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The Formation of the Adaptive Model of Educational Management in the Sphere of Higher Education

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The system of education is an important indicator of the development of society. The need in preparing a skilled workforce under the conditions of the scientific and technological revolution makes it necessary to extend the field of education, and in particular, the higher education system. The article analyses the models of modern universities and specifies the features of the educational management system. The consideration of the basic models of education throughout the world made it possible to highlight the most common advantages and disadvantages of each model. Aiding in the development of universal recommendations for the modelling of the higher education system, it predicts the new architectonics of the model of the higher education system for the near future. The results of this study have led to the formation of an adaptive model of management of the educational processes in the realm of higher education. In meeting the modern requirements of the consumers of educational services and developing the socio-economic environment, it can be implemented all around the world.

Keywords: *Adaptive model of educational management, skills, higher educational institution, higher education applicant, university model, abilities, educational environment, educational space management system, sphere of higher education.*

Introduction

In a highly competitive global economy, the business-economic-education system is represented as a subject of competitive and entrepreneurial relations, aimed at generating not

only social but also an economic impact. It fulfils the socio-economic functions in the development of the individual and the development of material production.

Sustainable development, and extensive and consistent economic growth is a necessary condition for ensuring the institutionalisation of the knowledge economy. Firstly, it is related to development as a multifaceted interconnected process, and secondly, priority is given to the development of human and intellectual capital (Candy, 1991).

The objective scientific analysis of economic relations in the field of education is of great importance. The study of their peculiarities in the process of reforming the economy, the substantiation of theoretical principles and the organisational and economic methods of managing the functioning and development of the education system, are becoming increasingly important.

The problem of theoretical substantiation and development of models of management of the educational sphere is especially significant. It provides the stabilisation of the economic situation in the educational sector, and innovative development in the conditions of formation of the market relations. Based on a balanced combination of state and market regulators of education management, it is brought to the forefront.

The modern university assumes the mission of social and economic development. The most significant outcomes of the process of changing the educational space of the higher education sector include: creation of a network of leading universities, systematic elimination of imperfections in the training of a certain profile, transparency into the activities of universities, as well as accessibility of educational services and the concentration of efforts to ensure the quality of education (Dyakonov et al., 2018).

It should be taken into consideration that higher educational establishments appeared in the former state-political system, which is fundamentally different from the modern one.

For this reason, the latter's entry into new socio-economic conditions has caused many problems. They need to be solved both by new theoretical approaches to the education economy and by finding practical ways for ensuring the survival and stable functioning of higher education institutions. It is essential in the context of the ongoing crisis of socio-economic phenomena and globalisation integrations (Prawat, 1999; Markina et al., 2019).

When choosing a model for the implementation of an educational program, it should be recognised that any higher educational institution is a fairly conservative system that is difficult to transform quickly. Therefore, of course, any changes must be made in accordance

to the experience, traditions of the university and the particular conditions in which the university operates; region, industry, political and economic situation (Tierney, 1999).

At the same time, the education system is an important indicator of the development of society. The need in preparing a skilled workforce under the conditions of scientific and technological revolution makes it necessary to extend the field of education, and in particular, the higher education system.

The Purpose of the Article

In the context of global competition in the education market, it is evident that only countries with a highly efficient, modern business education system can deliver sustainable development.

In almost all countries that exhibit high economic growth, education and training for highly qualified specialists, and the development of high technology-based industries are a priority area of governmental support. Economics, politics, spirituality and other components of social life are dependent on the nature (specifically the development of education) of its formative impact on the individual. In this case, there are different models of education which are predetermined by the world and national social processes.

There are many contradictory points of view in regard to educational management that require a more detailed analytical reflection. The purpose of this article is to analyse the models of modern universities, to determine the features of educational space management systems. The results of this study will serve as the basis for an adaptive model of higher educational management. It will meet the contemporary requirements of consumers of educational services and the development of socio-economic environments and can be implemented in different countries of the world.

Materials and Methods

Data was used to determine the relevance and necessity of forming and implementing an adaptive model of educational management in higher education. This included drawing said data from an Economist Intelligence Unit report produced for the British Council (British Council, 2015), Times Higher Education (Times higher education, 2018), the World Economic Forum (World economic forum, 2018) and the Future of Jobs Report 2018 (Centre for the new economy and society, 2019).

The research used general scientific methods of analysis and synthesis. A structural method was used to characterise the existing systems of educational management. Specific scientific

methods, such as retrospective methods, were applied to identify the specific features of the university models. This made it possible to identify the advantages and disadvantages of the models studied, depending on the economic, demographic, environmental and socio-cultural factors of the country's environment. A systematic method was employed to build an adaptive model of management for higher education. As a result, it will meet the modern requirements of the consumers of educational services and the development of the socio-economic environment and can be implemented worldwide. Other research methods included monographic, abstract-logical and grouping methods.

