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EDTECH MARKET IN RUSSIA AND ABROAD

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«EDTECH MARKET IN RUSSIA AND ABROAD »

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The research work is devoted to the study of directions and prospects for the development of the EdTech market in Russia and abroad as a powerful accumulator of educational innovative technologies. The author considered the issues of the historical retrospective of the development of EdTech in the world, the status of the EdTech market in Russia and abroad, highlighted key global trends, as well as risks and further development prospects.

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Introduction

Thanks to digital technologies, the world is radically and irrevocably changing - there is a digital transformation in various sectors of the economy and spheres of life. New tools and technologies are emerging, new ways of interacting between people, between people and machines, requiring new digital skills. In this regard, education and science, interacting with various sectors of the economy, acquire special significance, because in the conditions of the digital economy, they form new approaches to vocational training, ensuring a new quality of the workforce, and transforming the professional and qualification structure of employment[1]. Education is largely determined by the state and development of the digital economy. The state of the economy is a source of development of education, which leads to its transformation. Digital transformation in the field of education is a complex process that is necessary on the way to successful digitalization in various sectors of the economy and society . It assumes that modern hardware and software of educational institutions should be an integral and mandatory component of supporting the educational process; teachers should be constant innovators and have full digital competencies; the existence of alternative ways to gain knowledge through online educational platforms, mobile applications, etc. All innovations in the field of education can be united by the concept of «educational technologies» («EdTech»), which, due to their prevalence and influence, have drawn attention to the study of their various aspects, in particular, new challenges and risks in the field of education.

The modern world in the era of globalization demonstrates the development of the era of knowledge and competencies, which become the basis of the competitive advantages of countries at the international level. Growth of investments in the education sector (in Russia 1.23 trillion in 2022, 1.27 trillion in 2023, 1.31 in 2024, the share of the federal budget for spending will increase from

[1]Lenchuk E.B. The role of science and education in solving problems of new industrialization // EVR. 2018. No. 1 (55). URL: https://cyberleninka.ru/article/n/rol-nauki-i-obrazovaniya-v-reshenii-zadach-novoy-industrializatsii

0.9% of GDP and will amount to 5.2% annually [2]) and the increased attention of governments to the level of education of citizens indicates the interest and priority of this industry. In the conditions of self-isolation, online education has been actively developed (investments in the field of EdTech have grown almost three times: from $7.7 billion in 2019 to $20.1 billion in 2021, in Russia the cumulative average annual growth rate of investment in 2017– 2019 amounted to 69%, and in 2019-2021 - already 149%[3]), which stimulated significant interest in EdTech startups both in the world and in the Russian Federation. Today, the segment of such developments is one of the most attractive from an investment point of view, since education plays a leading role in the economic development of countries. The educational technology market has made a significant leap over the past year, thanks to the emergence of new startups that allow the use of interactive methods in the learning process. Most often, investments were attracted by startups at the age of three with B2C products that are at the stage of early growth (there is a finished product and first sales). An active source of demand for such developments is able to provide a revival of this direction in the long term, in connection with which the issue of reorienting the educational process to the maximum efficiency of using innovative technologies that ensure the quality of educational services and the country's competitiveness on the world stage is relevant (countries are aimed at improving their education systems to expand their competitiveness and influence in the world, and internationalization strategies are the political tool that determines the path of their movement towards their goals).

The problem of using educational technologies in recent years has become more relevant, attracting the attention of foreign and domestic scientists. In particular, the methods of simulation training are studied as the basis for start-ups in the market of educational technologies; business models of educational startups in the adult education segment; problems and prospects of digital transformation of

[2] About 3.8 trillion rubles send from Russian budget on education in 2022-2024 _ https://tass.ru/ekonomika/12549109
[3]Netology. Research of the Russian online education market 2021 and trends of 2022 from industry leaders. https://netology.ru/edtech_research_2022

the domestic system of vocational education; EdTech investment programs projects; as well as, in general, modern trends in the market of educational technologies.

