

# Design of Concepts Sustainable Development of Flagship University in the Digital Economy

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**Keywords:** Flagship University, Sustainable Development, Smart University, Socially-Oriented (Civic) University, MOOC, Digital Economy.

**Abstract:** The concepts of sustainable development were initially developed in the framework of environmental theories, but were later applied in socio-economic systems (including educational ones), since they have similar laws of development, the balance of the rates of development and resource consumption, and the interaction of complex systems. The development programs of the main universities within the framework of the concept of sustainable development are aimed at increasing the competitiveness of the regions, stimulating innovative, technological and social processes in interaction with applicants, employers, entrepreneurs, regional authorities, but at the same time the universities compete with each other, develop development strategies, analyze strengths and weaknesses, resource opportunities and limitations. This article analyzes the possibilities of transformation of universities in the digital economy, taking into account regional and university competition, nowadays it is necessary to apply development programs that consider the conditions of the growing requirements for all participants of the system.

## 1 INTRODUCTION

The activities of modern universities are carried out within the framework of national and international initiatives and programs that are aimed at strengthening stability in the region and developing their national contribution to solving global problems, such as sustainable development. The role of universities is the scientific support and diffusion of the ideas of sustainable development through y networks, professional societies, mass media and other resources.

The concept of “the triple helix’ of (Etzkowitz and Leydesdorff, 1995) is widely used for exploration systems of factors that form the rules of work in the conditions of the innovation economy, the extension in the rate of updating knowledge, the growth in employers’ requirements for the quality of graduate training, the construction of network structures that unite universities, regions, public administration and business structures. As a result, universities become

the core of cluster structures, ensuring their development.

An important direction of implementation of the concept of sustainable development in the activities of the reference university is cooperation with local or regional authorities in the implementation of specific programs for the sustainable development of the industry, region or territory.

Cooperation with local enterprises and support for entrepreneurial initiatives aimed at sustainable development are beneficial both for small and medium-sized enterprises that receive new ideas and approaches to doing business from university specialists, and for universities that accumulate specific experience to train future specialists and business leaders.

## 2 RESEARCH METHODS

The general research methodology is the philosophy of sustainable development at the stage of transition

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to a post-industrial society, the increasing role of higher education in the world and the leading trends in its development in the digital economy. In accordance with the logic of the research, a set of complementary theoretical, empirical, statistical methods, adequate to the subject of the research, was used to solve the set tasks, including: theoretical analysis, generalization, classification, modeling, sociological methods, generalization of best practices in the field of sustainable development of flagship universities in Russia.

The history of the creation and the features of the sustainable development of reference universities in Russia are discussed in detail in the works of Berestov A.V. (Berestov et al., 2020), Krakovetskaya I. V. (Krakovetskaya et al., 2020), Saginova O.V. (Saginova, 2012), Gubar L.N. (Gubar, 2016), Arnaut M.N. (Arnaud, 2014) and Sazonov S .P. and Kharlamova E. E. (Sazonov et al.).

Figure 1 shows the main five principles on which the concept of sustainable development of the university is based.

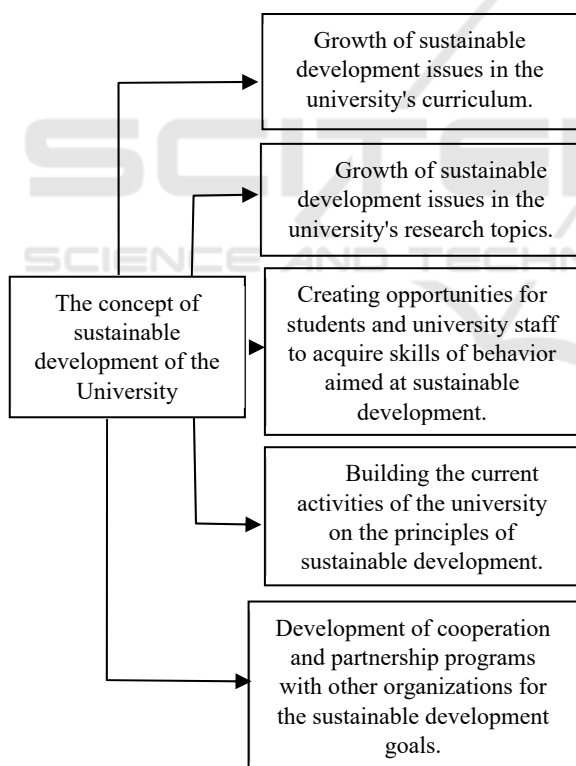


Figure 1. Basic principles of sustainable development of the University (Saginova, 2012)

The sustainability of the university's development is achieved as a result of the development of a number of interrelated concepts described in table 1.