The sample of international universities using different systems of educational management models was conducted on the basis of certain features and specifics of educational services in these countries. The sample included the United States, Latin America, Eastern and Western Europe, Southeast Asia, and Africa.

Discussion

At the beginning of the twentieth century, about half a million people studied worldwide, and by the beginning of the twenty-first century, the number had grown to 100 million. This growth, largely in the second half of the twentieth century, necessitated the formation of different university models. This made it possible to classify the regions of the world according to their historical traditions and socially conservative or liberally competitive policies, determining the educational management systems. There are three main types:

1. Equalizers are systems of educational management; the model of the institute, which is oriented to its internal environment. These systems are widely spread in countries with strong egalitarian beliefs and institutional rigor that stand for justice.
Most countries in this category are in Europe and Latin America. Proponents of this approach claim that 4–5 per cent of the country's GDP is the "reasonable" amount needed to support this model of education. At the same time, some countries are in favour of a self-financing model of equalizer, partly because of government spending cuts. Universities in countries such as the United Kingdom, the Netherlands and Switzerland are expanding. The most developed countries that achieve a balanced approach to financing are Germany, Japan and South Korea; they combine public and private costs to form university budgets.

2. Revolutionaries are systems of educational management inherent in emerging economies, “deep-pocketed” governments, enabling national universities to be created with educational scientific research and considerable resources. In this model of university management, education is the engine of economic development (not so much social integration), which should be included in the production base of the country.

This classification includes countries such as Singapore, China, Saudi Arabia, United Arab Emirates, and Qatar. These countries have decided to carry out their own academic and industrial revolutions directly, giving their universities the status of the primary instrument of the national mission.

3. Globalisers are the third category of educational management systems. It is used by a group of economically liberal traditions that are both a benchmark in the "science generation", in transferring knowledge to the educational market, in selecting the best talent in teaching and research, and in attracting a wide range of international students (US annually receives one million international students). These countries' systems are generally competitive, exclusive, practical and selective, depending on the individual preferences and outcomes. The globalisation of education management systems is inherent in the United States and, to a lesser extent, in Canada (Times Higher Education, 2018).

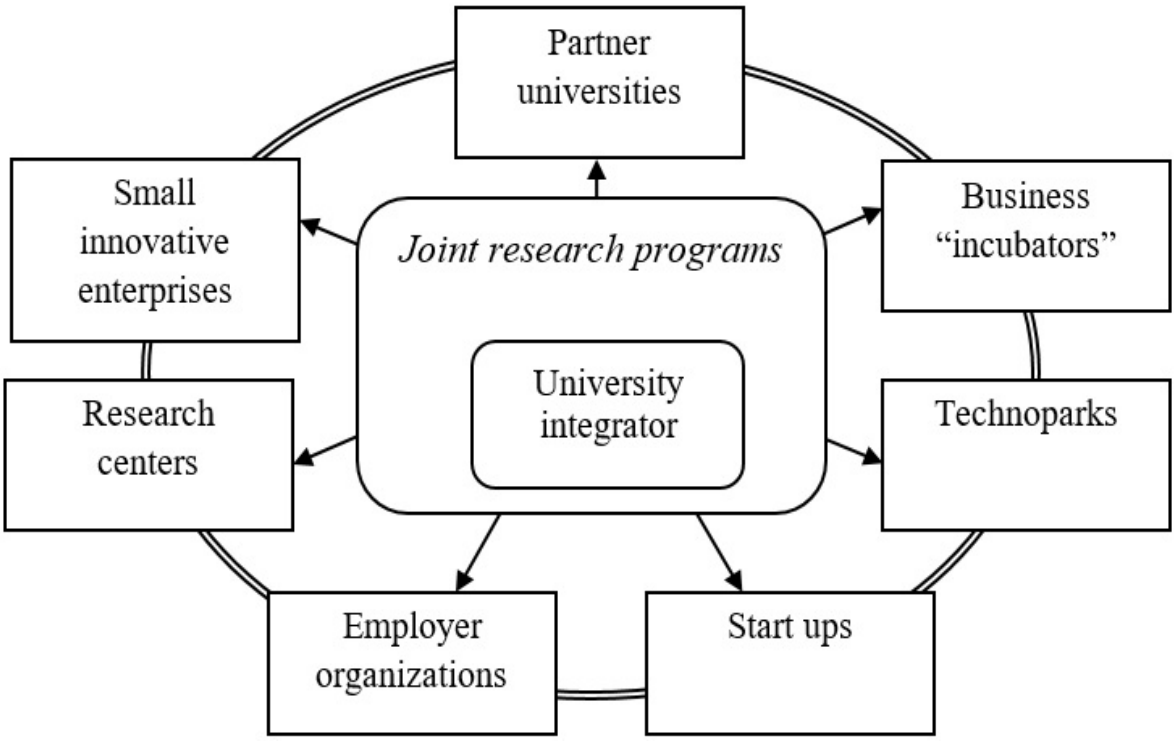
However, these models are not universal in the world of education and are exhaustive in characterising education management systems. Almost any modern university, in one way or another, seeks to be represented in the international community. Depending on the degree of involvement in the processes of globalisation, modern educational institutions can be divided into national, international and cosmopolitan (Timofeeva & Timofeev, 2018).