On international level research activities on this issues is engaged OECD (OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence , Blockchain and Robots , Rebooting our relationship to technology: insights from psychology into how we think about AI and EdTech in the aftermath of Covid-19), UNICEF (Transforming education : Guide to unleashing the power of edtech). In Russia the largest research market carry out:

- Netology: in 2017 «Research of the Russian market of online education and educational technologies» was published, in 2022 «Research of the Russian market of online education 2021 and trends 2022 from industry leaders» was published;
- Smart Ranking , which quarterly publishes an analytical report on the state of the EdTech market in Russia.

The problem of using educational technologies in recent years has become more relevant, attracting the attention of foreign and domestic scientists. In particular, the methods of simulation training are studied as the basis for start-ups in the market of educational technologies ; business models of educational start-ups in the adult education segment ; problems and prospects of digital transformation of the domestic system of vocational education ; EdTech investment programs projects ; as well as, in general, modern trends in the market of educational technologies .

The purpose of the work is to study the directions and prospects for the development of the EdTech market in Russia and abroad, which outlined the following tasks: analysis of the features of the global and Russian EdTech market; study of global world trends in the field of education; diagnostics of problems of domestic development of educational start-ups.

The concept of EdTech and key stages of development

The term EdTech – «educational technology» is «a set of digital tools aimed at improving the efficiency of the educational process». EdTech includes courses and online schools, systems that optimize learning, platforms where mass learning is produced and regulated, innovations for traditional organizations that carry out the educational process, VR simulators [4].

Educational films began to appear in the 1900s, and in the 1920s Sidney L. Pressey developed the first teaching machine, a machine for asking students multiple choice questions. The most active development of educational technologies began with the scientific and technological revolution of the 1960s, when audiovisual learning and computer-assisted learning began to be introduced into the educational process (for example, in California they were used in elementary school for teaching arithmetic and spelling). This approach to the educational process made it possible to make it more interactive and individualized.

The 1970s saw the transformation of computers from large computing devices to personal computers, which in the 1980s led to more computers in the classroom, made the learning process more efficient, and allowed more people to acquire digital skills. At the same time, software improved, e-mail and ARPANET appeared - a computer network that became the prototype of the modern Internet. Options such as distance learning appear in the educational process, an e-learning system is being developed (PLATO and TICCIT systems are being developed in the 1960s, ToolBook and TenCORE systems appear in the 1980s), and presentations are being shown to present information in the classroom (program PowerPoint was designed by Robert Gaskins and released in April 1987).

In the 1990s, in the age of computers, the worldwide computer network Internet appeared, the development of which led to the creation of new patterns of learning and interaction. In 1998, the Google search engine is created , providing

[4] What is EdTech: companies, methods, trends https://gb.ru/blog/edtech/

access to an infinite amount of information available for analysis and study. Information can now be stored and transmitted on CD - ROM discs .

In the 2000s, not only personal computers, but also smartphones began to be used for learning, social networks (Facebook , Twitter), video hosting services appeared. Floppy disks and CD - ROM disks are giving way to USB flash drives, which have more memory and are more compact in use. During this period, both the total number of Internet users (by 2010, 2 billion people used the Internet, which accounted for approximately 30% of the world's population) and the amount of information and data on the Internet increased.

The 2010s is a period when a personal computer, tablet, smartphone become an integral attribute of the educational process for both the student and the teacher. EdTech companies appear , which are educational platforms with online courses (Netology, Duolingo , Coursera); Apps for self-study appear; widely used is the use of YouTube , which hosts materials for both students and teachers (videos can be used in the educational process and shown in the classroom).

In the early 2020s, the dynamics of the development of educational institutions continues in conjunction with the development of technology: the learning process itself is becoming more personalized and adaptive, some of the processes are being automated. The total number of Internet users is growing (according to the Global Digital 2022 4.9 billion people use the Internet, which is 62.5% of the world's population), which entails an increase in the amount of information and data, an increase in the number of resources with which you can access information, as well as simplification of ways obtaining information and their availability for all categories of Internet use.