Table 1: Concepts of sustainable development of the University (Krakovetskaya et al., 2020).

Concept name	Concept essence
The concept of a green university (green campus)	This concept involves the formation of a "green", environmentally sound education, the introduction of environmental practices in the university, increasing the level of environmental behavior of students and employees, monitoring the environment and assessing the quality of the environment, describing possible environmental risks and ways to reduce them
The concept of a Smart University (Smart Campus)	The concept involves the formation of a university that effectively uses all types of resources and implements modern information technologies to manage its key processes, working "ahead of the curve", developing promising areas based on the results of foresight research in the digital economy.
The concept of a socially-oriented (civic) University	This concept is aimed at creating conditions that ensure a decent life and free development of the individual. Social demand and social responsibility of the university are formed on the basis of public expectations. It's implemented through various projects: training of highly qualified specialists, retraining of regional personnel, social assistance and social support of students and employees, etc.
The concept of the University as a stakeholder organization	The concept is aimed at building long-term and mutually beneficial relationships with stakeholders: applicants, students, graduates, employees, potential employers, authorities and management, etc. The concept is aimed at coordinating the goals and criteria for measuring the effectiveness of the university's activities to the goals of key groups of stakeholders, as well as organizing monitoring of stakeholders' satisfaction with the university's activities
The concept of the "Third mission" of the University	This concept is aimed at active interaction of the university with the society as an organization producing knowledge and technology, as well as a complex of social, legal, and financial institutions that can ensure effective cooperation of regional authorities, scientific and educational organizations, industrial enterprises and the business community, non-profit organizations in all spheres of socio-economic and public life

Each of the presented concepts contributes to achieving the sustainability of the University and therefore should be taken into account when forming the overall concept of sustainable development of the university.

The sustainability of the development of a regional reference university lies in the possibility of its existence in the market of educational services and demonstrating high achievements in its work. It may be characterized by a number of necessary and sufficient conditions, the most significant of which are:

- the positive dynamics of the given contingent of students;
- qualification of scientific personnel;
- structure of the services provided by the university;
- overall positive trend in financial resources;
- increased R & D funding;
- growing share of modern equipment;
- the insignificant deviation of the planned indicators of the university's activities from the actual ones, etc.

Based on these factors, the researchers distinguish the following indicators for assessing the sustainability of the university's development.

Table 2: Indicators for assessing the sustainability of university development (Arnaut, 2014).

Group of indicators	Characteristics of indicators
1: Highly scientific staff	Growth of the share of persons with a Doctor of science degree in the total number of university teaching staff, %.
	Growth of the share of persons with a PhD degree in the total number of university teaching staff, %.
	Growth of the share of teaching staff awarded state and world-class prizes, as well as full members and corresponding members of the state academies of Russia, %
2: Innovative scientific and educational complex	Growth of the number of research, innovation and implementation structures, including technology parks, business incubators, etc.,%.
	Growth of the number of interactive training materials, %
	Growth of the number of scientific journals, including electronic ones, published by an educational organization, %
	Growth of the book value of machinery and equipment, %.
	Growth of the number of personal computers with Internet access, %

	Growth of the total area of educational and scientific premises, %
	Growth of the share of the cost of modern (not older than 5 years) machinery and equipment in an educational organization in the total cost of machinery and equipment, %
3: Extra-budgetary financial base	Growth of the share of the educational organization's income from income-generating activities in the total amount of the university's funds, %
	Growth in the income of an educational organization from funds from income-generating activities, %
	The growth of the educational organization's income from the funds from income-generating activities aimed at the implementation of R & D, %

Berestov A. V. studied in detail the evolution of the main universities during the period of the program of their development. Although the period 2016-2020 was accompanied by depression in the economic situation, universities managed to improve business activity, expand the list of programs, and conclude agreements for conducting commercial research (Berestov et al.,2020),.

Nowadays, Russian universities participate in numerous rating systems that allow them to compare their achievements at the national and global levels (National University Rankings).

Participation in the world educational rankings motivates Russian universities to create their own strategies based on the principles of sustainable development, for international recognition and creating a positive image of Russian education and research.

