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**MODERN UNIVERSITY AS A DRIVER OF GROWTH OF THE REGIONAL DIGITAL ECONOMY**

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**Abstract**

In education, as in many other spheres of life, significant changes are observed as a response to external threats caused by the processes of economic integration and global digitalization of society, new technologies and innovations, new thinking and a new attitude towards the ongoing changes. The economy and society as a whole need cadres – thinking and competent, capable of continuous renewal and reasonable change of their competences and types of activity. This requires progressive teaching methods, practical skills and professional competencies to feel free in the digital world. All this can be clearly seen in modern life and, in turn, leads to a change in the philosophy of modern education for a successful and stable future in the Russian digital economy. In this regard, the university is also changing its role – becoming not so much an educational organization as a full-fledged actor of economic space, an active subject of territorial development. A modern university occupies a leading position not only in the regional educational sphere, but also in the region as a whole, setting the main trends of its industrial, innovative, and cultural development.

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*Keywords:* Digital competencies, human resources for the digital economy, innovation ecosystem, scientific and educational space, spatial development



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## 1. Introduction

The process of mutual influence and interpenetration in the “university-region” system is very multifaceted: on the one hand, the university is a key player in the system of scientific, educational, cultural, educational, political, economic, international relations of the region, on the other hand, it is the level of regional socio-economic development actively influences the choice of priority areas for the development of the university, its tactical and strategic goals (Erdyneeva et al., 2019; Postma, 2014). The emerging model of interaction between the university and the region is very individual, has its own unique features, based on the starting conditions for the interaction of these subjects, although, of course, there are a number of features that are universal in nature and can contribute to building a similar model on a completely different territory of the Russian Federation.

Regional development of modern Russia is highly differentiated and unstable, since it is a function of many variables, which, first of all, include: geographic location (border area, proximity to megacities, landscape features, etc.); a historically developed production system (due to the presence of certain natural and climatic resources on the territory of the region); an active regional economic policy aimed at attracting federal resources (participation in federal infrastructure projects, attracting specialists to the region, including from among the state's administrative elite), etc. At the same time, the quality of the social and cultural environment, understanding of the priorities and values of the new habitat are of great importance in shaping the architecture of the regional economy. Investments should be not only effective in terms of economic development, but also the formation of a social environment that meets modern standards, cultural and leisure infrastructure, intellectual and cultural capital for the development of the territory as a whole. The university as a key subject of territorial development is able to make a significant contribution not only to the formation of the human resources of the regional economy, but also to become an advanced center for the development of technologies, the cultural and social component of sustainable regional development (Huggins & Johnston, 2009).

The digital environment adds different meanings and sets a different framework for development, since the interaction toolkit is somewhat different from the traditional methods and organizational principles of university participation in the life of the region (Marcum, 2014; Sanchez, 2017). VUCA world makes serious changes in the mentality and basic values of a person: having its advantages and disadvantages, the new reality requires comprehension and new approaches not only in the organization of economic and educational space, but also fundamentally different methods and mechanisms of accumulation and transfer of knowledge, individualization of human capital and global cultural values (Horstmeyer, 2018). This contributes to the transformation of university values, as well as to a change in the models of higher education in general.

At the same time, the development of the digital economy and its implementation in a specific territory contributes to a change in the strategy of the university, creating a demand for its services: the creation of personnel with the necessary digital competencies, joint scientific and educational projects, participation in the formation of a regional cultural space, etc. The university becomes a center of attraction, a kind of driver for the growth of the region's intellectual capital, improving in accordance with external demands and internal ideology.

## 2. Problem Statement

In 2016, a new concept emerged in the Russian Federation – a flagship university – for higher educational institutions focused on supporting regional development in the territory of presence. The objectives of the flagship university were determined:

- saturation of the local labor market with highly qualified specialists;
- solving urgent problems of the regional economy;
- implementation of educational and innovative projects jointly with the region and its enterprises.

