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The digitalization era as a framework for the development of the global education market

Abstract: The global educational market is being transformed under the influence of both the above factors and the factors of generalized development. Digital technologies are radically changing the educational services market, opening up new opportunities for students and educational institutions, like posing new challenges. Digital technologies have significantly impacted the education market, changing both the ways of learning and the structure of the education market itself. By this, the study aims to identify the key features of the global market development for educational services in the era of digitalization of economic activity. The study object is the global market for educational services; following the purpose and object of the study, the key tasks are to identify the features of the development of the global market for educational services, analyze them, and characterize them in detail. Modern scholars studying the global market of educational services represent various fields of knowledge, including economics, sociology, pedagogy, and information technology. Iryna Kaleniuk, Larysa Antoniuk, Denys Ilnytskyi, Nataliia Ushenko, Simon Marginson, Hans de Wit, Philip Altbach, Robert Fisher, Anne-Marie Nohlén study the structure, dynamics, and peculiarities of the development of national and global markets for educational services. However, the constant transformation of both the global market and the market of educational services, and the development of technologies, actualize this issue at the present stage of development of the world economic system.

Keywords: digitalization, online education, global education services market, digital technologies.



Introduction

The global market of educational services is undergoing profound transformational changes at the current stage of world order formation. The COVID-19 pandemic has brought changes to key teaching methods and technologies, the war in Ukraine has redrawn the flow of students and academic staff, and technological developments have led to the need to change the technological basis of the learning process. In the global context, educational services are becoming increasingly significant, driven primarily by the transformation of the labor market. In turn, it is being transformed under the influence of both the above factors and the factors of

generalized development. Digital technologies are radically changing the educational services market, opening up new opportunities for students and educational institutions, like posing new challenges. Digital technologies have significantly impacted the education market, changing both the ways of learning and the structure of the education market itself.

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Modern scholars studying the global market of educational services represent various fields of knowledge, including economics, sociology, pedagogy, and information technology. Iryna Kaleniuk (*Tymbal & Kalenyuk, 2023*), Larysa Antoniuk, Denys Ilnytskyi, Nataliia Ushenko (*2023*), Simon Marginson (*Cantwell et al., 2018*), Hans de Wit (*2013*), Philip Altbach (*Global perspectives..., 2011*), Robert Fisher, Anne-Marie Nohlén study the structure, dynamics, and peculiarities of the development of national and global markets for educational services. However, the constant transformation of both the global market and the market of educational services, and the development of technologies, actualize this issue at the present stage of the world economic system development.

The results of the study

The transformation of the labor market is quite active, and at the present stage, under the influence of the paradigm shift in general civilization development, it has acquired a new characteristic – turbulence. In this context, knowledge is becoming one of the most significant assets, and the key trends in the development of the educational services market are manifested through increasing demand for online education; increasing demand for technical and information education; increasing competition; increasing international mobility; growing popularity of short-term courses and certificates; increasing requirements for the quality of education; social transformation; universities as a driving force for local development; public activity of universities; long-life education; ed-tech partnership; data age; digital skills; internationalization policy (*Figure 1*).

As a result of the COVID-19 pandemic, most educational institutions were forced to switch to distance learning, which led to a significant increase in demand for online education. This trend is likely to continue in the future, as most people are interested in the opportunity to study at a convenient time and place for them. In 2021, the number of requests to digital platforms increased by 98%. Thus, according to experts, Ukrainians began to attend online courses three times more often in 2021 and became one of the top three European countries where they buy online education. The greatest demand is in the capital. Kharkiv, Odesa, Lviv, and Dnipro are also among the leaders. The most popular courses are English, modern business, IT programming, and training courses for schoolchildren (*There is a growing..., 2022*).

However, it is worth noting that Ukraine has only just entered global trends, as the online services market is growing significantly (*Figure 2*).

