15 universities within the scope of the project. As of the fall semester of 2020-2021, 15 universities will carry out their distance education through this platform. Additionally, while the number of lecturers taking the lectures given within the scope of the project is 10725, the number of students is 61346 (Council of Higher Education, 2020b). The distance education platform formed entirely with domestic facilities by the coordination of the CHE provides a reduction in the economic cost of the distance education programs that universities separately acquires. Besides, the fact that it is completely domestic production is an incentive for domestic investments to be made in this field. Using financial resources economically and efficiently is of great importance.

### Conclusion

The rapid widespread use of digital tools to access information makes information easier to obtain.

The existence of unlimited and chaotic information in digital environments causes various difficulties in reaching the desired information. Producing or accessing information is not sufficient alone. In order to increase the value of information, it should be converted into high value-added outputs. Increasing competition in all sectors in the world, both nationally and internationally, enables those who are competent in the field of information technologies to benefit from the process. Efficient and economical use of digital opportunities and the widespread use of information technologies in all sections of society seem necessary to be a winner in competition.

The most important way to get ahead in an intense competitive environment with digital opportunities is to apply digital transformation in the most effective way. In this context, digital transformation is the conversion of digital opportunities into being available to institutions with the most concrete form. In other words, digital transformation is the process of not only all segments of society but at the same time and especially organizations to make technology a part of their lives by concrete applications. It is one of the most important factors adapting to digital transformation that organizations' managerial functions become more qualified and thus ensure the satisfaction of the target audience by providing a more effective service. Based on all these reasons, organizations are now trying to implement strategies that focus on digital transformation. In order for digital transformation-oriented strategies to be executed in real terms and

to be benefitted from that, it is of great importance that all stakeholders, especially the top-management, embrace and adopt it in coordination with other organizations.

In today's age of information, higher education institutions, main production centers of knowledge, should accept it to be a basic necessity to keep up with digital transformation. Higher education institutions should on the one hand show a realistic will to implement strategies in accordance with this acceptance and should be able to effectively carry out programs and projects within more concrete initiatives for implementation on the other hand. Higher education institutions should follow new digital possibilities and opportunities and reflect them to their business processes. Higher education institutions are expected to apply digital transformation practices in all areas to which they are directly or indirectly related, especially in education and training processes.

Turkey, according to the trends in the world on the subject of education, has been given great importance to digital transformation. In this direction, many attempts have been done at different levels and many projects have been implemented, or it's still ongoing. One of the most prominent projects among them is the "Digital Transformation Project in Higher Education", carried out by the Council of Higher Education in the field of higher education. It is observed that the size, quality, and scope of implementation practices have followed a positive development trend since 2018 when this project was launched.

It is understood that the universities, where the project was implemented, acted in accordance with the purpose of emergence and that the support and harmony of all relevant sectors, especially academic staff, is high in these universities since the beginning of the project. It is seen that the project is capable of responding to economy and efficiency concerns, especially with its latest implementations.

With the onset of the COVID 19 pandemic process and the active and intensive conduct of distance education in all universities, it is better understood how accurate these efforts are towards digital transformation. In this area, while more countries have entered into this pandemic process in unprepared way without any infrastructure and application, Turkey's adaptation this process in a very short time clearly shows its ready to every situation.

In today's world where information technologies develop extremely rapidly and digitalization makes itself felt intensely in almost all areas of life, higher education institutions are also working to adapt to this change. These studies take place in Turkey at the same speed and some projects are implemented under the leadership and maintenance of the Council of Higher Education. One of these project seen at the most important is the Digital Transformation Project in Higher Education; it is accepted enlivening digital transformation in higher education through the universities raising Turkey an important position in this area all over the world.

It is thought that the following suggestions will contribute to the success of Turkish higher education in the digitalization process:

- It should be ensured that university libraries are digitized in a way that can be accessed by all national and international interested parties. On the other hand, it would be appropriate for libraries to form an environment for real beneficiaries in the digital environment. Therefore, university libraries should ensure that their resources are transferred to the digital environment and should be a place where young people have access to digital opportunities.
- Universities acquire digital databases available to students and academicians at great costs. Instead, it would be appropriate in terms of economy, efficiency, and productivity for the Council of Higher Education or a central organization to be determined to open more comprehensive digital databases to the use of all universities.
- It will be beneficial to establish a bureau before the Council of Higher Education for the training of information technology experts requested by universities and to increase their skills suitable for digital transformation. In case of a crisis, this center may also be considered to provide support to institutions from the center.
- Students should be encouraged for digital transformation in universities

through projects and competitions, and the products to be invented in this way should be evaluated within the system under this framework.

- To establish a central distance education system for all higher education institutions will provide great benefits in terms of cost and efficiency.
- Lifelong learning has become important to respond to the change generated by digitalization in society and to survive in the competition. In this framework, lifelong education programs of universities that appeal to all sections of society should be put forward. Such programs will on the one hand transform the university into an actor looking at all segments of the society, it brings a new item to universities in terms of generating own resources on the other hand.
- Digitalization in higher education will require a system that puts students more in the center. In this context, it would be useful to build more flexible curricula towards students. Additionally, both strengthening the position of students as a subject in the system and providing opportunities in digital environments should be considered as important opportunities for the transformation of university managerial mentality into good governance.
- Transformation of distance education spreading rapidly in higher education into

a formation that are accessible via smart phones will facilitate students' learning processes.

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