By 2017, there were 33 flagship universities in the Russian Federation with predetermined tasks and an estimated annual funding. However, as it became clear that these tasks do not fully reflect modern challenges, as well as in connection with the emergence of new tasks and threats of our time, the state has now updated the targets for the development of the higher education system (Baryshnikova et al., 2019; Kasatkin et al., 2019; Klyuev, 2017). In addition to the previously stated issues of interaction between the local university and the regional community, the development goals of educational institutions were supplemented by the need to ensure strategic academic leadership, increase the contributions of universities to achieving the strategic development goals of the state (Shvedina & Fikhtner, 2021). Of course, universities remain focused on the balanced spatial development of the territories of their presence, as well as ensuring the availability of high-quality higher education.

New challenges are associated with the development of an internal competitive environment in the field of education, which will ensure, on the one hand, an increase in the quality of educational services for students, and on the other hand, the achievement of a high level of competitiveness of Russian universities in the world market, including intellectual leadership in the scientific and technological spheres. It is these conditions that determine the policy of Russian universities, giving rise to effective practices for achieving the tasks set by the Government of the Russian Federation. Yaroslav-the-Wise Novgorod State University (hereinafter – NovSU) also has a number of unique projects, thanks to which it overcomes the difficult path of digital transformation and claims to be a leader among other regional universities.

## 3. Research Questions

During the implementation of the research project, the following issues were posed and successfully resolved:

- to determine the place of the university in the regional economic coordinate system;
- to identify global challenges affecting the policy of a modern university operating within a given territorial and institutional framework;
- to reveal the possibilities of interaction between the flagship university and the region for the purposes of sustainable development of the territorial space and the university's achievement of high-quality growth indicators (for example, the Novgorod region).

#### **4. Purpose of the Study**

Of course, the study of the contribution of universities to regional development has been one of the focuses of foreign and Russian research in recent decades. Meanwhile, many aspects of the university's presence in the regional market are ignored by theorists and practitioners. Therefore, the authors focused their research on the experience of Russian universities, analyzing the facts of interdependent behavior in the "university-region" system in the context of challenges external to the system. Studying this mutual influence can be interesting from the point of view of replicating successful practices of effective interaction.

#### **5. Research Methods**

During the implementation of the research project, the principles of strategic planning and the methodology of network interaction, an interdisciplinary approach and the integration of knowledge were applied to solve the socio-political and socio-economic problems of the region.

#### **6. Findings**

The study made it possible to determine the following aspects of the development of modern universities, which, in the search for new ideas and concepts for their development, become points of growth for the regional economy in the era of digitalization.

##### **6.1. The place of the university in the formation of the innovation system of the region**

In contrast to a mature market economy, within which a steady tendency has emerged to consolidate the role of innovation centers for large transnational companies, in Russia this role is assigned to universities – centers of science and education in the region. It is university science, with effective university management, as well as due support of the regional authorities, that is the source of innovative development of the territory, and sometimes – the center of attraction of capital, resources of development institutions, etc. The possibilities of information and communication technologies can attract the benefits of network interaction, and the formation of the appropriate infrastructure will provide the region with an inflow of investments, human capital, preservation of cultural values and self-identity.

In connection with the specified role of the university, the issue of its interaction with the local business environment seems to be very important: the creation of intellectual property objects for regional entrepreneurs and large corporations (at the request of the latter or as a result of effective interaction) is in the sphere of responsibility of the university. It is he who sets the framework of the regional innovation ecosystem, providing patent activity, the creation of relevant software for the development of knowledge-intensive entrepreneurship in the region. The formation of an innovation ecosystem, which is a network environment for the emergence of innovations, determines the following tasks of the university in this process:

- carrying out research and development (fundamental and applied) of the full cycle – from exploratory research to the creation of prototypes and pilot testing;
- organization of inventive, expert and patent-licensing activities aimed at protecting intellectual property, protecting information;
- ensuring the transfer of new equipment and technologies from the scientific and technical sphere to production (including marketing of industry markets, investment programs, etc.) (Novikov, 2021).