In 2023, online education revenue is expected to reach USD 166.60 billion, with a compound annual growth rate (CAGR) of 9.37%, leading to a projected market size of USD 238.40 billion by 2027. The largest market segment is online university education with a projected market size of USD 103.80 billion in 2023. In a global comparison, the United States will generate the largest revenue (USD 74,800.00 million in 2023), with an average revenue per user (ARPU) in online education of USD 0.21 thousand in 2023. Additionally, there is a growing trend towards personalized and adaptive learning with online education platforms incorporating artificial intelligence and machine learning technologies to offer personalized learning experiences. The implications of these trends can be seen in the numbers: the global online education market is expected to reach USD 325 billion by 2025, growing at a CAGR of approximately 7%. In addition, the COVID-19 pandemic has accelerated the adoption of online education, as the number of students enrolled in online courses has increased significantly over the past year. The online education segment is expected to continue its growth trajectory, driven by increasing demand for distance and flexible learning options, like advances in technology, allowing for personalized learning. Nevertheless, the industry may also face challenges such as ensuring the quality and accreditation of online courses, like addressing the digital divide and unequal access to technology and internet connectivity. However, the overall outlook for the online education segment remains positive with strong growth potential in the coming years. Between 2011 and 2021, the number of students enrolled in massive open online courses (MOOCs) increased from 300,000 to 220 million (*Shah, 2021*). Between 2012 and 2019, the number of students enrolled in blended and distance learning at traditional universities grew by 36 percent, while the circumstances of the COVID-19 pandemic in 2020 rapidly accelerated this growth by another 92 percent (*Diaz-Infante et al., 2022*).

A recent analysis of total student enrollment data from the Integrated Postsecondary Education Data System (IPEDS) found that while the overall market for degree programs decreased by about 3 percent from 2019 to 2020, four of the largest providers of open-access online education – Southern New Hampshire University (SNHU), Liberty University, Western Governors University (WGU), and Grand Canyon University (GCU) – increased their total enrollment by an average of 11 percent.

At the present stage, a significant area of the educational services market development is the development of edtech, which is all digital tools that help in development and learning (*What is EdTech..., 2022*). Numerous startups in digital education are disrupting the space, driven by the growth of venture capital funding. Between 2017 and 2021, venture capital funding for US educational technology (edtech) increased from \$1 billion to \$8 billion. In 2021, the demand for these investments was evident in the successful IPOs of several edtech companies, including Coursera (valued at over \$4 billion). Investments in edtech can be much higher, as the current stage of global market development, the possibility of a pandemic, and wars contribute to the demand for digital tools, contributing to increased competition in the edtech market (*Table 1*).

In 2021, venture capitalists (VCs) invested \$20.8 billion in the electronics sector. This is more than 40 times the amount they invested in 2010.

In June 2021, 2U announced the acquisition of edX, a non-profit organization of Harvard and MIT, for \$800 million. This acquisition gives 2U access to a strong customer brand, approximately 40 million registered users, and hundreds of university partners. These assets

provide 2U with a significant presence in growing markets outside the United States and can help reduce CAC as it develops a free degree model (*Sanghvi & Westhoff, 2022*).

To meet the demand for upskilling and retraining, online learning companies are expanding and focusing on their corporate offerings. Of the 15 adult learning companies that received the most funding in 2021, all but one offer corporate programs (*Figure 3*). Even companies such as Coursera, which initially focused on consumers, have significantly increased their revenue from corporate clients in recent years (*Sanghvi & Westhoff, 2022*).

Such an active development of the financial sector requires the attraction of additional financial resources, which contributes to the development of venture capital financing as an element of the educational services market, which has grown significantly as a result of the pandemic (*Figure 4*).

It is worth noting that the Indian market has become much more active, as regulatory restrictions have been significantly tightened in China. Thus, in 2020, the Chinese market covered 63% of the financing of educational technologies, in 2021 this figure dropped to 13%, while India increased from \$ 0.2 billion in 2017 to \$ 3.8 billion in 2021, which was 18% of global investment. There is also an increase in the activity of Indian companies in the global market, as Indian Emeritus has reached a billion-dollar capitalization and is actively entering the US market through the purchase of American companies. Accordingly, the quality standards of online education are increasing and the distinction between classical and non-formal education is blurring, forming a new structure of educational competitors. For example, Google's Grow with Google program in partnership with Coursera offers courses in user experience design and data analytics that can provide potential applicants with cost-effective educational options, while traditional digital education providers focus on obtaining diplomas. However, even so, there is an opportunity to supplement their programs with non-formal options and strengthen their competitiveness. At the current stage, applicants are becoming more demanding of classical education, creating demand for individual programs and considering the possibility of obtaining additional knowledge in the informal sector to gain specific knowledge and skills that may be more significant than the program or brand of the institution.

The next trend is the increasing demand for technical education, as a growing number of jobs require technical and information literacy, leading to an increase in demand for training in these areas. The nature of work and the technologies that support it are changing. Ongoing and comprehensive digitalization has changed the work of even teachers, who now need knowledge of programming, among other things. A growing number of educational institutions and online platforms provide students with more options for learning, which creates a new competitive environment. This forces educational institutions to compete for students by offering more innovative and effective teaching methods. As a result, the number of online education lovers and users is growing rapidly (*Figure 5*).

