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### Abstract

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*Index terms—*

## 1 I. INTRODUCTION

The issue of the spatial interaction of campuses and cities of "territorial presence" is, of course, only one aspect of the modern (and not only) debate about the interaction of education and science on the one hand, and the city (in this case, "city" is a collective term for "Territories of presence") of higher education institutions on the other. According to S.A. Smirnov's recent remark, the concept of a university campus is "the latest phenomena... essentially duplicating and reproducing a city in miniature [1]. As you know, this concept was first used to describe the area of Princeton University in 1774. It is noteworthy that both the term itself and its definitions initially assumed some kind of open (educational) space [2].

One cannot help but observe a considerable increase in the popularity of this topic in today's world and Russian political agenda both broad and more specific geographical and educational policies. In Russia, the current surge of interest in campuses and their role in modern cities is justified, first and foremost, by the launch of a "large-scale project to create a network of world-class university campuses," for the implementation of which the state has budgeted approximately 36 billion rubles, according to Prime Minister M. Mishustin. The Prime Minister, followed by the relevant Ministry of Education and Science, announced plans to build at least 30 new campuses for a total of 150 thousand people [3]. At the same time, "it is anticipated that they will be modern multifunctional areas, rather than the conventional student campuses and hostels at large universities" [3]. The Ministry of Education and Science intends to start at least three campus projects in 2021-22. The ministry considered the requirements that such campuses should meet as part of a special strategic session dedicated to the building and growth of a network of contemporary university campuses in the country. Among other things, they emphasized the London Journal of Research in Humanities and Social Sciences significance of campuses' organic "integration" into the urban environment, which transforms them into a point of attraction and a comfortable zone for both students and residents [4]. The next step in the plan's implementation was the signing, within the framework of the St. Petersburg Economic Forum, of the first agreement on the development of a multipurpose student city in Tomsk for 15-20 thousand places for the city's six universities [5]. A new campus should be established in the city of Perm as part of the federal initiative; similar projects have been launched in the past. Others include Nizhny Novgorod and Yekaterinburg. Thus, current and it appears gaining momentum federal initiatives illustrate the topic's significant relevance, including and in conjunction with proposed or discussed options for the development of new campuses. However, before delving into the analysis of these initiatives from the perspective of campus spatial organization and integration into the "body of the city" we will attempt to formulate our understanding of the topic's relevance and significance, beginning not so much from the mentioned initiatives, but from the perspective of spatial aspects, economic prerequisites, and a more general (global) context.

The significance of university campuses in the formation, transformation, and growth of urban spaces, as well as the physical connection between campuses and the cities (or other areas) in which they are located, have long attracted the attention of researchers [6]. However, there has been a considerable surge in interest since the beginning of the transition to the post-industrial era, i.e. around the second half of the twentieth century [7]. It seems acceptable to associate the current stage of increased study interest in this topic with the acceleration of the development of an inventive and creative economy, as reflected in the literature, including in postulating and disseminating theory of the creative class by R. Florida [8], the publishing of a number of seminal works that demonstrated the role of the contemporary city in the establishment of inventive and creative activities, the gradual formation of an understanding and concept of the so-called Universities' "Third mission" at the turn of the XX-XXI centuries [9].

It should be noted that at this point in the topic's investigation, spatial and planning issues predominate. Much emphasis is placed on the typology of the spatial structure of campuses in cities. Thus, most scholars distinguish three types of campuses: "classic" (typically located outside of the city or on its outskirts and including most urban functions and infrastructures), "closed intracity" (a campus is a dedicated area with a partial set of urban functions and a significant amount of university infrastructure), and a distributed (in space) university or campus (the term "city university" is also frequently used to emphasize the integration of a university into a city, and let's add cities into a university) [1] [2].

Campus spatial planning models, as well as the characteristics of each model, can be represented as follows [10]:

A campus out of town is an educational cluster located outside of the settlement (often in the fields of agricultural institutes or abandoned airfields) that houses all of the university's and companies' R&D centers. (possibility of using) a single concept, the ability to test new technologies and integrate with the production sector (technology parks); increased opportunities for actors to interact and increase potential results. At the same time, campuses of this type have many disadvantages, including a lack of a common infrastructure with the city and the ability to actively influence the city both in terms of the development of the environment and the market for services in the city, as well as in terms of social interaction as well as a relatively low degree of influence of the city and its environment on the campus. Finally, when it comes to greenfield developments, the disadvantage is frequently the high expenses of developing urban infrastructure for campuses, as well as a great reliance on the city's transportation system.

A closed inner-city campus is a single isolated area that has all important university infrastructure, from academic buildings and dorms to recreation and sports facilities.

Among the benefits of this model are the short travel time (all in one place), the ability to implement a single concept (spatial, architectural, and planning), the possibility of interaction between actors and the growth of potential results, as well as the proximity of urban infrastructure and the ability to "interact" with the city. The drawbacks often include a limited and insufficient territory, which makes development inside its borders impossible, as well as the potential obsolescence of the campus urban design framework, as well as a variety of internal problems and risks.