With a certain and sufficient financial support from the state, a modern university, implementing its own scientific policy, ensures the solution of the above tasks, creating or combining the necessary infrastructure facilities around itself. Thus, NovSU has formed the following elements of an innovative infrastructure for servicing science and science-intensive business:

- the research center;
- the department of technology transfer and innovation;
- the engineering center for electronic prototyping;
- the center for new information technologies;
- the center for the development of publication activity;
- the technology and innovation support center;
- the center “Factory for piloting projects of the National Technological Initiative and the Digital Economy”;
- business incubator zone;
- tech park;
- scientific fundamental library;
- 2 doctoral dissertation councils;
- doctoral, postgraduate, residency, and magistracy.

Of course, in order for these links to become an efficiently operating innovation ecosystem, it is necessary to provide the necessary institutional conditions, including the attraction of development institutions to the region (Veselovsky et al., 2019). Regional demand for an innovative product, as well as a demand from large Russian and international business, should stimulate the launch of an innovative mechanism for developing the research potential of a modern university. However, without a more aggressive marketing policy aimed at studying and attracting consumers, strict budgeting and targeting, that is, the implementation of the main principles of market behavior, the regional university is not able to cope with these tasks. In these conditions, the digital transformation of economic activity can both add additional benefits and bring with it threats to the future development of a modern university.

## **6.2. Global challenges of our time as an impetus for the development of the university**

The development of the activities of a modern university is determined by many external constraints that transform its goals and objectives, the planned results, as well as forcing them to look for new means of achieving the goals set, to improve their own development programs. Despite the relative autonomy of choice, Russian universities are often limited by departmental affiliation and the guidelines of the founder.

Institutional changes stimulate the formation of a new space, a new framework for organizing the work of the university. The philosophy of life itself is changing: informatization and the technical potential for the development of all spheres of human life, starting with production and the service sector and ending with industries where previously these technologies did not form the basis of existence itself – education, medicine, the social sphere, etc. New rules of the game, including the need for innovative development, strategic planning and readiness for change, change the involvement of universities in life and local communities, and in national events and activities not directly related to education.

The pandemic of the novel coronavirus infection COVID-19, which changed the world in 2020, has made major adjustments both to the educational system in general and to the development strategy of modern universities around the world (Adinolfi & Giancotti, 2021; Gafurov et al., 2020; Iivari et al., 2020; Mishra et al., 2020). Closed borders, inaccessibility of classroom work have exacerbated the systemic problems of digitalization of education, starting with poor technical equipment of the educational process and ending with a low level of readiness of the teaching staff for changes in knowledge transfer technologies. The importance of this period can hardly be overestimated, since it allowed (at the same time – at an accelerated pace) to identify these problems and immediately offer the education system their complex solutions. A lot of developed distance programs, digital educational platforms, new educational products, continuing education and retraining courses are the result of 2020. However, if initially it was about the quantitative saturation of the education market with new services and products, players of this market modify, improve and update their product on a regular basis, achieving growth in quality indicators. This process pushed the development of the EdTech market, expanded the horizons of the application of new technologies in education, and allowed in practice to evaluate the advantages of digital competencies of modern specialists.

At the same time, the digital transformation of the education sector has faced unexpected consequences of this process, which are negative and impede the full development of the scientific and educational space – this is a deformation of the structure of trained personnel, which does not contribute to the receipt of real scientific results, their promotion and commercialization, as well as the lack of “breakthrough” scientific results (Romanov, 2020). In addition to this problem, called by the author the institutional trap of strategic planning in the scientific and educational sphere, there are others. The pursuit of performance indicators of a higher educational institution sometimes leads to a decrease in the effectiveness of education and other losses. At the same time, negative consequences are noted not only in Russian, but also in foreign universities (Cattaneo et al., 2016; Guba et al., 2020; Jackson, 2019; Mihajlov & Denisova, 2020; Tomilin et al., 2019).

Among others, problems in the area of publication activity are especially acute. Traditionally, scientists publish the results of their research in various publications – monographs, articles and notes in scientific periodicals, post information on various electronic resources, including scientific electronic platforms. However, the race for scientometric indicators, citing articles for the sake of achieving quantitative indicators that formally characterize the scientific activities of scientists, casts doubt on not only the scientific value of the published and cited results, but also the development of the publishing industry of scientific literature, and the very need for publication in pre-designated publications indexed by international scientometric databases (Bagdasaryan & Sonina, 2020; Tenyakov, 2019). Of course, the

importance of external expertise of publications can hardly be overestimated. Competitive selection of more significant research results for publication, which can be provided by the publishing community (including with the involvement of foreign specialists in various scientific fields), only contributes to the development of science and education implemented by universities. However, the importance of scientific results, confirmed by the practical implementation of the latter, should not conflict with reports and formal summaries.