Russian EdTech market

According to the results of work for the 1st quarter of 2022, 114 largest Russian EdTech companies earned almost 21.8 billion rubles: this is 53.9% more than in the 1st quarter of 2021, but 2% less than in the 4th quarter of 2021. Despite the overall positive dynamics and high level of income, the situation for individual

companies is ambiguous: for example, Skysmart 's growth in 2020 was 1400%, and for the 1st quarter of 2022 its revenue decreased by 68%.

At the beginning of 2022, experts gave positive forecasts for the development of the EdTech market in Russia, seeing it as a promising direction: it was expected that the market would continue to grow. In the spring, the outlook began to change, and the EdTech market faced a recession and: there was an outflow of students and sales fell.

The average drop in the DPO market at the end of March was 30%, depending on the company, fluctuations ranged from 20% to 50%. Thus, sales of Ultimate Education Holding fell by 20-25%, EdPro by 40%, Netology by 50%. Experts suggest that in an unfavorable scenario in 2022, the market will fall by 35-40%, and in a favorable scenario, the market will see zero growth .

The fall of the market was provoked by several reasons:

1. Disabling ads on major platforms (for example, YouTube has disabled ads in Russia) and blocking social networks such as Facebook and Instagram , because Meta was recognized in Russia as an extremist organization .

Previously, many business owners advertised their activities there, in March access to advertising on these sites was closed (as well as to the social networks themselves). The opinion of experts regarding advertising costs varies: some experts believe that the costs of Internet marketing will fall by 40-50%, some suggest that there will be a redistribution of budgets to available sites that now need to find a way out. One of the largest and most frequently used systems for advertising is Yandex Direct, but the question remains: can it cope with the influx of such a volume of customers;

2. Decrease in purchasing power, which may be due to two aspects: firstly, in a changing world, people are not ready to start long-term education, and secondly, people have problems getting consumer loans and installments in banks. Previously, the average rate of payment for tuition through a loan and / or installments was 40-50%, today for some companies it has fallen to 10%. An indirect indicator of the decline in purchasing power is the inability to pay for

courses by clients from other countries, because. international payment systems Visa and Mastercard ceased to support transactions in the territory of the Russian Federation;

3. Decreased investment in Russian EdTech . If in 2021 about 20 transactions were concluded with a total value of $170 million (data taken from open sources), then the prospects for investing in 2022 remain in doubt, because. it is not yet known how investors will be able to receive their interest;

4. The expansion of Russian companies to the international EdTech market was one of the most effective options for attracting additional finance (about a third of Russian companies either had access to the foreign market or thought over the concept of entering it). At the moment, about 55% of companies are revising their expansion strategies, a possible solution to this issue is a turn towards the markets of Asia (China and India), Latin America and Africa, because these regions are actively developing and promising for foreign investors.

In the current situation, as an aid from the state for online education, the Ministry of Digital Development offered exemption from income tax. CEO Moscow Digital School noted that "many IT companies are already exempt from income tax". He believes that the most relevant support in this situation would be "direct subsidies, grant financing, exempting employees of organizations from paying personal income tax, and the companies themselves from paying insurance premiums." A Skyeng representative notes that for EdTech to function, corporations need to get a clear answer from the Ministry of Education and the Ministry of Education and Science, whether the state needs private educational companies or the industry will be monopolized, the effectiveness of the benefits provided by the Ministry of Digital Development will depend on this. The most objective would be interaction between the public and private sectors, aimed at mutual assistance. In such conditions, it is possible to build healthy competition, prevent monopoly and ensure mutually beneficial cooperation between private companies and organizations of basic and higher education (with the prospect of building a “public-private partnership between schools, colleges, universities and

private educational platforms").

The domestic market of distance education is at the stage of active development. EdTech ecosystems are built in such a way as to completely close the entire educational path of a person - from developing programs for preschoolers to obtaining a new profession. In 2020–2021 the volume of investments of private funds in EdTech companies increased by almost 8 times - from $11 million to $86 million (at the same time, the Russian market of online adult education accounted for slightly more than 1% of the world market - $3 billion against $255 billion of the global EdTech market).

