

AN INNOVATIVE APPROACH FOR HIGHER EDUCATION

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ABSTRACT

Purpose- The purpose of this study is to reflect the position of higher education institutions facing to adapt their strategies to the competitive priorities of the digital transformation era. This paper intends to clarify the new needs and demands of the prospective college students and the required response of universities to stay competitive in the new atmosphere. For this reason, this paper advocates “An Innovative Approach for Higher Education” model for the contemporary university of the new age.

Methodology- The study employs a literature review aiming to reflect the new needs and conditions in the higher education system based on selected topics. A comparative analysis of the needs of higher education institutions against the demands of college students and employers of the world of 2020s was considered. The aim was to analyze the required actions of the universities in the competitive environment concerning demands of the prospective college students including non-educational services and examine the potential for a model of An Innovative Approach for Higher Education.

Findings- The analysis reveals that higher education institutions should adapt themselves to the expectations of new student generations and design their strategies accordingly. Notably, it is clearly seen that the universities have not only be digitalized in their conventional non-educational services but also be ready to supply the demands and conditions of the competition in the digital transformation era. As a matter of the fact, over the Covid-19 crisis most universities keep increasing the use of hybrid model in all disciplines in their education system forced by the market demand. Furthermore, new concepts like industry 5.0 and Society 5.0 provide a basis for the University 5.0 model in parallel to the expectations of the new student generations. Under these circumstances, the results reveal that contemporary universities of this age should concentrate on such topics as understanding Generation Z’s perspective on embracing digital technologies, academic excellence, effective digital transformation in non-educational services and supplying employers’ demands to build a model of An Innovative Approach for Higher Education.

Conclusion- Findings may be concluded that students of digital age extend minor interest in conventional non-educational facilities. Indeed, their priorities have changed in parallel to technological advantages of digital transformation era and their value expectation from undergraduate education towards their career. As a matter of fact, the Covid-19 period brought a serious momentum towards a digital transformation of universities. For this reason, it may be argued that there may be no need for usual conventional non-educational components, and related elements for higher education in the near future. Instead, a significant need for a clear perception to meet the expectations of college students and prospected employers reflecting the new conditions of 21st Century is valid. For this reason, universities should rethink and redesign their structures. Indeed, blended learning in traditional universities and inevitable growth of digital higher education institutions named as University 5.0 will be seen after 2030s.

Keywords: Higher education, digital universities, conventional non-educational services, generations Z and Alpha, University 5.0

JEL Codes: A20, I23, M10

1. INTRODUCTION

In the era of digital transformation there are new norms and values in the higher education. Specifically, conventional non-educational services do not comply with the understanding of the new environment. In today’s world, digital storm has already impacted higher education due to constant technological innovations. Software world has spread digital transformation age to all parts of our life. The new actors have appeared as artificial intelligence (AI), virtual reality (VR), augmented reality (AR), mixed reality (MR) and so on. Besides, higher education institutions have not only to fulfill the increasing digitalized expectations of the Generation Z students but also be ready for the keywords of the Generation Alpha. The purpose of the contemporary university has been redefined across the world in terms of success in global competition (Patomäki, 2019). Indeed, modern universities have approached the task of transition to the University 4.0 model or to the digitalized university model (Akhmetshin et al., 2021). University 5.0 paradigm is on the way to flourish depending on technological innovations and digital transformation. As digitalized traditional universities have lived an era of glory in the 2020s, the winds of change towards completely digital universities is not so far.

As far as competition is concerned, universities have faced a more intensive environment in the higher education for the last several areas. First of all, main target is to reach talented potential students. Secondly, they continuously plan to increase the number of students enrollment. Thirdly, they have a significant strategy of full-time employment of high-quality academic staff. Fourthly, they aim to overview and control the education processes in all stages. Fifthly, they are ready to offer good educational facilities, e.g. techno-classrooms, smart buildings and offices, libraries, laboratories. And lastly, they are also willing to provide good non-educational services, e.g. accommodation, sporting facilities, food services, students hubs, health services, technical support services, transportation services, security services, etc.).