The increase in the number of higher education institutions and online platforms offering courses leads to more competition in the market. This can lead to lower tuition prices and improved quality of education. Short-term courses and certificates are becoming increasingly popular among people who want to improve their skills or gain new knowledge. This may lead to a decrease in demand for full-fledged degree programs and an increase in the popularity of alternative forms of education. Short-term courses are more mobile and flexible and respond

more quickly to the needs of the labor market, employers' requirements, and consumer demands, and in the context of global turbulence, they lead to the demand for a workforce with specific skills. New competitors in the education market are affecting traditional educational institutions and changing the way they deliver educational programs (*Figure 6*).

New competitors offer flexible learning models that allow students to study at their own time and pace. Short-term courses are often cheaper than traditional university programs, making them more attractive to a wider audience. Many new programs are focused on specific professional skills that are in demand in the labor market, ensuring that graduates are quickly employed. New competitors are changing the landscape of educational services, forcing traditional institutions to adapt to new realities and innovate their strategies and programs.

The liberalization of migration policy and the war have led to an increase in international mobility, with students increasingly traveling abroad to study and gain additional experience. This trend leads to an increase in demand for international education and opportunities for educational institutions to attract students from other countries. Economies, markets, and technologies are developing rapidly, and skilled workers need training to keep up with new developments, discoveries, and trends. The learning and development sector is growing significantly as people, as well as companies, constantly strive to improve themselves and their employees. In particular, in recent years, learning and development have become increasingly digital, with a significant increase in the use of technology-based learning. Increasing requirements for the quality of education from employers and graduates, changing the structure of education and its dynamization. Old learning technologies are not effective in the modern world, and comprehensive digitalization leads to a decrease in the level of concentration, with knowledge becoming both more superficial and more concentrated. However, it is worth noting that there is a separate segment of consumers who, realizing the value of high-quality education for the modern labor market, create demand for high-quality educational services, creating demand for concentrated knowledge that meets these high standards (*Figure 7*).

The second group of trends in the development of the global education market reflects the qualitative plane of transformation, which becomes the basis for the transformational leadership of universities. These trends include social transformation, internationalization policy, public engagement of universities, and the expansion of their role as a driving force for local development.

Universities have always played a driving force for change, but this is only realized if universities are closely involved in the work of local governments, self-governance, or processes. The internationalization policy in modern conditions finds a dual manifestation, as universities are looking for a balance between the needs of the local level and the role of driving transformational changes at the local level and the challenges of globalization, the need to attract students from other countries (*A new global..., 2022*).

Discussions on the internationalization of higher education are moving in two opposite directions. The first is associated with the rise of nationalist and protectionist sentiments and denies the myth of unlimited growth. The second points to the continuous growth of student and program mobility as evidence of the unstoppable momentum of internationalization (*A new global..., 2022*).

Technology and the digital age provide new opportunities, including for the service sector, and the development of digital content has made changes to the educational services market development (Wit, 2013). Higher education is not immune to these trends, and the pandemic has forced the market to quickly adapt to digital technologies, while the trends only indicate an increase in the technologicalization and digitalization of the global education market development.

Conclusion

In general, universities play a significant role in the digital age, where technology is becoming increasingly significant in our lives. The key trends in the global education market in the digitalization era include the education and training of students to work in the digital economy, as students are preparing to work in the digital economy, where competencies in technology and information systems are becoming increasingly significant. Including through the education system, development, and implementation of new technologies used in various spheres of life. They help to introduce new technologies in various fields, including education, medicine, science, and business. A relatively new trend is open learning and online courses, helping to increase the accessibility of learning and learning resources, and allowing students to study from anywhere and at any time. At the present stage, digital libraries and research centers are being created allowing students and researchers to collect and analyze information from anywhere in the world. Partnerships are being formed with businesses and other institutions to develop digital content. In general, digitalization remains a significant aspect of the global education market development.



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Appendix

Quantitative

- Increasing demand for online education
- Increased demand for technical and information education
- Increased competition
- Increased international mobility
- Growing popularity of short-term courses and certificates
- Increasing requirements for the quality of education
- Ed-tech partnerships

Quality.