EdTech market abroad

According to research by Global market Insights , the global education technology market over the past 2 years has shown rapid growth, the volume of which has reached more than $ 200 billion, and according to experts, this trend will continue, reaching $ 10 trillion by 2030 , half of which will be in school education. Combining different ways of using technology in the educational process, the EdTech market (educational technologies) is one of the most dynamic and attractive for both consumers and entrepreneurs and venture investors.

One of the first countries in which EdTech startups began to appear en masse was the United States, and today North America accounts for almost 40% of the online education market. However, since 2018 , China has become the leader in terms of attracted investments. According to research by the analytical company HolonIQ in 2020 , total investments in educational technologies amounted to $ 16.1 billion, and almost 2/3 of venture capital financing comes from China ($10.2 billion), while investments in the United States are 4 times less ($2.5 billion).). Over the past 10 years , Asia 's share of venture capital funding for educational start-ups has increased significantly, and today it accounts for about 80% of all global investments in EdTech . According to forecasts, the trend in the spread of educational technologies and their financing in Asian countries will continue, as active connection to the Internet continues.

China is now positioning itself as one of the world 's largest digital learning markets . The number of online students (according to JMDedu) has grown by almost 11% and amounted to 172 million in 2020, the number of mobile students has increased by 19.6% (142 million). Expected (according to UBS Research) growth in the share of online services in the educational market from 6% in 2018 to 35% in 2025. However, in 2021, compared to 2020, venture investments in Chinese EdTech fell 4.3 times. This is due to the introduction in the country of serious restrictions for EdTech companies in the segment of preschool and school education, which led to an outflow of investments. Now in the EdTech market in China, there is only additional education that does not duplicate school programs.

The educational market of India is developing dynamically, which is primarily due to the rapid growth of the population, which, according to UN forecasts, will increase by 2030. reach 1.5 billion, surpassing even China. Education in the country (1.5 million schools, 50,000 higher educational institutions, 13,000 industrial education centers) is undoubtedly becoming a powerful engine of economic growth and development. In this regard, the Chinese company TikTok (which is used by more than 200 million people in India every month) has launched an educational program in India aimed at democratizing education in the country. The platform hosts videos that cover a wide range of topics, from school subjects to language learning.
The creation of educational products takes place with the involvement of Indian startups Vedantu , Made Easy and gradeup . In recent months, more than 10 million educational videos have been posted on the platform and about 50 billion views have been recorded. In India, education technology funding has grown from $0.2 billion five years ago to $3.8 billion, accounting for 18% of global investment in 2021. At the same time, local Indian edtech players such as Emeritus have reached billions of dollars in valuations and have begun to acquire companies in the US market.

Trends

The online education market is growing every year. In the context of the Covid-19 pandemic, the market made a breakthrough in a couple of months, which would normally take several years. Investments in the sphere almost tripled: from $7.7 billion in 2019 to $20.1 billion in 2021.

In 2022, Time magazine released a ranking of the 100 most influential companies in 2022. The list includes organizations that have influenced the development of the technology sector. 2 companies in this rating are from the EdTech industry (Kami and Guild education).

According to a study by Holoniq.com, after the pandemic, there were about 30 unicorn startups in the EdTech field in the world. At the same time, a particularly large increase occurred precisely in 2021, when 17 companies entered the rank of “unicorns”. At the end of 2021, there were 12 unicorn companies in the children's segment and 20 in the adult segment. Slightly less than half of these companies (15) are from the US, 8 from China, 5 from India, and one each from Austria, Canada, Australia and Israel.

However, with the growth of the market, there is an increase in the requirements for it. In 2021-2022 such requirements are related to online education trends.