This paper intends to examine the demands of prospected college students in the near future that are expected to change, including conventional non-educational services depending on the realities of digital transformation era. If so, higher education system should be prepared to respond the changing demands of future students. For this reason, a literature review was conducted on the selected topics of contemporary higher education environment. Then, "An Innovative Approach for Higher Education" model was designed. The paper is organized as follows. The next section provides data and methodology. The following section covers findings. The final section includes the concluding remarks.

2. DATA AND METHODOLOGY

A literature review was conducted to reflect the new needs and conditions in the higher education system. The selected topics were conventional non-educational services, understanding the new atmosphere, digital storm towards higher education, keywords of Generation Z as well as Alpha and traditional versus digital universities. All the selected topics were deeply examined under the perspective related to the needs of higher education institutions in front of the demands of 2020s world's college students and employers. The aim was to analyze the outputs and reach findings concerning the demands of the prospective college students specifically in non-educational services in the digital transformation era and examine the potential for a model for An Innovative Approach for Higher Education.

3. FINDINGS

There are 208 universities in Türkiye by the year 2024 (YÖK, 2024). As far as conventional non-educational services are concerned, universities meet social needs such as physical and mental health, shelter, nutrition, education, resting and leisure time. Therefore, they are responsible for providing numerous services like reading halls, inpatient health centers, medico-social centers, student cafeteria and restaurants, meeting, cinema and theater halls, sports halls and fields, camping areas, dormitories and other similar facilities.

Table 1: Number of Universities in Türkiye

	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-203	Current
State	109	125	127	127	129	129	129
Foundation	64	65	67	73	75	75	75
Foundation Vocational	5	5	5	4	4	4	4
Total	178	195	199	204	208	208	208

Source: YÖK (2024). Yükseköğretim Bilgi ve Yönetim Sistemi. Retrieved June 12, 2024 from <https://istatistik.yok.gov.tr/>

However, a rapid increase in students dropping out of university occurred after 2018. The figures present that 2.260.057 students dropped out of university between 2015 and 2022. Significantly, 1.892.840 of them left their education between 2018 and 2022. Indeed, this number has been reflected as 98.436 in 2015 versus 389.564 in 2022 (Euronews, 2024).

Table 2: Number of Students Dropped Out of University in Türkiye

Years	2015	2016	2017	2018	2019	2020	2021	2022
Student Numbers	98436	118657	150124	305695	495132	363313	339136	389564

Source: YÖKAK (2024). Gösterge Değerleri Raporu. Yükseköğretim Kalite Kurulu. Retrieved June 14, 2024 from <https://yokak.gov.tr/raporlar/IndicatorValuesReport>

These figures arguably present the signs of new generations and new expectations. Students want to spend less time in higher education, e.g. 2 years of higher education instead of 4-year study as time is concerned as a precious asset in our era. Moreover, they support the idea of decreasing the cost of higher education, e.g. lower university tuitions, lower accommodation, books, food and transportation expenses. Furthermore, they expect to increase efficiency and effectiveness of knowledge they gained in university education. More than this, they target to gain values for their job applications, e.g. meeting most of the employers' expectations. For these reasons, students lose interest in large and impressive buildings, sporting facilities, huge libraries and other conventional components of universities. Meanwhile, academic world (governmental authorities, regulators, universities) need to understand, observe and adopt this new atmosphere. Indeed, higher education sector has to improve a strong dialogue with potential employers.