Finally, a city model, integrated (distributed, "urban") campus is a collection of buildings incorporated into the city, with pedestrian access to structures (the walking time between them usually should not be more than 10-15 minutes). Each building is inscribed in the urban environment and is open to the city; it is the catalyst for the development of the district environment and public spaces. Among the benefits of this campus type, we highlight the synergistic effects of the campus' interaction with the city, and, as a result, the university role as a driver of the development of the urban environment and local communities within the district, the foundation for the formation of a sub-center in the city. Furthermore, the model advantages include the ability to share infrastructure, the formation of new functions, and the development of interuniversity projects and spaces. Obviously, this model is constrained by some limitations, most notably the difficulty in locating and acquiring real estate in a specific area (particularly in areas of existing urban development), as well as the effective (re-) distribution of structural units (faculties, departments, centers, laboratories) across buildings.

Even a superficial examination of the offered models leads us to the conclusion that, in terms of the interaction between the campus and the city, the latter achieves the largest "two-way" positive effect. According to K. Höger's just assertion, it is becoming increasingly clear that "monofunctional" universities, whether removed from the city or located within its boundaries (including the historical one), but functioning as "ivory castles" are increasingly losing out to universities that are merging with the cities-territories of presence. And, whereas the Western world today disputes the viability of "introverted, elitist" campuses, in Asian countries such "temples of education and science" which are mainly secluded from the surrounding area, are presented as symbols of development and societal control [11]. In the model of a "closed" intracity spatial contour, it is important to distinguish between two options in terms of interaction features: a physically, geographically isolated and closed campus in the city (this type prevails in Russia up to the access system of the entrance and high fences), and a spatially concentrated, but open to outside penetration campus (found, for example, almost everywhere in European countries). In some ways, a desired picture of a new type of campus can be designed, based on the integration of the university into the structure of the city, providing a balance of functions for a comfortable life, study, and work. This structure must correspond to the quickly changing modern world, therefore adaptability and even London Journal of Research in Humanities and Social Sciences anticipating of reality are critical to resolving the problem of ensuring the university's high competitiveness [10].

The campus should ensure communication density and intensity, space quality (openness to the city, modernity, convenience, tolerance, security), flexibility, ability to rebuild and experiment, a variety of non-academic functions (including for citizens), and an effective economic and management model (management of business principles with the inclusion of a business component in the campus strategy).

## 2 II. CAMPUS TARGET IMAGE MODEL

Diagram from the Analytical Report "University Campuses and the City: Cooperation for Competitiveness" [10] Finally, we highlight that in recent years, numerous foreign surveys have revealed a fairly consistent pattern in the choices of applicants and students. A substantial number of them state that the beauty of the city itself and

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the integration of the campus into the city play a distinctive, if not crucial, role in deciding on the choice of an educational institution [12].

Returning to the current Russian agenda, we highlight the necessity of focusing attention (particularly in speeches by a number of politicians and heads of higher education) on the need to link the establishment of a "new type of campus" with their integration into the urban environment [5]. At the same time, one cannot help but notice that federal programs are once again focusing on the establishment of new real estate objects, and frequently -on the type of a "taken out" campus (outside the city) or in a closed inner-city campus. Ministers, governors, and university presidents gladly present (and defend) such "building" projects. The authors of such ideas also envision the establishment of a reasonably developed infrastructure, but only inside the confines of the campuses. The issues of interaction and complementarity between campus and city are expressed here, but as a "tribute to fashion"; the designs themselves, with few exceptions, do not view such spatial and functional integration as a basic design condition.

Of course, integrating university campuses into the existing "urban fabric" in the context of intense development in the city center is far more difficult to solve than constructing objects outside not just the center, but sometimes also beyond the existing urban region as a whole. However, in this case, easier does not necessarily imply better. The work of integrating institutions into a Russian city, which is challenging in terms of spatial planning, is further complicated by fairly specific issues. They are associated, in particular, with different levels of subordination of the subjects of interaction: the overwhelming majority of higher education institutions (particularly universities) are federal organizations, and the possibilities for cooperation (including economic cooperation) with authorities and organizations in the regions are rather limited. It should be highlighted that the process of cooperation has long been exhausted through the involvement of so-called "off-budget funds" to universities. Furthermore, it is obvious that the implementation of intracity London Journal of Research in Humanities and Social Sciences campus projects requires a longer time frame (it takes a lot of time to "clear the territory", involve various actors, search for an organizational chart, etc.). Because the implementation of the national project mentioned above does not allow for differentiation in terms and methods based on the type of campus, universities are essentially forced to offer the "quickest" and often most cost-effective alternatives (which, in fact, are the closed campuses). Finally, federal universities are frequently considered by regional and city governments as a source of attracting federal funding rather than a source of fostering innovation and investment (in the urban economy sectors). These and other issues impede the implementation of the city-integrated campus model, which we believe (based on the above and other studies) is more promising and efficient in terms of both urban development and the university competitive advantages. The aims and goals of constructing and developing new university campuses should be determined by federal, regional, and municipal politics, as well as government authorities at all levels. This, in turn, will provide insight into what form of campus best delivers the desired outcome and what the suitable spatial solutions should be.<sup>1</sup>



Figure 1:

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<sup>1</sup> Volume 23 | Issue 3 | Compilation 1.0 © 2023 London Journals Press Spatial Aspects of Campus-City Interaction in the Context of the National Project "Science and Universities"



Figure 2:

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