Section 1. Architecture

<https://doi.org/10.29013/AJT-19-11.12-3-6>

*Kosmii Mykhailo Mykhailovych,
Candidate of Law, Associate Professor, Dean
King Danylo University
E-mail: kosmiy.lud@gmail.com*

INTANGIBLE FACTORS OF IMPACT ON SHAPING THE SMART CITY

Abstract. The article deals with the main factors of impact of intangible factors (legislative, mental and ethical, historical and cultural, religious and spiritual, aesthetical and landscape-related, etc.) on the spatial structure of the modern city. It defines the prospects of organizing a modern Smart City.

Keywords: intangible, spatial structure, urban development space, Smart City.

Creation and development of cities from the ancient times to the present are an evidence of the activity of human culture, a sign of the capacity of society for organized forms of life. Cities were not only unique elements of specific civilizations, they created a separate spiritual world within the limits of their own spatial organization.

Modern discussions about the forms of organization of cities are quite justified, and their severity is explained by the lack of scientific approaches to the search for the meaning of city's existence. This is important because, over the years, the cities have acquired not only material but also intangible image. They have evolved into unique functional, historical, cultural and spiritual centers. The material dimension of spatial organization of the city is realized through the study of buildings, structures, streets, squares, planning and communication systems, etc., which are considered as key elements. But each of these elements has its own soul, character, age, beauty, energy of communication as well as carries information, forms a microclimate, provides connections with the outside world, types of reactions to external influences, as well as a spiritual dimension, namely

the psyche, the memory of space, continuity, genius and uniqueness.

Modern cities feel the dominant influence of information systems, new technologies, ideas of universalism and cosmopolitanism. According to this, a foundational concept of urban development for the last decade is the idea of creating the Smart City. The general theoretical and practical foundations of Smart City organization were developed by renowned scientists: M. Eremia, L. Toma, M. Sanduleac [2], I. Zubizarreta, A. Seravalli, S. Arrizabalaga [39], S. Joss, F. Sengers, D. Schraven, F. Caprotti, Youri Dayot [5] and others. Such an interest is natural because people have always been interested in the issue of an ideally organized space, and modern technological advances have brought us closer to the satisfaction of this desire.

In general, the Smart City concept considers informational, technical, technological and communication aspects of spatial structure organization. In this concept, the city encourages people to behave appropriately and helps them to make rational decisions. "Smart City" is better prepared for solving the problems and responds to the tasks and challenges of

today more quickly. Technology and decisions about this city are aimed at managing the city itself, its transportation system, energy use, health care, water use and waste disposal, etc. effectively. However, the concept also raises criticism, in particular: a) the threat of neglect of not information and technological, but also important components of urban development; b) the need for processing databank; c) the focus of the model on business and functional rationality.

In order to avoid these negative factors, it is worth learning possible consequences of impact of intangible factors (legislative, mental and ethical, historical and cultural, religious and spiritual, aesthetical and landscape-related, etc.) on the urban development space, which allows to form an integral concept of the Smart City.

Actually, the urban development space is considered in the architecture in a narrow and wide meaning. One of the first researchers, who formed an integral understanding of urban development space, was O. Hutnov who suggested viewing the urban development space as the urban development system with the following components: construction structure (filled with a variety of spatially localized functions); communicative carcass (the chain of roads of different categories and their intersections — junctions); social activity centers (areas of junctions of transport communicative carcass filled with the functions of public service); engineering support network; landscape and ecology carcass (open green spaces connected with the natural base of the city). Nowadays, it is traditional to differentiate the urban development space and the urban development system. The first is considered as “the multi-vector space of human, natural, functional and temporal characteristics which houses a life cycle of urban development systems”, the second one — as “a complex dynamic system which consists of a combination of inhabited places, connections and attitudes in a multidimensional natural, social and economic space”.

All these definitions clearly suit the conception of the Smart City, since construction structure, com-

municative carcass, social activity centers, engineering support network, landscape and ecology carcass can be systematized using specific legal framework, following mental and ethical, historical and cultural, religious and spiritual, aesthetical and landscape-related basis. Modern IT allow monitoring all changes of above-mentioned factors and effectively make amendments to the urban development legislation.

In our opinion, at first it is useful to consider demands of inner world of a person within the process of organization of the Smart City. Nevertheless, the category of “space” is philosophical and it acts as a primary basis of organization of existence. Studying the urban development space allows understanding those factors, which are important for developing and organization of the Smart City in the 21st century.

The first doctrine of space was formed by Newton and Democritus. However, M. Heidegger rightly noted that the relation of man to the world is spatial. In this case, space is a place for human interaction with the outside world and cannot have strong territorial boundaries, because each person defines the framework of his interaction. There are times when the framework of human and environment interaction is clearly defined and limited. Therefore, we cannot speak of the spatial relation of man to the world around him. In this case, it is advisable to apply the notion of “structure”, which is primary to architecture. What is most interesting is that the intangible affects both the development of “space” and “structure” in architecture and urban development. Since space is a neutral, remote and emotionless environment for human life [8, c. 86], it cannot develop and exist without the influence of spirituality, morality, various worldview imperatives formed by an individual or a group of people. They are difficult to measure, to determine, but anthropogenic impact on urban development space is extremely important. Similarly, the “environment” reflecting the spiritual and effective state of a person as a creator of urban development space cannot develop solely under the

influence of material factors. This can lead to a loss of spiritual component.