At the same time, it is advisable to distinguish multinational, transnational, meta-national, or global educational establishments from higher educational institutions with foreign affiliates. (Karpechenko, 2014; Vorobyov & Tashkentulova, 2016).

According to forecasts, in the next twenty-five years, the educational system will be determined by factors such as qualitative change in human capital, permanent change of technologies, growth of solvent demand, and globalisation on the basis of a new wave of commercialisation of higher education.

In the context of the present day, the higher educational establishment, which claims to be up-to-date and effective, should be successful not only in the main fields of activities (educational and scientific), but also be a centre of innovation creation and development. These include business universities, which, unlike the classic ones, integrate teaching, research and commerce and generate significant revenue. They also have different objects of innovative infrastructure in their structure (Fig. 1).

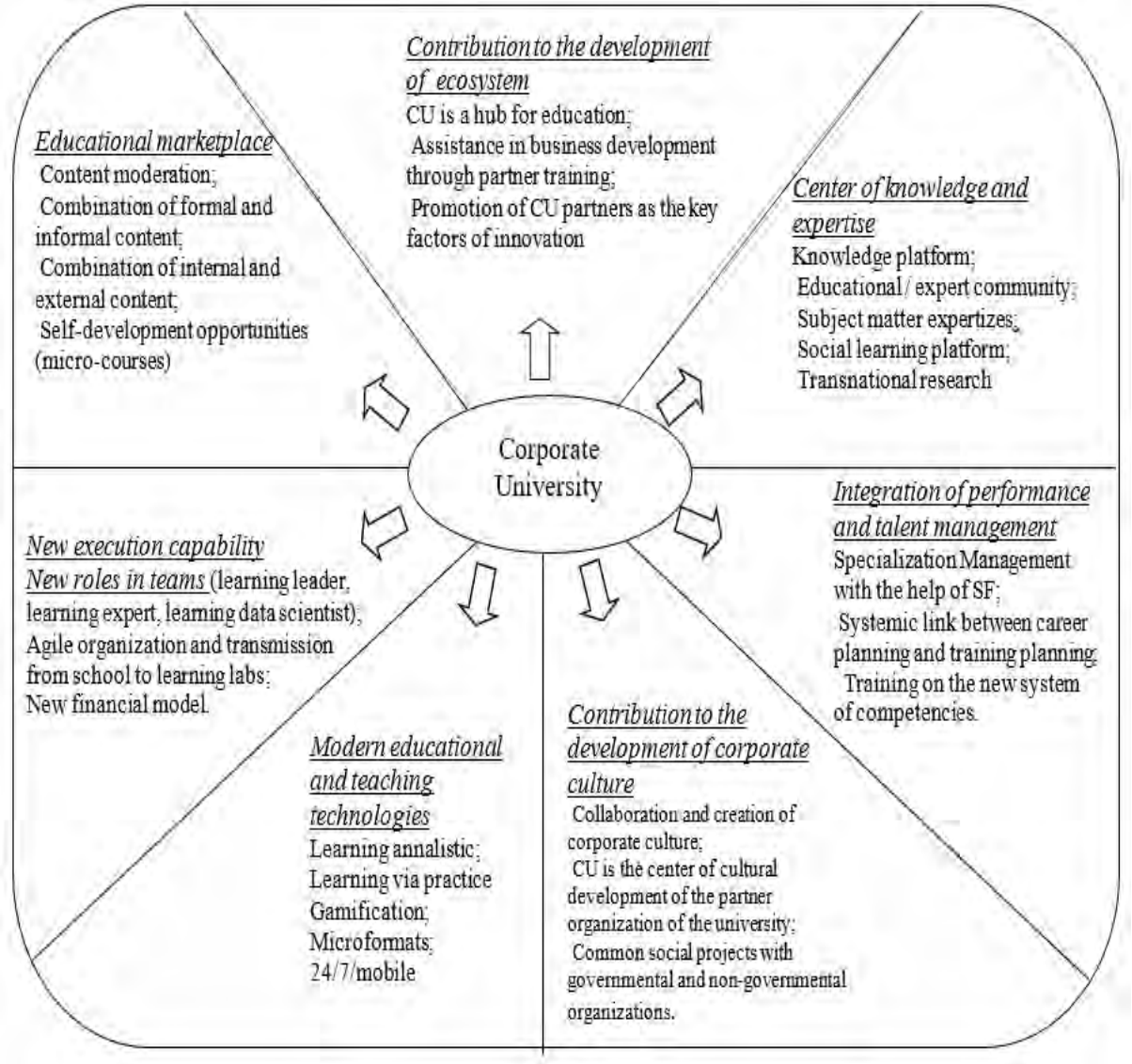
Figure 1. Model of Business University (developed on the basis of Baumgartner, 2001)



For example, in the US, the business university base includes approximately 235 HEIs (so-called Category I and II research universities). They form the basis of the American higher educational system and are the main centre of its fundamental science (Belenky et al., 1986; Baumgartner, 2001).