1. E-learning.

After the pandemic, e-learning has become the most important trend. According to the Research Institute of America, e-learning increases profit margins from 25 percent to 60 percent. It is also highly scalable, allowing educators to reach large numbers of students in real time. It is available at a lower cost than traditional face-to-face courses. E-learning is expected to exceed $1 trillion by 2027;

2. Skills for the future.

Schools around the world are challenged to provide students with up-to-date skills and knowledge. The skills economy will be the most in demand. Skill refers to the ability to process and use information. It is in this direction that children

need to be taught skills. In addition, it is important to teach mindsets for professional growth. The ability and desire to learn for the rest of your life, incl. learning on your own are critical to future success.

3. Micro- and nano-learning.

The education industry has developed micro- and nano-approaches to learning. With the vast amount of digital resources and content available from various sources and platforms, small lessons and courses have become an essential element of effective education. Given the demand, it can be said that microlearning and nanolearning will become more important for education and skills development.

4. Digital assessment.

Traditionally, the assessment of students consists in conducting theoretical exams. In some cases, the learner may encounter prejudice. However, in the coming years, more attention will be paid to the practical aspects of training. The share of theoretical examinations will decrease, the volume of practice-oriented and non-theoretical education will increase, and biased assessment will be eliminated.

5. Blockchain

The use of blockchain technology is another EdTech trend. Blockchain provides a decentralized, secure and transparent learning ecosystem. Using blockchain, EdTech platforms can connect students and educators to relevant courses and resources. Courses and lessons can be programmed and delivered automatically using the blockchain. It helps in securing various documents and records including admission, attendance, payment and grade records. Students can securely collect their diplomas and certificates, access them and check them if necessary. Since blockchain eliminates many manual tasks, it also reduces the cost of education.

6. big data

In education, data is used to track student progress and engagement, allowing educators to provide personalized support and learn how to make learning

more fun. E-learning course creators are twice as likely to track student engagement, proving that data analytics pays off and will remain one of the essential tools used in education. Learner preference data helps to draw conclusions about the knowledge of each student, allowing them to choose an individual educational trajectory.

7. Gamification.

Edutainment - education with elements of entertainment. Learning with educational games brings an experiential approach to learning that sparks interest among learners and encourages multisensory participation. There are many options for online learning games and online courses with awards and certificates. A study by BlueWeave Consulting states that by 2027 the global market for gamification in education will grow by at least 29% compared to its value of $697.26 million in 2020.

8. Use of VR / AR technologies.

Interactive learning is being improved by integrating new technologies such as virtual reality (VR), augmented reality (AR). This allows learners to learn in an almost real environment. These technologies will also help create virtual labs for science and engineering students, providing a more hands-on approach to learning.

9. Cloud computing.

Cloud computing in the education market is expected to grow at a CAGR of 25.6%. Trends suggest that the cloud will become a key enabler for EdTech in learning. Seamless, easy connectivity, scalability, and cloud-based ERP systems are all possible use cases for cloud computing. Recent developments in the field of cloud computing and cloud services require a review of security measures to protect against cyber attacks and data theft. The expansion of cloud services will also contribute to cybersecurity trends as more organizations seek a secure ecosystem.

Thus, each area of EdTech has certain features, but there are several global global trends that are widely used in the field of education and give results. These

are blockchain technologies, working with big data, gamification , VR / AR, cloud services .

The development of the educational start-up market and the introduction of innovations in the practice of education require investment. According to the forecasts of the international analytical agency HolonIQ , the total costs of educational technologies, namely the development of artificial intelligence, will amount to $341 billion by 2025. China, India). Spending on AR technologies / VR amounted to only 1.8 billion dollars in 2018, and by 2025 they will amount to 12 billion dollars.

Analyzing venture companies that are actively developing this market, there is a tendency to increase investment in the EdTech sector . Since 2014, financial support for educational start-ups has exceeded $8 billion, although one can observe an uneven distribution of funds in favor of individual regions. Some countries show moderate growth in venture capital investments. Leading position is held by China. This country accounts for more than 50% of all global venture investments. Experts explain this situation by rapid economic development, state policy priorities (more than 4% of GDP is spent on education), a large number of young people striving to study, and the rapid growth of the middle class, which uses the services of commercial education and determines its development.