Since the Medieval age, higher education concept and the evaluation of its main actors' universities are highly discussed. The first-generation University 1.0 initiated as information transfer centers in the 11th Century. Later, the second-generation University 2.0 appeared as information transfer and research centers in the 19th Century. 1970s brought the third-generation University 3.0 as information transfer, research and application (university-industry) centers. Then, the fourth-generation University 4.0 flourished as a digitalized university depending on the technological and social innovations under the storm of digital transformation age of the 2000s. Currently, the upcoming fifth-generation University 5.0 named as digital university with its foreseen rise by the 2030s is seen targeting all world as a single market and providing both educational and non-educational services.

Accordingly, higher education institutions have been recently forced to deliver education services in new ways and operate in a global marketplace. Therefore, universities must rethink and redesign how they provide access to their courses anywhere and at any time. Indeed, higher education institutions have not only to fulfill the increasing digitalized expectations of the Generation Z students but also be ready for the foreseen storm of the Generation Alpha (Eşkinat and Teker, 2023). There is no doubt that the expectations and values of students in the 2020s have changed. Universities should rethink the future with the innovations of digital age and apply a re-engineering for the new understanding in educational and non-educational services. Arguably, universities must create and define future visions particularly in the context of new concepts like Industry 5.0 and Society 5.0 following the COVID-19 experience (Carayannis and Morawska-Jancelewicz, 2022). This strategy consider the integration of the principles of Society 5.0 and Industry 5.0 into the policies and procedures of higher education institutions to enhance the benefits of digital transformation for universities and communities.

Understanding the new atmosphere, University 5.0 goes beyond traditional school focusing on a complete and flexible way of learning as COVID-19 pandemic justified how existing resources transformed formal education and non-educational services into digitalized form in this continually shifting educational landscape. For instance, Stanford University in the US opened its digital classroom to facilitate the current distance education system (Hadhazy, 2021). Facebook, rebranded as Meta, has announced that it will open 10 digital university campuses across the United States (Greener, 2021) as the model of a digital university. Therefore, University 5.0 is to be implemented in the near future with the support of leading digital companies (Gurieva et al., 2019). Furthermore, China Communication University has opened its digital campus by partnering with search engine Baidu's metaverse platform XiRang (Qin, 2022). University of Miami also announced its entry into the field of metaverse (Terr, 2022).

From the digital storm point of view, most universities keep increasing the use of hybrid model (face-to-face and online) at various levels (vocational schools, undergraduate, graduate) in all disciplines (engineering, social sciences, management sciences, medicine) in their education system forced by the market demand, especially over the Covid-19 crises. For this reason, a large number of completely digital universities in the world with no barriers of language, timing differences and locations, and competing with local and traditional universities in all sense are expected to flourish after 2030.