The study of urban development space in the context of the impact of intangible is important in view of the fact that during all the historical stages of urban development, we observe the active involvement of residents in the design process. This has allowed people to participate directly in the improvement of public space, which is an important component of urban development space. Urban development space is a broad concept that is based on the understanding of space as a place of residence of a person and the focus of his social and everyday needs, and therefore, the transformation of space as a place for everyone into space for everyone occurs in the moment of the person's impact on the design of urban development space.

On the other hand, not every urban space is suitable for creativity because it also should be organized considering to potential of that "creative stratum of population" that will change it. Such formulation leads to the situation, where there is a chance for development of a place, where there is an active group of population that is ready to change the space around itself. This group is laying the potential and forming the basis for changing the urban space from only the residence into the place of development too. Perfectly organized urban development space is a precondition for further development of a city. Another important component in the process of such transformation of the city is a value system which begins to dominate in the urban development and to determine the strategies of urban development. The main value of the urban development culture of creation has always been a possibility of self-realization.

As a conclusion, it should be noted that the main task is formation of clear norms of law which not only guarantee meeting human needs, but also formation of clear limits of their participation in the process of development and building of the city. A person can form comfortable living environment independently. Harmonious development of the city requires the application of information technologies as well. The most interesting thing is that it is possible to establish a relationship between the regulatory acts, human needs, moral and ethical factors and modern informational technologies through a clear understanding that the spatial structure of the city is affected by not only material but also by intangible factors.

In our opinion, intangible is much more important, it forms the image of the city, defines its history which displays the interrelations between the society, the memory, the science, the art, and so on. The image of the city creates, first of all, spiritual and scientific life providing it with cultural, artistic and intellectual state, forming the quality level of human dimension — aspirations and needs of the residents, culture and art, consciousness and language. A separate aspect of intangible is the formation of legal norms, which, on the one hand, are a regulator of the city development, and on the other hand, they embody the historically shaped customary rules and principles of interaction of human collectives. The importance of intangible component is explained by the fact that in the last centuries it has turned into a required attribute of the development of spatial organization of the city, therefore, the content of the regulatory acts has to satisfy not only the needs of society, but also practical aspects of spatial organization while taking into account the anthropological, economical, moral and spiritual factors.

References:

1. Dahinden J. Mensch und Raum. Man and Space. International Symposium on Architecture. – Wien, 1984.
2. Eremia M., Toma L., Sanduleac M. The Smart City Concept in the 21st Century. Procedia Engineering. – Vol. 181. 2017. – P. 12–19. URL:<https://doi.org/10.1016/j.proeng.2017.02.357>.

3. Gutnov A. E. Evolyutsiya gradostroitel'stva. – M.: Stroiizdat, 1984. – 256 p.
4. Habrel M. M. Metody ekspertnoi otsinky prostorovoi orhanizatsii mistobudivnykh system. Mistobuduvannia ta terytorialne planuvannia: Nauk.-tekhn. zbirnyk. – K.: KNUBA, 2002. – Vyp. 11. – P. 14–23.
5. Joss S., Sengers F., Schraven D., Caprotti F. Youri Dayot The Smart City as Global Discourse: Storylines and Critical Junctures across 27 Cities. *Journal of Urban Technology*. – Vol. 26. 2019. URL:<https://doi.org/10.1080/10630732.2018.1558387>.
6. Kozlova L. V. Opyt Germanii v transformatsii obshchestvennykh prostranstv mikroraionov 1960–80-kh gg. *Gradostroitel'stvo i urbanistika*, 2017. – No. 2. – P. 255–267. URL:https://marhi.ru/AMIT/2017/2kvart17/PDF/20_AMIT_39_KOZLOVA_PDF.pdf.
7. Moiseev Yu. M. Porogi neopredelennosti v sisteme gradostroitel'nogo planirovaniya: dissertatsiya ... doktora arkhitektury: 05.23.22. Mesto zashchity: FGBOU VPO Moskovskii arkhitekturnyi institut (gosudarstvennaya akademiya), 2017. – 345p.
8. Rochniak Yu. A. Arkhitekturnyi prostir i arkhitekturne seredovyshche: poshuk vidpovidei. URL:http://ena.lp.edu.ua:8080/bitstream/ntb/36747/1/14_84-87.pdf.
9. Zubizarreta I., Seravalli A., Arrizabalaga S. Smart City Concept: What It Is and What It Should Be. *Journal of Urban Planning and Development*. – No. 142(1):04015005.– May, 2015. DOI: 10.1061/(ASCE)UP.1943-5444.0000282.