In the next few years, we are waiting for the technologization of education. This can be seen in the example of European startups (Table 1).

Table 1. Promising European educational startups

Startup name	Development content
coachhub	Digital platform. Learning takes place through an app that offers video coaching sessions, training materials, as well as personal support from a business coach (recommendations for planning, stress management and leadership development)
Drops	A Tallinn startup offering a new way of learning languages. The app offers aesthetically pleasing word games for total immersion in a new language. 36 languages available to users
Elias Robot	Product of the Finnish startup Utelias technologies . Idea: helping children learn a foreign language using social robots.
In Simu	A Hungarian startup that has developed an interactive patient simulator app that allows doctors and medical students to practice and diagnose virtual patients

M.E.L. Science	Educational start-up that implements chemistry lab kits and virtual reality program supplies materials for conducting chemical experiments, as well as software for creating virtual reality to expand the theoretical understanding of the experimental process
Skriware	Polish startup that allows children to learn design, create and program robots, use 3D printing
Stemi	A creative solution for learning with robots. The main "feature" of the startup is a six-legged spider robot, which is a tool for teaching robotics, electrical engineering and programming.
Tutorful	British startup, marketplace for finding and ordering tutors. It has more than 10 thousand teachers in 300 subjects in its database.
World Mastery	The Spanish start-up offers users courses for professionals taught by well-known experts in the categories: sports, dance, yoga, fitness, cooking, modeling. World Mastery operates as a content-as-a-service platform with over 10,000 users worldwide
Kahoot	an online learning platform that allows users to create and participate in various multiple choice tests

Developed by author

According to research by the British company RS Components , in the last 10 years, educational institutions have been actively implementing EdTech start-ups in the educational process, the use of which has grown from 20% to 80%, which indicates the effective European practice of supporting and implementing educational technological products.

Risks and prospects for further development

Despite the advantages of EdTech in education, there are still a number of problems and challenges that market participants face:

1. Lack of communication between business owners and teachers.

While businesses see it as their goal to bring their product to market, teachers are thinking about student achievement and the impact that product will have on students. This discrepancy makes it difficult to sell the product and hides real business opportunities.

Possible solution to the problem: Overcoming differences through communication with teachers. Instead of creating a product without specifying the needs of students and teachers, it is necessary to understand the limitations of the education system and ask questions to the teacher so that a product can be developed that will become an integral part of the educational process.

2. Inefficient use.

Inefficient use of a product undermines its credibility and is a problem. A possible solution to the problem is to increase user engagement, which can be achieved through improved user experience, personalized learning, product gamification, and the use of social learning.

3. Confusion between users, customers and decision makers. In most industries, the consumers of a product are the ones who pay for it. However, for EdTech, this rule may not work. The product may be intended for children (for example, a math learning app), but the decision to purchase the product is made by the parents. In this regard, it can be difficult to determine whose requirements should be met in the first place: the user (the student), the client (the parent of the student) or the decision maker (educational councils and administration). A possible solution to the problem is direct communication with the client. Some start-ups target teachers, some target administrators, some target the learner.

4. Slow monetization.

Many parents and teachers view education costs as a problem and prefer to use free products or minimize costs. Students use free products from companies such as Google, Microsoft, and Zoom. Investors may have unrealistic product expectations and may be frustrated by the slow return on investment. Ability to solve the problem: building a sustainable business model. An educational institution may be limited in finances. Therefore, you can make the application free for schools and charge parents for additional materials. Or you can sell your product directly to those who have the finances and the motivation to learn—experts who need advanced training.

5. High competition.

The number of startups in the field of educational technologies is growing. Increasing competition for funding is forcing companies to reduce development costs, develop innovative strategies to attract customers, or compromise with competitors. Possible solution to the problem: to study competitors and come up with a unique offer that will distinguish the company from others.