The analysis of the rating allows you to identify the leading universities, change priorities in certain areas, but there are also gaps in the rankings between individual categories of universities.

One of the main directions is the digitalization of education, which received a significant impetus during the forced format of distance learning. Although traditional education remains basic, an alternative has appeared on the educational services market-EdTech and MOOCs, which allows achieving a higher speed of information exchange, integration of work programs, benchmarking of educational processes, and reducing the cost of training.

MOOCs fit well into the students' requests for new learning formats, increasing the variability of disciplines, forming an individual educational trajectory, and reducing the duration of training. 2020 was even called the year of MOOCs (Shah, 2020), as

it showed the demand for these courses and their real possibility to replace traditional education.

MOOCs transform teaching methods, the market for educational services, and the requirements for both teachers and students. Nowadays there are changes in the development strategies of the education market, its globalization, and the removal of geographical and linguistic restrictions. There is a gradual diffusion of MOOCs. This field of activity has become attractive for startups that attract millions of dollars, covering the fields of education, business, and communications. Aggregate platforms offer a wide choice to users, promoting their advertising (for example, Class Central), with which you can quickly and in a single format get information about old and new MOOCs, about their start dates and access conditions, about the growth of MOOC platforms, and many other information.

The global market shows growth, in 2021, it is possible to reach \$ 241 billion. the number of students is increasing, for example, the number of registered users on Coursera has reached 76 million, edX-35 million, Future Learn-15 million (Shah,2020).

There are 4 main characteristics of MOOC that are well consistent with the concept of sustainable development of the university (Yuan & Powell, 2013):

1) Open schedule: students combine educational resources, classes and / or training complexes in different disciplines in order to meet their needs.

2) Open learning: teachers, experts and/or other students will generate ideas through various activities and share them in the learning process. This provides students with opportunities for independent, self-directed learning based on personal interests.

3) Open assessment: the assessment of what students have learned is made by their teachers and other students in the course of training, that is, the assessment of students by each other or in a group with "accreditation" on request.

4) Open Platform: Supports a dynamic and interactive open education community by creating and maintaining an attractive, intuitive and stable user interface for teachers and students. Computer software based on the information cloud principle and the use of open standards facilitates the exchange of data for different platforms and services.

MOOC may be considered as a social innovation that uses technological capabilities, and as a variant of social entrepreneurship aimed at expanding the field of education and its diversification, minimizing (in the long term) the costs of organizing the educational process, teaching thousands of students (Tsygankova, 2019). The number of completely free

courses is decreasing there is a orientation to the corporate consumer, who is interested in both new knowledge and career advancement, or obtaining a full higher education in the MOOC format. There is also a regionalization of MOOCs-the Spanish, Chinese, and Russian sectors are actively developing, covering new demographic groups (restrictions on age, health status, and tuition fees are removed), while there is a drop in interest in conventional forms.

MOOC provide new opportunities for the sustainable development of the university in the digital economy, but their creation and application depend on some factors:

- ability to create own courses;
- human factor (the desire to learn, the motivation of students);
- using platforms (using existing ones or creating new ones);
- the ability to use the achievements of digitalization;
- financing of digitalization projects;
- active monitoring of the requirements of employers and students, expanding the scope of activities.

### 3 RESULTS

Thus, MOOCs and digitalization can have a dual impact on supporting universities:

Stimulating – If universities can change their infrastructure, develop new courses in the format of mixed learning, attract applicants, expand the range of research.

Depressing - If there is no change in the principles of work, ignoring the requirements of the environment, the transition of applicants to virtual platforms or to central universities.

The implementation of the concept of sustainable development based on digitalization, it will allow the reference universities to become the technological, innovative and cultural core of the regional socio-economic system; to ensure the development of scientific and educational opportunities of the university; to train more in-demand specialists with the requirements of the digital economy.

1. The concept of sustainable development is aimed at a systematic understanding of the role of universities in the economy, the search for new resources, development opportunities, but at the same time, competition for applicants has intensified

2. Qualitative and quantitative changes require additional funding, one of the sources of which is the creation of network and cluster structures, the joint

use of research infrastructure, the creation of entrepreneurial universities

3. Information interaction plays an important role in the development of university networks. One of the forms of this interaction is mass online courses, which allowed to expand educational opportunities.

4. The development of core universities requires additional investments in both infrastructure renewal and professional development, knowledge management, and access to best practices.

5. The concept of sustainable development can be implemented in various directions, but digitalization allows for the integration of educational, financial, and technological resources.

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