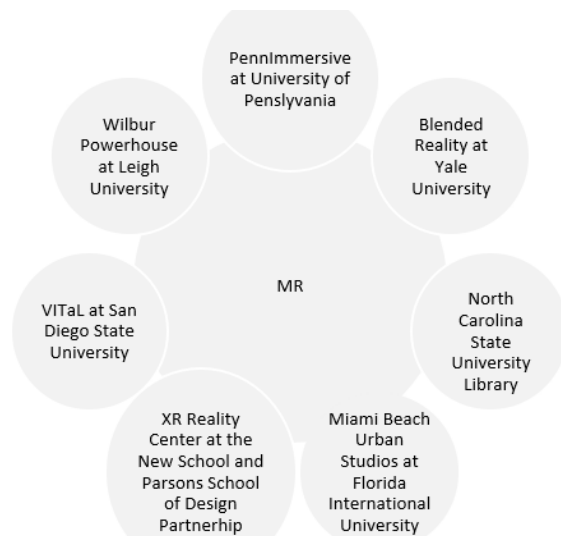
Figure 1: Innovations of Digital Age

Virtual Reality (VR)	Augmented Reality (AR)	Blockchain	WEB 3.0	Metaverse
<ul style="list-style-type: none"> An advanced, human-computer interface that simulates a realistic environment Generally, 2D graphics visuals Alternatively 3D graphics and visuals User is physically outside the configured virtual system 3D virtual reality glasses 	<ul style="list-style-type: none"> Alteration or augmentation of physical reality by computer 3D Glasses and other related technical equipment Physical environment and the fictional environment are intertwined Enrichment takes place in real time and interacts with physical items 	<ul style="list-style-type: none"> A distributed technology that guarantees to a large extent that the data, the records of the work and transactions cannot be changed and that their privacy will be ensured A decentralized system; establishing a Blockchain Network of tens of thousands of computers or more with a data or transaction log All the records are not kept in a single center, indeed they are kept in a distributed structure 	<ul style="list-style-type: none"> Web 1.0 and Web 2.0 are centralized structures as the data and services can be accessed through a central server. Data allowed by central management can be published and changed As Web 3.0 components, dApps (Decentralized Application) will replace applications and AR / VR supported Metaverse projects will come instead of normal websites People will be able to mutually offer information or services to each other 	<ul style="list-style-type: none"> A "post-reality universe"; a perpetual and persistent multiuser environment in which physical reality and digital virtuality are merged By creating their three-dimensional avatars, people will be able to enter this digital universe People will be able to do almost all the activities they perform in their physical life in this digital universe

Source: Eşkinat, A. (2023). Future in higher education: digital university. Isik University, Türkiye

In a world of constant technological innovations and digital transformation age to all parts of our life, the new actors appeared as artificial intelligence (AI), virtual reality (VR), augmented reality (AR), mixed reality (MR) and so on as a transformative role in higher education. 21st century university is also not exempt from the current socio-technological crisis and rupture occurring through the present digital revolution. As a matter of fact, global metaverse in education market valued at \$4.39 billion in 2021 and is projected to reach a value of USD 32.39 billion by 2028 at a CAGR of 39.50% over the forecast period (Mourtzis et al., 2023). Besides, the MR market is growing rapidly, projected to grow to \$100-200 billion globally by 2022 (McCluskey and Winter, 2012). MR in education is projected to grow to over \$7 billion globally in that time frame. MR often gets its start on campuses as an initiative and technological advancements will probably continue to shape teaching and learning strategies as one looks towards the future.

Figure 2: Mixed Reality (MR) in the US Universities



Concerning Artificial Intelligence, one cannot deny the popularity of generative AI such as Gemini and ChatGPT in today's world. As such tools represent a specific type, not the entirety of the field, the broader field of AI aims at building intelligent systems capable of replicating human tasks. The quick rise in the use of artificial intelligence (AI) in higher education in the last 5 years has effectively been used in several disciplines such as education of language, engineering, mathematics, and medicine. Generative AI tools such as ChatGPT, Claude, and Midjourney provide the opportunity to rethink and redesign learning (ISTE, 2024). Expected goals have been to increase outcomes, access, and retention as well as decrease the cost of operations and time for completion (Klutka et al., 2018). In fact, AIEd (Artificial Intelligence in Education) is significantly used for assessment/evaluation, predicting, AI assistant, intelligent tutoring system, and managing student learning (Crompton, 2023).

People also have noticed significant advancements in the higher education ecosystem due to ongoing digital transformation, particularly through the integration of Artificial Intelligence (AI) and 5G wireless technology. Specifically, arguments on AI have been based not only on enhancing the efficiency and effectiveness of management operations within higher education institutions, but also on providing invaluable assistance to academics and students in the educational process, enhancing academic output. Therefore, new and attractive learning experiences for students enable more personalized and adaptive learning approaches. Indeed, an increase in access to education offers greater flexibility, mobility, and convenience in the globalized higher education market.