6. Resistance to change.

Some teachers may view laptops and smartphones as a distraction rather than an opportunity to improve their learning experience. Possible solution to the problem: demonstrate measurable results. One of the best ways is to back up your claims with empirical data (research by international organizations, statistics from statistical services, or personal experience).

7. Expansion costs.

Expansion into the global market is one of the biggest challenges among high-growth edtech start-ups. More than 90% of those surveyed cite foreign regulation as the main barrier to entering the global market, while others are puzzled by the complexity of local markets and the difficulties of localizing educational content. Possible solution to the problem: partnership. The way to capitalize in regions like Latin America or East Asia is by partnering with local educational institutions, content creators, accelerators, and other companies.

8. Long sales cycles.

The process of buying and selling a product by an educational institution can be quite lengthy and unnecessarily bureaucratic. Possible solution to the problem: reduce the number of matching levels.

9. Privacy and data protection.

The use of multiple connected devices with poorly secured applications in the classroom poses the same threats as in the consumer market (lack of transparency, privacy protection, potential for data to be leaked or sold to third parties). Possible solution to the problem: create a privacy policy, educate customers about the company's security measures, invest in security, limit the collection of personal data, age restriction, notify users of a data breach.

In modern conditions of doing business, one of the main issues is the staffing of the organization. This issue becomes relevant in the context of the digital economy, when new requirements are imposed on specialists that previously belonged exclusively to information technology experts , and “lifelong learning” is becoming a new trend in society and business , according to which the

following key competencies, the importance of which for the individual is considered the same: literacy; language competence; mathematical competence and competence in sciences, technologies and engineering (science - Science , technologies - Technology , engineering - Engineering , mathematics - Mathematics - STEM); digital competence; personal, social and learning competence ; civic competence; entrepreneurial competence; cultural awareness and self-expression.

The emergence of the concept of "lifelong learning" is associated primarily with with a rapid loss of relevance of information and knowledge, which is due to the rapid development of digital technologies, the impact of which on society and business is increasing every year . At present, it is important not only what a specialist knows, but also how quickly he is able to master completely new knowledge, adapt to the changing requirements of society and business.

past , it took a lot of effort to get the right information or knowledge . Nowadays, thanks to digitalization, access to information and sources of knowledge has become much easier. For example, in an Internet browser , using a search engine, it is enough to set the keywords for the search and you can get a sufficient number of links to sources of different quality and choose the right option among them.

In the field of education, along with traditional methods (in educational institutions), thanks to digital technologies, new ways of learning are emerging, in particular, using online courses, mobile applications, etc., which can all be combined under one term "EdTech", then there are educational technologies. The concept of providing services in the field of EdTech is closely related to trends in the field of consumption, which are mainly set by the generations of millennials and zoomers , who live according to the principle of "here and now", when any information can be obtained in real time, regardless of the location of the consumer and the company. Currently, there are a fairly large number of various educational platforms with online courses, mobile applications in the world, among which there are also well-known domestic representatives of the EdTech sphere , in

particular: the platform of massive free online courses Prometheus; the online education studio EdEra, where there are online courses, interactive textbooks and a blog that highlights topical issues of modern education in the digital economy; online platform for finding tutors Preply; service for checking grammar and spelling of English texts Grammarly. These and many other online platforms and applications contribute to raising and maintaining the level of education in the Russian Federation and the world, which is important, since it is high-quality education that drives the development of various sectors of the economy.

The most popular directions in the field of EdTech are:

educational marketplaces, where in the form of online courses, interactive - textbooks, presentations, webinars, etc. as a rule, a large amount of information is provided free of charge for self-mastery;

programs and platforms, the use of which can facilitate communication between participants in the educational process, provide an opportunity to obtain an expert opinion on some scientific publication, project, etc.;

technologies as auxiliary tools of the educational process, thanks to which it is possible to detect plagiarism in the text; identify the person performing online tasks, etc.;

learning bots, the purpose of which is to help in obtaining knowledge and testing it.