A generalised corporate university model is presented in Figure 2.

Figure 2. Corporate University Model *(Created by Volkov-based authors, 2018)*



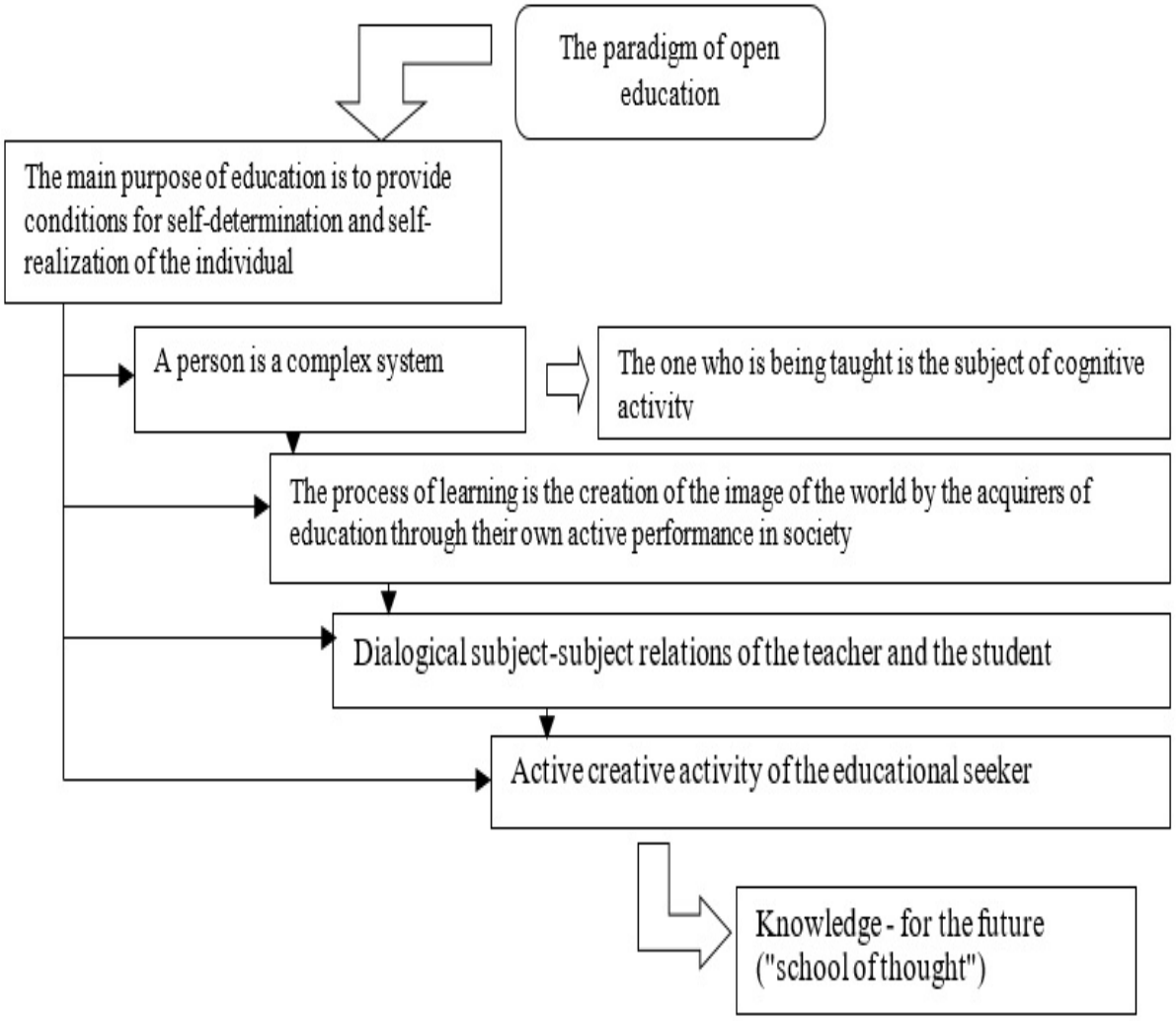
The main task of such a university is the professional development of the employees of the organisation. The organisation, on the basis of which the corporate university operates, not only implements the strategy of its development and forms uniform corporate values, but also independently replenishes its personnel reserve and provides itself with the necessary qualifications. There are two main approaches to establishing a corporate university: through the alliance of a university with a large corporation or the formation of a separate independent structure at a traditional university.