The implementation of state programs and projects in the field of modernization of the infrastructure of the Russian economy and education contributes to the formation of a demand from society and the state, as well as the development of a competitive environment in this area. It is competition that stimulates innovation, without which the further development of the industry is impossible, attracts investments and highly qualified personnel to the education sector. The existing state programs "Development of Education", "Information Society", national projects "Education", "Science", "Digital Economy", etc. provide funding for universities, as well as stimulate the competitive environment of the interuniversity research and educational space. Thus, the "PRIORITY-2030" (rus. "ПРИОРИТЕТ-2030") announced by the Ministry of Science and Higher Education of the Russian Federation is intended to select for additional funding universities that, in cooperation with scientific organizations and enterprises of the real sector of the economy, organize breakthrough scientific research, create science-intensive products and technologies, as well as ensure sustainable social-economic development of the territory of presence. Now, state-wide priority programs for the development of individual Russian universities will receive the expected financial injections, and we will get a surge in the activity of university science, which is in dire need of funding and is capable of producing significant results. However, as noted above, it is necessary to organize monitoring of the results to filter out real and imaginary achievements, in order to ensure the effectiveness of the funds invested by the state, and to really strengthen the human and scientific and technological potential of the Russian economy.

A modern university is a community of professionals whose intellectual potential has been underestimated in recent decades. The crisis of the 90s of the twentieth century, the priority of economic growth over intellectual growth has noticeably reduced the status of a scientist and teacher in our country. Many were forced to leave the profession, but now the state is trying to level the problems of the problems of past years and is building up human resources in this area. In modern educational organizations, the development prospects of the latter are determined by the activity of a team of employees dedicated to their work, a team that preserves the traditions of university education and introduces new educational technologies into the activities of the university. It is this symbiosis that is developing at Novgorod State University: using the existing structure of personnel training in the region, university management is actively introducing a new project-oriented training model based on advanced training, practical orientation of programs, which will ensure the flexibility of graduates' competencies. Maintaining a high competitive position of the university in the educational services market, realizing its research potential in the modern digital economy is the main strategic task of the staff of any university.

### **6.3. Interaction between the flagship university and the region: prospects for digital transformation**

The flagship university, as noted earlier, is the founder and rather entrepreneurial actor of the emerging university-region ecosystem. For the Novgorod region, this is a fairly effective cooperation between NovSU and representatives of the regional authorities: the university sufficiently fully covers the needs of the regional digital economy in personnel, is a spiritual and educational center for residents of the region, contributes to the attraction of various infrastructure projects to the region and the development of individual industries.

One of the tasks of Novgorod University is to organize constant activity in innovative federal, regional, own projects to attract interest in the activities of the university, as well as to attract a tourist flow to the region (Salova & Fikhtner, 2019). In turn, the region is also showing activity: for example, the Novgorod region is officially a pilot region for the National Technology Initiative and the Digital Economy in accordance with the Agreement between the Government of the Novgorod Region and the Russian Venture Company, as well as the AeroNet, NeuroNet, AvtoNet associations. In addition, a unique educational and innovative project is being implemented in the Novgorod Region – the creation of the Novgorod Technical School, which will become part of an even more ambitious project – the Intellectual Electronics – Valdai Innovative Science and Technology Center.

The interaction between the university and the region transforms the scientific and educational potential of Novgorod State University into a tool for the development of the Novgorod region, positions Novgorod State University as a center for the design of strategic products and programs of the region, as a result of which an atmosphere of open space is formed for active interaction of the leading actors of the region and the international community. It is this positive effect that should be formed in the “science-business-power” system, which coincides with the expectations of society from this interaction.