From the academic world perspective, a significant proportion of current university academics are Baby Boomers and Generation X cohorts, who are also known as Busters (Mohr and Mohr, 2017). On the other side of the coin, current undergraduate students are from Generation Z (1995-2000) and there is a coming storm of Generation Alpha (2011-2025). Generation Z undergraduates have been grown up in the information age and are highly familiar with technology. They are called Zoomers, Net Generation, and Digital Natives, placing high value on independence when it comes to their education in the posthuman era and future educational systems (Laskova, 2021). In the 2020s, Generation Z also constitutes entry-level professionals and workers. Higher education institutions must have crucial engagement with these millennials to develop products and services that meet their needs. So, universities need to align their programs with the expectations of Generation Z to retain their existing students and attract the new ones (Dombrowsky et al., 2018). Indeed, Generation Z has appeared as a significant economic force with implications for contemporary higher education systems. For this reason, universities approached digital education to gain a competitive advantage by offering credentials that align with the desires of Generation Z, since they have been grown up with computers and the internet, possessing a natural aptitude and advanced proficiency in new technologies (Jones et al., 2010). In fact, universities hold responsibility to adapt and meet the anticipated needs of this new generation of students, also named as the Digital Generation (Serinikli, 2019).

At this point, Alpha students emerged as the future undergraduate generation. Foreseen as an entrepreneurial generation characterized by their innovative mindset, progressiveness, and ambition, 50% of Generation Alphas are expected to obtain a bachelor's degree. It is also clear that their preferred learning styles, perspectives, and educational expectations will be a game-changer as they prepare to enter higher education as the next generation. Concerning their time, there is an expected shift in higher education from knowledge transfer to knowledge co-creation. The main reason behind this is Generation Alpha students' unique skill set and their innate ability to embrace and understand technological innovation (Ziatdinov and Cilliers, 2022).

As far as traditional and digital universities are concerned, a digital university holds certain advantages over a traditional university in terms of meeting the attitudes and expectations of new generations. It typically offers lower tuition fees and provides academic staff that educates students from all around the world, offering a significant opportunity to pursue higher education in a "translocal and transtemporal" (Sheail, 2018) nature. A digital university sees the entire world as a global target and market, leveraging the growing digital opportunities especially as an alternative to conventional non-educational services.

Table 3: Structure of Traditional Universities

A- Academic	B- Administrative
<ul style="list-style-type: none"> ✓ Full-time Staff Salaries ✓ Full-time Staff Additional Course Fee ✓ Part-time Staff Fee ✓ Publication and Project Support Expenses ✓ Scientific Project Research Expenses 	<ul style="list-style-type: none"> ✓ Personnel ✓ Rent ✓ Pre-requisite Labs for the Launch of New Departments ✓ Physical Place (Campus) ✓ Launch of New Faculties ✓ Launch of New Departments ✓ Advertising and Publicity
C- Administrative Administration	D- Investment
<ul style="list-style-type: none"> ✓ Salaries ✓ Executive Compensations 	<ul style="list-style-type: none"> ✓ Additional Physical Space ✓ Labs
E- Economic Investments	F- Other
<ul style="list-style-type: none"> ✓ Technology ✓ Software ✓ Hardware ✓ Library 	<ul style="list-style-type: none"> ✓ Shuttle ✓ Security ✓ Technical ✓ Heating ✓ Catering ✓ Vehicle ✓ Related

Source: Eşkinat, A. (2023). Future in higher education: digital university. Isik University, Turkiye.

Table 4: Structure of Digital Universities.

A- Academic	B- Administrative
<ul style="list-style-type: none"> ✓ Full-time Staff Salaries (*) ✓ Full-time Staff Additional Course Fee ✓ Part-time Staff Fee ✓ Publication and Project Support Expenses ✓ Scientific Project Research Expenses 	<ul style="list-style-type: none"> ✓ Personnel ✓ Rent (**) ✓ Advertising and Publicity ✓ Digital Space (Campus)
C- Academic Administration	D- Investment
<ul style="list-style-type: none"> ✓ Salaries(*) ✓ Executive Compensations 	<ul style="list-style-type: none"> ✓ Additional Bandwidth ✓ Labs (***)
E- Economic Investments	F- Other
<ul style="list-style-type: none"> ✓ Technology ✓ Infrastructure (***) ✓ Software ✓ Hardware ✓ Library (***) 	<ul style="list-style-type: none"> ✓ Technical ✓ Security(**) ✓ Heating (**) ✓ Catering (**) ✓ Vehicle (**) ✓ Related

Source: Eşkinat, A. (2023). Future in higher education: digital university. Isik University, Turkiye.