Educational marketplaces include the following elements: a person in need of new knowledge (“student”); person (or group of persons) who developed a particular online course (a "teacher") and hosted it on a specific platform; a platform where the courses are located and the entire learning process of the “learner” takes place, behind which is a group of persons (company) that administers the entire learning process, maintains hardware and software for the smooth operation of the platform, etc.

Each of the parties in this case may have different tasks and problems. In particular, the “student” has the problem of choosing an online course from those offered both on one platform and on different ones. In this case, he may be guided

by the following selection criteria :

whether the knowledge, skills and abilities necessary in the modern world will be formed as a result of mastering the course material . In this case, you can focus on a list of skills: complex problem solving , social skills, data processing skills, system skills , cognitive abilities, resource management skills, technical skills, content creation skills;

the need for basic knowledge to master the course material ;

the time required to fully master the material of the online course;

prestige of the course, the online platform on which it is located;

the presence of a certificate of completion of the course and its significance for employers;

need for additional software or hardware to master the course material ;

the cost of completing the course and obtaining a certificate;

feedback on the course and assessment of other users of the platform (usually such information is not available on the platforms, and those who make their choice based on the opinions of other consumers, in particular, when buying in online stores, choosing a movie to watch , etc. your choice will be somewhat difficult).

The "teacher" has the problem of choosing to host an online course on a particular platform. In this case, the selection criteria may be: the number of platform users; awareness of the existence of the platform in society; prestige of the platform; clear regulation of intellectual property copyrights ; providing software for creating an online course; in the case of paid courses , how easy and safe is the payment mechanism , etc.

The team supporting the functioning of the educational platform, first of all, has the problem of selecting online courses for their placement. In this case, the selection criteria can be: the relevance of the direction (topic) of the course; correspondence of the course to the subject of the platform; the number of hours required to fully master the course ; the authority of the author of the course, his recognition, the press week of the educational institution he represents, etc.; the

amount of memory required to place the course on the platform; the language of instruction; tuition fees, etc.

The above selection problems can be solved using various economic and mathematical methods and models, in particular, the method of rating assessment and management. Theoretical provisions regarding rating modeling and making a final decision are considered in a number of works. Rating management is a management method based on ratings obtained in the processes of managing an economic system, which is a generalized result of a multifactorial economic analysis.

Conclusion

The development of the EdTech market is a long-term investment in the socio-economic development of the country. Today EdTech is a part of any national educational system, and according to experts' forecasts, further development will take place in the direction of a symbiosis of classical online education and the use of a simulation technique that allows you to immerse yourself in the problem as much as possible and gain full-fledged practical experience.

In the domestic educational sphere, the development and implementation of such technologies continues to grow. However, the main inhibitory factors for the active use of educational technologies this year were the reduction in the forecasting period among consumers and the decrease in purchasing power. Therefore, it is urgent to: form a development strategy for the country with an emphasis on sectoral priority; creation of conditions for promoting the development and effective functioning of innovative developments in the field of education; the use of mechanisms that ensure the introduction of start-ups in the practice of education; development of a regulatory framework together with the expert community; economic incentives for domestic developers and active popularization of technologies; support and launch of "digital sandboxes" that allow innovations to be tested in a specific territory or organization for a certain period before being widely used, as well as the formation of ecosystems , the task

of which is to help in the development and rapid development of educational start-ups.

The experience of foreign countries shows that the most effective at the national level is the introduction of a set of measures of organizational, legal, financial support for innovative developments in the field of education. Such approaches will provide positive prerequisites for the development of EdTech market and will become a powerful incentive to use the latest technologies in the educational process.

edtech has become an integral part of the self-education of any person, which causes the problem of choosing an online course that you need to master in order to improve your knowledge in order to perform professional tasks that require the acquisition of new competencies, knowledge, and skills.

This work can be a starting point for further research on various aspects of EdTech , in particular, the analysis of the impact of EdTech on traditional education, the expansion of Russian EdTech companies to the world market , etc.

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