New information and communication technologies in education significantly change the basic principles of the organisation and provision of education, and with it, the "formats" of modern HEIs. The training is conducted in the remote access mode, providing ample

opportunities in providing flexible and variable schemes, methods and content of the educational process (Shibanova, 2015). In this context, it is important to note the so-called "universities for millions" — global educational platforms that offer free online courses to everyone. Hundreds of traditional (non-virtual) universities collaborate with the platforms.

The conceptual model of the open university of modernity as summarised by the authors is shown in Fig.3.

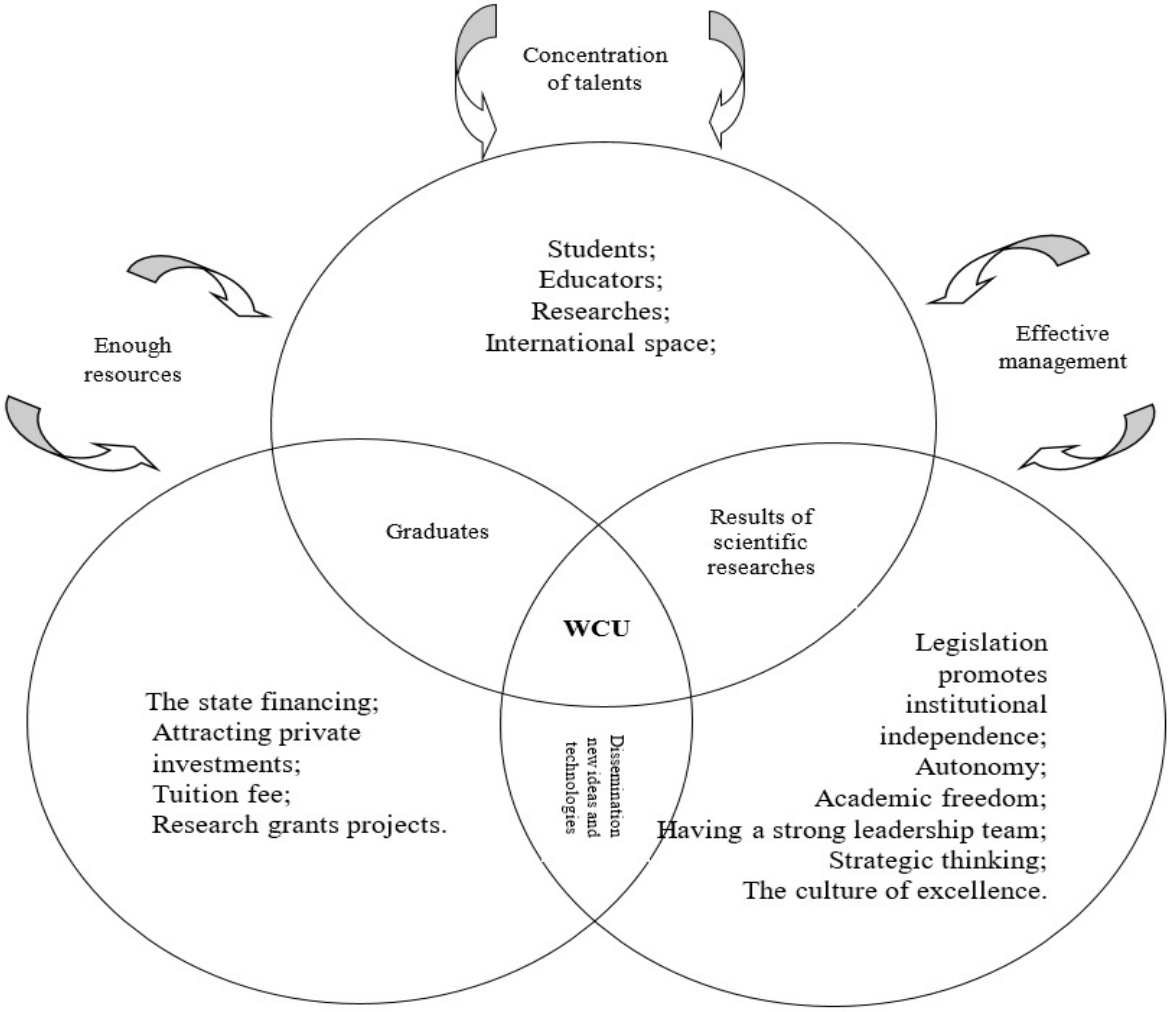
Figure 3. Conceptual model of an open university (created by the authors on the basis of Elitarium, 2019)



Another new model of the university, is the world-class model. It is a large, successful and modern educational institution. The world-class university is a research-type university. Its teaching and research quality are recognised as world-class competitive. It is a world-class intellectual centre, a national forge of personnel centre of innovative activity, and a subject of national pride. A model of this type of university is presented in Fig. 4.