## **7. Conclusion**

The study showed how a modern university builds its own development strategy in new conditions associated with the digital transformation of the economy, the total introduction of innovations, including organizational innovations, changes in the educational paradigm and in a difficult competition for a place in the international scientific and educational space. Despite global challenges, which sometimes serve as a powerful stimulus for development, universities are restructuring their behavior, increasingly becoming an initiative actor in the digital economy, organizing their activities in the digital space, creating digital products, increasing the digital competencies of students and employees. In cooperation with the region, the university creates a regional innovation ecosystem that ensures the creation of innovative products and services for the real sector of the regional economy, their commercialization. As a result of the implementation of this approach to the development of its own strategy of behavior, the university becomes a so-called driver of growth of the digital economy of the region, a “point of attraction” for young people and representatives of the local community to achieve the goals of sustainable development of the territory.

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## References

- Adinolfi, P., & Giancotti, F. (2021). Pedagogical triage and emergent strategies: a management educational program in pandemic times. *Sustainability*, 13, 3519. <https://doi.org/10.3390/su13063519>
- Bagdasaryan, N. G., & Sonina, L. A. (2020). Mnimye edinicy publikacionnoj aktivnosti v obshchestve potrebleniya [Imaginary units of publication activities in consumer society]. *Higher education in Russia*, 29(12), 86-94. <https://doi.org/10.31992/0869-3617-2020-29-12-86-94>
- Baryshnikova, M. Yu., Vashurina, Ye. V., Sharykina, E. A., Sergeyev, Yu. N., & Chinnova, I. I. (2019). Rol' opornykh universitetov v regione: modeli transformatsii [The role of flagship universities in a region: transformation models]. *Educational Studies. Moscow*, 1, 8-43. <https://doi.org/10.17323/1814-9545-2019-1-8-43>
- Cattaneo, M., Meoli, M., & Signori, A. (2016). Performance-based funding and university research productivity: the moderating effect of university legitimacy. *The Journal of Technology Transfer*, 41, 85-104. <https://doi.org/10.1007/s10961-014-9379-2>
- Erdyneeva, K. G., Klimenko, T. K., Bordonskaya, L. A., Igumnova, E. A., & Levdanskaya, Yu. Yu. (2019). Universitet kak sub"ekt regiona v razviti: metodologicheskie podhody, principy [University as a subject of the region in development: methodological approaches and principles]. *Scholarly Notes of Transbaikal State University*, 14(1), 6-16. <https://doi.org/10.21209/2658-7114-2019-14-1-6-16>
- Gafurov, I. R., Ibragimov, G. I., Kalimullin, A. M., & Alishev, T. B. (2020). Transformaciya obucheniya v vysshej shkole vo vremya pandemii: bolevye tochki [Transformation of education in higher education during a pandemic: pain points]. *Higher education in Russia*, 29(10), 101-112. <https://doi.org/10.31992/0869-3617-2020-29-10-101-112>
- Guba, K. S., Sokolov, M. M., & Tsivinskaya, A. O. (2020). Fictitious efficiency: what the russian survey of performance of higher education institutions actually assessed. *Educational Studies. Moscow*, 1, 97-122. <https://doi.org/10.17323/1814-9545-2020-1-97-125>
- Horstmeyer, A. (2018). How VUCA is changing the learning landscape – and how curiosity can help. *Development and Learning in Organizations: An International Journal*, 33(1), 5-8. <https://doi.org/10.1108/DLO-09-2018-0119>
- Huggins, R., & Johnston, A. (2009). The economic and innovation contribution of universities: a regional perspective. *Environment and Planning C: Government and Policy*, 27, 1088-1106. <https://doi.org/10.1068/c08125b>
- Iivari, N., Sharma, S., & Ventä-Olkonen, L. (2020). Digital transformation of everyday life – how COVID-19 pandemic transformed the basics education of the young generation and why information management research should care? *International Journal of Information Management*, 55, 102183. <https://doi.org/10.1016/j.ijinfomgt.2020.102183>
- Jackson, N. C. (2019). Managing for competency with innovation change in higher education: examining the pitfalls and pivotsof digital transformation. *Business Horizons*, 62(6), 761-772. <https://doi.org/10.1016/j.bushor.2019.08.002>
- Kasatkin, P. I., Kovalchuk, J. A., & Stepnov, I. M. (2019). Rol' sovremennykh universitetov v formirovani tsifrovoy povyshatel'noy volny dlinnykh tsiklov Kondrat'yeva [The modern universities role in the formation of the digital wave of Kondratiev's long cycles]. *Voprosy ekonomiki* [Economic issues], 12, 123-140. <https://doi.org/10.32609/0042-8736-2019-12-123-140>