(*) Academic administration is consisted by full-time academic staff

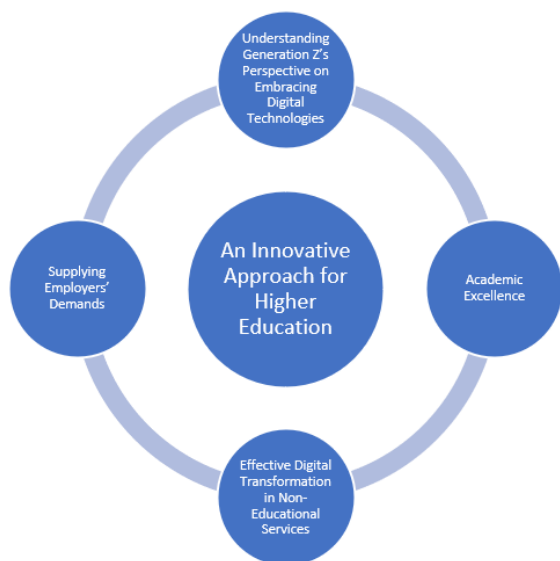
(**) Only for Administration or Rectorate building

(***) Digital

Considering the changes brought about by Covid-19, which have disrupted traditional norms, values, and modes of delivery in the higher education sector, it is highly anticipated that the hybrid model will replace the traditional model in the near future, followed by the emergence of digital universities, particularly after the 2030s. This reflects the reality of constant change and development in our world.

As a result, literature review over the selected topics as conventional non-educational services, understanding the new atmosphere, digital storm towards higher education, keywords of Generation Z as well as Alpha and traditional versus digital universities provided clear results. The findings lead us to design a model as "An Innovative Approach for Higher Education". Indeed, this model reflects the required structure of the contemporary university of our age.

Figure 3: An Innovative Approach for Higher Education Model



5. CONCLUSION

Digital age students are rarely attracted by non-educational campus services nowadays. It is clear that, college students present less interest in large and impressive buildings, sporting facilities, impressive library buildings and other conventional support components of universities (food services, transportation services, security services, health services, etc.) Indeed, the priorities of the new age students have changed, e.g. flexible timing for attending the courses, much less tuition and fees, lower cost of food, less cost of accommodation, less cost for books and leaning materials, better skills for knowledge management, more focus on value creation for a good employment opportunity.

Recently, a serious momentum has been observed with the Covid-19 period towards a digital transformation of universities. The projection is a nondenial need for a gradual adoption of digital technologies by higher education institutions in the near coming years, e.g. AI, MR, 5G, VR, AR, Blockchain, Web 3.0 and Metaverse.

It may be argued that there may be no need for large and impressive campus buildings, sporting facilities, huge libraries and other conventional components, and related elements for higher education in the near future. Instead, there exists a strong need for a clearer perception of higher education for meeting the expectations of college students and prospected employers.

As a result of this study, rethinking and redesigning higher education system and higher education institutions are inevitable and adoption of various degrees of digitalization looks to be the key. Under these circumstances this paper advocates "An Innovative Approach for Higher Education" model for the competitive university of contemporary world. The model is based on four pillars: *Understanding Generation Z's Perspective on Embracing Digital Technologies*, *Academic Excellence*, *Effective Digital Transformation in Non-Educational Services* and *Supplying Employers' Demands*. Finally, the era of adopting blended learning system in all traditional universities and spreading completely digital universities towards 2030s may be named as University 5.0.

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