The elitist model is another type of university model. The higher education institution working on this model is academically "interesting" to intellectual entrants. Universities in this area are ideal for erudite and intellectuals. Everything here is based on thought processes, philosophical principles and research. The only drawback to this format is the lack of practice (Elitarium, 2019).

Figure 4. A world-class university model (created by the authors on the basis of Vorobyov & Tashkentulova, 2017).



In the inclusive university model, the purpose of inclusive education is to ensure equal access to education for all students. The diversity of special educational needs and individual opportunities are taken into account. Improving the modern system of education management in accordance with the principles of humanisation and individualisation involves the development of theoretical models. They most fully reflect the content and nature of assistance to disabled learners in a specific educational complex (Markina & Al Shirafi, 2016).

Results

The consideration of the basic models of education in the countries of the world made it possible to highlight the most common advantages and disadvantages of each model, to develop universal recommendations for the modelling of the higher educational system, and to predict the new architectonics of the higher education system for the near future.

Taking into account the increasing number of universities in the world and the tendency of changing the system of higher educational management, it is advisable to create a new model of the university.

When designing a four-grade university model, it is advisable to take into account the latest trends and requirements of the educational sphere. They are determined on the basis of research conducted by the World Economic Forum (2018).

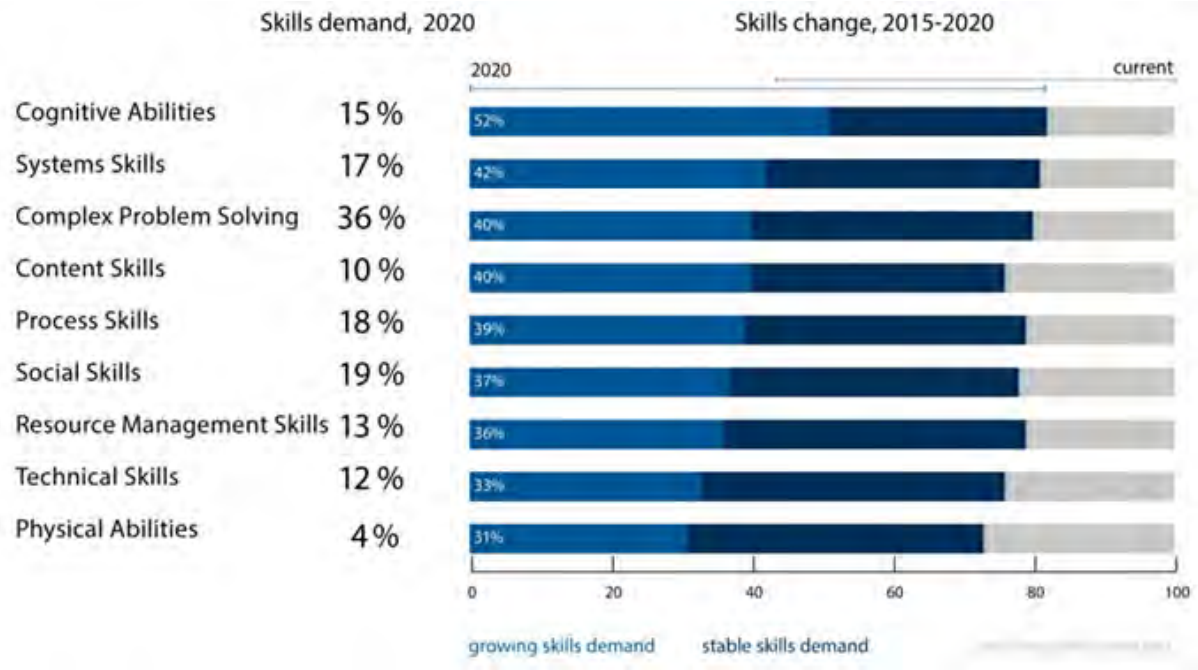
Particular attention is paid to modern requirements:

1. The growing needs and expectations of the student-consumer.
Like any other business sector, the changing requirements of consumers (in this case, lifelong learners) are driving change in education. As a result, there are new expectations for higher education and lifelong learning experiences that meet different lifestyles, individual circumstances and preferences.
Students are increasingly considered as consumers who purchase flexible, hassle-free and personalised training programs. Of course, there is a diverse range of requirements for educational providers. They ensure making alternative choices and meeting other social needs.