- Social transformation
- Universities as a driving force for local development
- Public activity of universities
- Long-life education
- The age of data
- Digital skills
- Internationalization policy

Figure 1. Key trends in the development of the educational services market

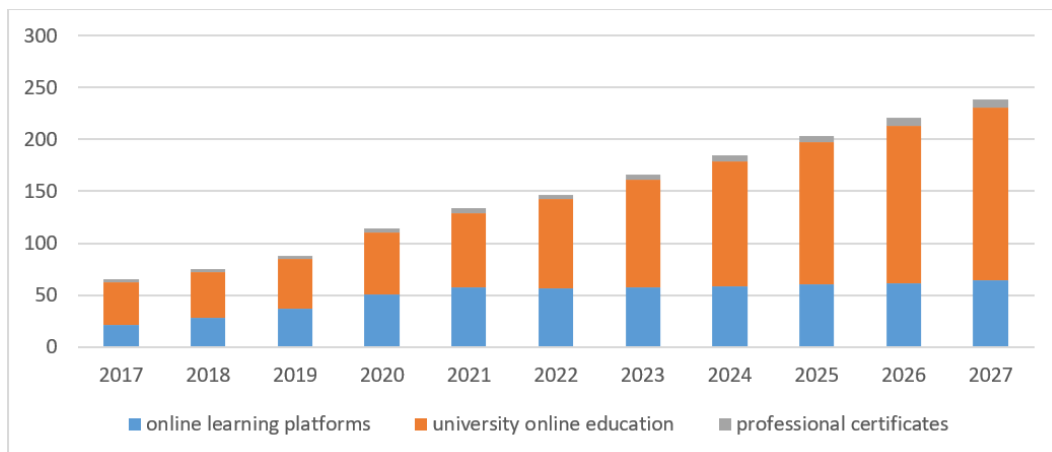


Figure 2. Expected profitability of the online education market, USD million (*Online Education – Worldwide, 2022*)

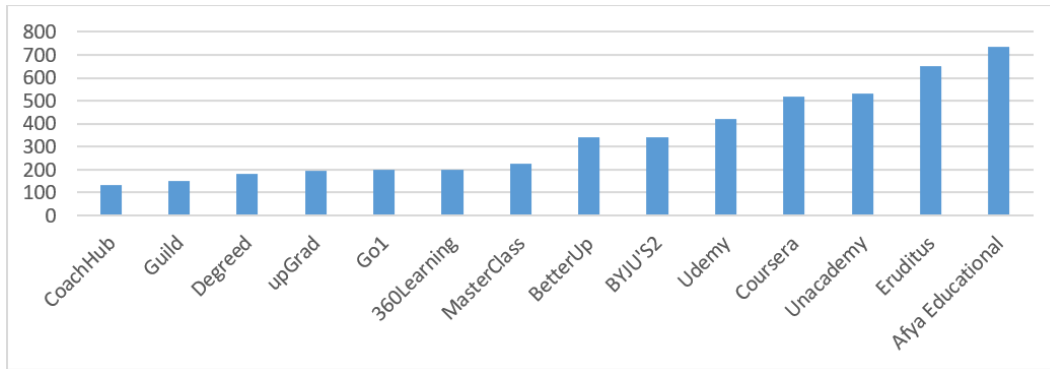


Figure 3. Largest global edtech deals in 2021, USD million (adult sector) (Sangbvi & Westhoff, 2022)

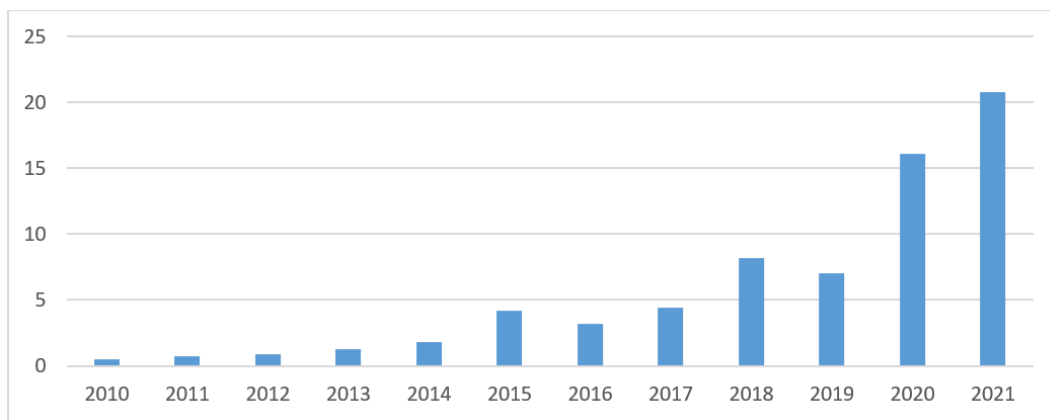


Figure 4. Global venture capital funding for educational projects (Sangbvi & Westhoff, 2022)