- Klyuev, A. K. (2017). Universitet v biznes-srede regionala: kak est' i kak nado [University in the business environment of the region as it is and as it should be]. *Journal University Management: Practice and Analysis*, 21(1(107)), 96-107. <https://doi.org/10.15826/umpa.2017.01.009>
- Marcum, D. (2014). The Digital Transformation of Information, Education, and Scholarship. *International Journal of Humanities and Arts Computing*, 8, 1-11.
- Mihajlov, O. V., & Denisova, Ya. V. (2020). Distancionnoe obuchenie v rossijskikh universitetah: «shag v pered, dva shaga nazad»? [Distance learning in Russian universities: «one step forward, two steps back»?]. *Higher Education in Russia*, 29(10), 65-76. <https://doi.org/10.31992/0869-3617-2020-29-10-65-76>
- Mishra, I., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, 1, 100012. <https://doi.org/10.1016/j.ijedro.2020.100012>
- Novikov, S. V. (2021). Struktura, osnovnye dravvery i tendencii razvitiya innovacionnoj ekosistemy sovremenennogo universiteta [Structure, main drivers and development trends of the innovation ecosystem of a modern university]. *Economics and management: research and practicejournal*, 2(158), 41-49. <https://doi.org/10.34773/EU.2021.2.7>
- Postma, D. (2014). Education as change: educational practice and research for transformation. *Education as Change*, 18(1), 3-7. <http://doi.org/10.1080/16823206.2013.847024>
- Romanov, E. V. (2020). Institucional'nye lovushki v nauchno-obrazovatel'noj sfere: priroda i mekhanizm likvidacii [Institutional traps in the scientific and educational sphere: nature and mechanism of elimination]. *The Education and science journal*, 22(9), 107-147. <https://doi.org/10.17853/1994-5639-2020-9-107-147>
- Salova, T. L., & Fikhtner, O. A. (2019). Intellectual tourism as an element of sustainable development of regions. *The European Proceedings of Social & Behavioural Sciences (EpSBS)*, 77, 942-948. <https://doi.org/10.15405/epsbs.2019.12.05.115>
- Sanchez, M. A. (2017). A framework to assess organizational readiness for the digital transformation. *Dimension empresarial*, 15(2), 27-40.
- Shvedina, S., & Fikhtner, O. (2021). Modern educational technologies for ensuring strategic academic leadership. *European Proceedings of Social and Behavioural Sciences*, 114, 25-34. <https://doi.org/10.15405/epsbs.2021.07.02.4>
- Tenyakov, I. M. (2019). Naukometriya kak sderzhivayushchij factor ekonomicheskikh issledovanij: opyt SSHA [Scientometrics as a limiting factor of economic researches: the evidence from the USA]. *Moscow University Economic Bulletin*, 3, 62-78.
- Tomilin, O. B., Klyuev, A. K., Drugova, E. A., Fadeeva, I. M., & Tomilin, O. O. (2019). Organizacionnye konflikty v transformacii universitetov: Destruam et Aedificabo [Organizational conflicts in the transformation of universities: Destruam et Aedificabo]. *Integration of education*, 23(2), 265-283. <https://doi.org/10.15507/1991-9468.095.023.201902.265-283>
- Veselovsky, M. Ya., Efremenkov, A. B., & Barkovskaya, V. E. (2019). Venture business development in the innovation sector of the regional economy. *The European Proceedings of Social & Behavioural Sciences (EpSBS)*, 77, 804-810. <https://doi.org/10.15405/epsbs.2019.12.05.98>