2. The growing need for lifelong learning in a non-linear format.
World Economic Forum experts have identified a pressing need for continuing education to update users' skills for them to stay relevant in the job market. Activities in the digital economy will increasingly relate to "working based on knowledge". More jobs will require significant interaction with information, communication and intellectual technologies. The outdated "industrial age" mentality of early-life education, that makes educators ready for later life, no longer reflects the individualised trajectories of modern careers (Fig. 5).
The idea of lifelong learning is not new, but with the formation of a modern educational management system of educational space that has become more non-linear. The conditions of lifelong learning have changed significantly since the introduction of this concept. The need for lifelong learning provides access to learning opportunities in different ways, with different goals and at different stages of career. Therefore, we have identified the need for enablers to both learn and work from the start. The activity of the applicant, that is, his work

must be relevant to the qualification and include the study of disciplines related to the specialisation of education. In turn, the above and the success rate of the applicant in fulfilling his or her professional duties will shape his or her salary level (Times higher education, 2018).

Figure 5. Change in skills demand and composition, 2015–2020 (worked out on the basis of The 4 biggest challenges to our higher education model – and what to do about them, 2019; Centre for the New Economy and Society, 2019).



3. New technologies of educational management and business model of the university.

Although the pace of change in education is generally slower than in other more income-oriented sectors, innovations in the educational sphere are becoming more widespread with digital transformation. Thus, the educational platform should be changed significantly in the coming decades as consumers of educational services move away from traditional higher education models to lifelong learning models (Fig. 6).

Figure 6. The jobs landscape in 2022 (Developed on the basis of The 4 biggest challenges to our higher education model - and what to do about them, 2019; Center for the New Economy and Society, 2019)

It is obvious that for further development in the field of education management, a model of enterprises-innovators of educational innovative technologies is needed. These new entities are leveraging innovative technologies and business models for providing educational services to implement new, alternative approaches to education that better meet the evolving expectations of educators. This can be implemented on the basis of such technology giants as Google, Microsoft or Amazon that offer inexpensive, personalised, flexible style training "Netflix for Education".

At the same time, such an innovation will inevitably test the flexibility and ability to adapt to the changes of existing university models. It will allow the capability to determine the competitiveness of the management systems. In today's context, more and more universities are experimenting with changes to their business models of providing educational services, with a view to fully address the needs of higher education applicants, with a rethinking role for traditional institutions in general.

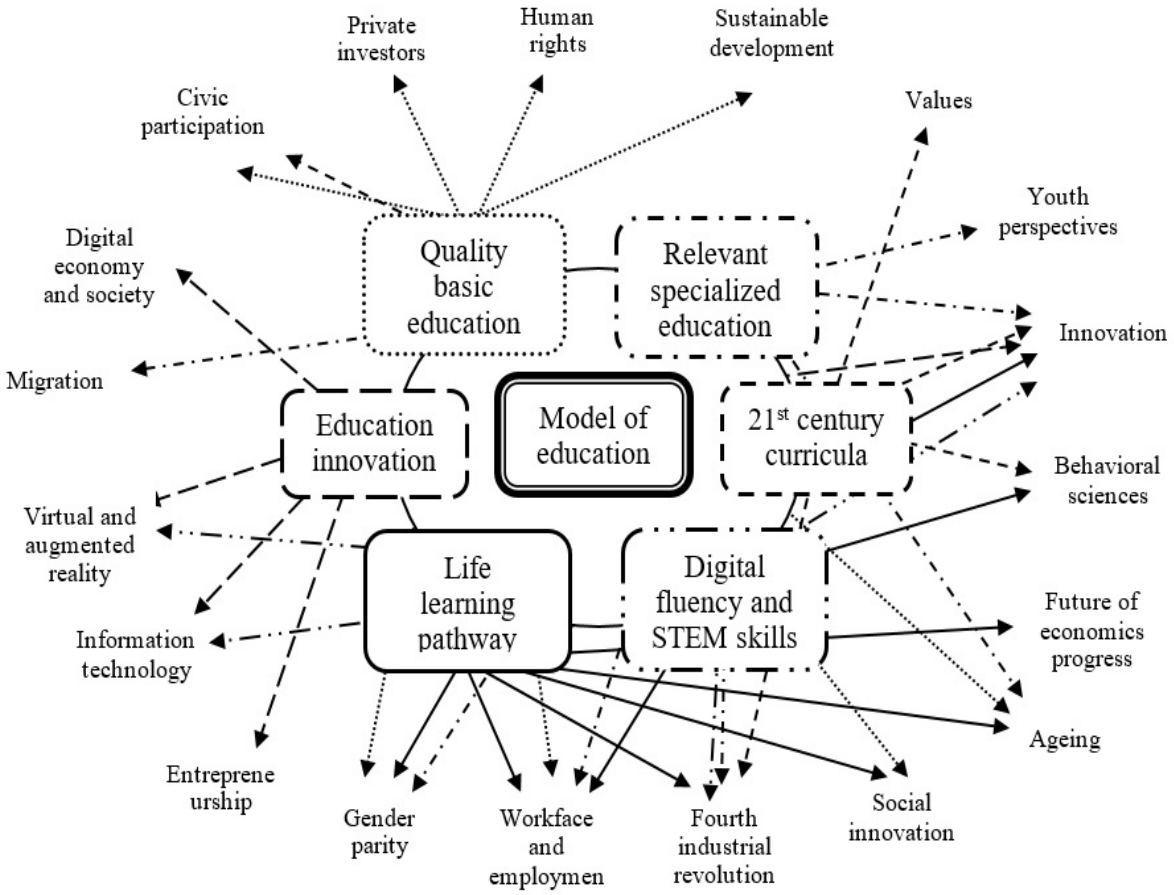
4. Preference for skills over educational degrees