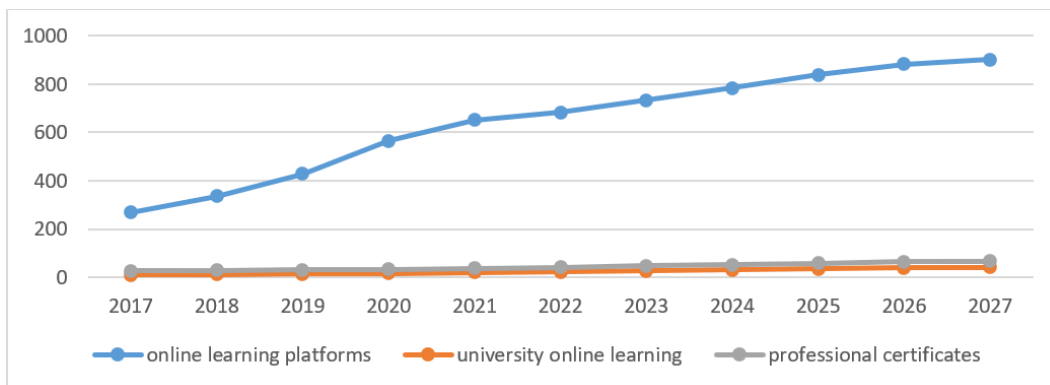


Figure 5. Number of users, million people (Online Education – Worldwide, 2022)

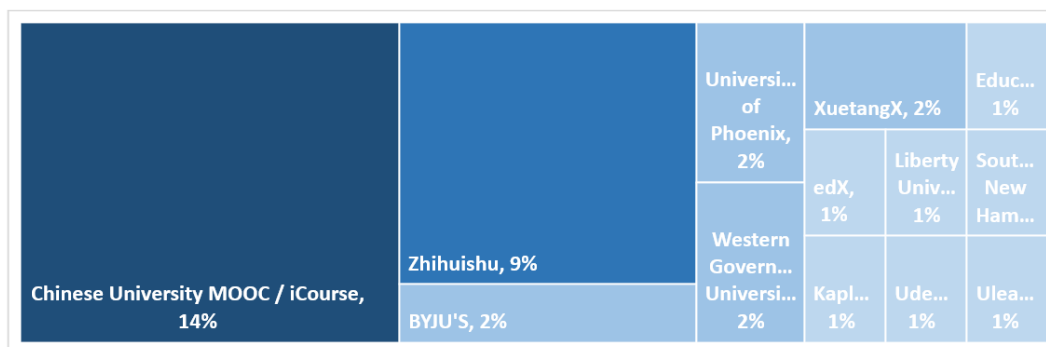


Figure 6. Market share of educational services, % (*Online Education – Worldwide, 2022*)

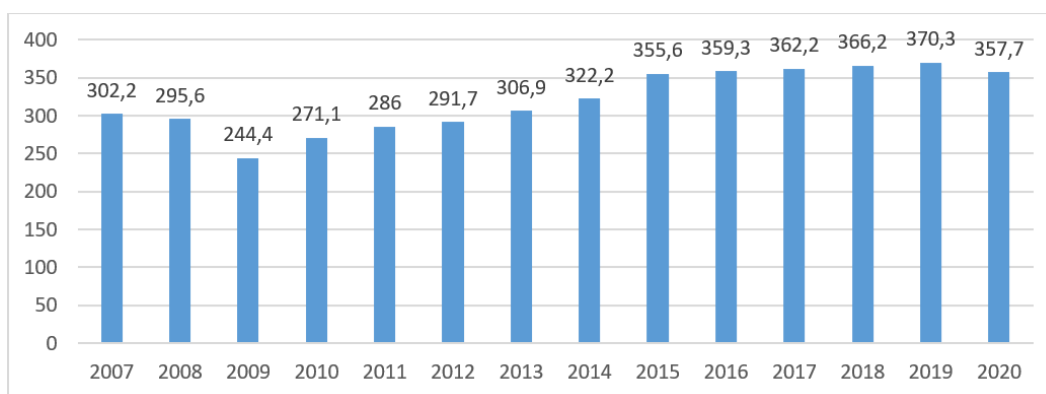


Figure 7. Market size of the global workplace learning industry from 2007 to 2020 (in billions of US dollars) (*There is a growing..., 2022*)

Table 1. Key players in the online education market, revenue, USD billion, 2017-2021 (*Online Education – Worldwide, 2022*)

Company	2017	2018	2019	2020	2021
2U, Inc.	0,29	0,41	0,57	0,77	0,95
Coursera, Inc.			0,18	0,29	0,42
New Oriental Education & Technology Group, Inc.	2,45	3,10	3,61	4,28	
Tal Education Group	1,72	2,57	3,28	4,51	
Udemy, Inc.			0,28	0,34	