The current realities of the educational space testify to the increasing value of skills rather than to the attainment of degrees. Traditional thinking in education systems implies that the surest path to success in professional life involves completing the higher education process, and a higher education degree correlates with higher employment opportunities, and thus, with higher wages. However, now, the value of degrees is questioned more than ever before, not only in places where applicants face high tuition fees, but also in education systems where education is free.

For most businesses, degrees in education continue to serve as an “indicator” that confirms the qualification of a potential employee. However, studies show that educational attainment is only partially correlated with performance. In fact, more and more companies, including well-known companies such as Google, Apple, Penguin Random House, Ernst and Young UK, and IBM, are actively shifting their focus from education to new ways of measuring performance as a consequence of changing the nature of work.

Almost the entire educational space, which was formed in the twentieth century, is already modified and reconstructed in the twenty-first century, and higher education is no exception. Thus, on the basis of age traditions, history, culture of prestigious foreign and domestic universities, models of educational management, taking into account the disadvantages and advantages of each model, designing modern innovative and high-tech technologies in the educational model of the university, we have proposed an adaptive model of educational management trends and requirements of the educational environment (Fig. 7).

Figure 7. An Adaptive Model of Educational Management (author's development based on Times Higher Education, 2018; The 4 biggest challenges to our higher education model - and what to do about them, 2019; Center for the New Economy and Society, 2019)



The architectonics of the proposed adaptive model of educational management should include:

- Introduction of the concept of continuous education: "life-long education";
- Individualisation and liberalisation of secondary, higher and special education (individual educational trajectory);
- Increase of information accessibility of education and its digitisation;
- Wide dissemination of professions related to the manufacture and renewal of human organs; genetic engineering and genetic medicine; working with nano-objects; management of alternative energy sources; production of new materials; designing and managing virtual spaces; aerospace engineering; robotics, etc.;
- Tracking the achievements of science, technology, economics and advancing the demands of society in order to determine the strategic directions of the research and innovations that can have the greatest socio-economic impact.

The universal recommendations for the formation of the specified adaptive model of educational management are as follows:

- The model should be based on the ideas of innovative economic development, creation of an effective national innovation system;
- The model should provide clarification of the functional elements, among which crucially are quality basic education, relevant specialised education in the twenty-first century curriculum, education innovation, life learning pathway, digital fluency and STEM skills;
- The model should be based on the educational priorities that are the source for deciding whether to support this model of the university by the state, stakeholders and consumers of educational services;
- The model should have “through-the-corridors” from research development to practical implementation;
- The model should reflect the interrelationships of the partnership between science, industry, the state and the private sector;
- The model should be based on the results of the expert analysis and the criteria for the advance. At first, experts identify groups of educational services that could be competitive in the global marketplace, then select the technologies that have the greatest potential for model implementation. In addition, it is necessary to expand the range of prior used modelling methods.

Conclusion

The future for universities is very “open” as national borders in the field of education management system are disappearing. Existing university models have to make greater efforts to demonstrate their expressiveness and value. With increasing competition in the field of education, new models of universities are rapidly emerging all over the world. They focus on consumers’ preferences and employer demands. Each university will need to develop areas of specialisation as part of the gradual "unbundling" of traditional higher education models.

Based on centuries-old traditions, history, culture of prestigious foreign and domestic universities, models of educational management, taking into account the disadvantages and advantages of each model, and implementing modern innovative technologies into the educational model of the university, we have proposed an adaptive model of educational management in accordance with the demands of educational environments.

The proposed model of educational management, including its main social and economic functions, is also designed to organise the space-time continuum of the educational process.

According to its logical formation of images of the world, correlated with their own capacity to become an educational service personality, it avoids the unilateral market model profession which destroys its fundamentality and allows preserving the spiritual and moral orientations of the educational system. In our opinion, this model is based on interrelated approaches, such as anthropocentrism, cultural center and sociocentrism. As a result, it synthesizes better in the education systems of different countries.

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