

UDC 711+001
DOI: 10.56318/as2022.02.042

Mykola Habrel*

Full Doctor in Technical Sciences
Lviv Polytechnic National University
79000, 12 Stepan Bandera Str., Lviv, Ukraine
<https://orcid.org/0000-0002-2514-9165>

Mykhailo Habrel

PhD in Technical Sciences, Associate Professor
King Danylo University
76018, 35 Evgen Konovalets Str., Ivano-Frankivsk, Ukraine
<https://orcid.org/0000-0002-9822-6424>

Convergence of the materialistic and idealistic in the methodology of urban planning

Abstract. The realities of the present require changes and development of urban methodology as a science of methods covering the entire methodological chain – from clarifying concepts, streamlining tasks and establishing characteristics of objects to methods of analysis, evaluation and justification of decisions, and urban planning design and management of urban development. The purpose of this study is to provide an in-depth understanding of the methodology of urbanism in the context of convergence (rapprochement, interconnection, interpenetration) of materialistic and idealistic approaches, and to streamline and develop methodological tools for urban planning. Urban planning activity is considered a set of purposes, criteria, priorities, and constraints. The multiplicity of purposes – strategic, tactical, regulatory, and criteria – necessitates changes in methodology, analysis and assessment of spatial situations, and justification of decisions, including the requirements of multicriteria. The design of territorial systems is oriented towards integrated development, increasing the validity and efficiency of the implementation of the concepts of their spatial organisation. The study is methodological – it emphasises the significance of improving the methodological culture and developing the urbanist’s systemic thinking (reflection, worldview), their creative potential and the set of professional knowledge, skills and abilities to implement projects and other functions of professional activity. It is extremely important in the era of large databases and the Internet, changes in planning and research practices, increased capacity and depth of information analysis, and the emergence of new techniques and procedures. Integration of new research methods should be designed to obtain new knowledge about processes and phenomena, establish regularities and increase the validity of the principles of organisation, functioning and development of urbanised systems and territories

Keywords: methods; the convergence of materialistic and idealistic approaches; multicriteria; knowledge; information; data

INTRODUCTION

The new realities of the present (administrative-territorial reform; transformations of ownership and management; the Russian-Ukrainian war, destruction of cities and critical infrastructure in the regions; uncontrolled migration, re-thinking of values, etc.) require changes and development

of urban methodology as a science of methods. The changes should cover the entire methodological chain – from clarifying concepts, streamlining tasks, and establishing object characteristics to methods of analysis, evaluation, and justification of decisions, and urban planning design and

Suggested Citation:

Habrel, M., & Habrel, M. (2022). Convergence of the materialistic and idealistic in the methodology of urban planning. *Architectural Studies*, 8(2), 42-51.

Journal homepage: <https://arch-studies.com.ua/en#>

Architectural Studies, 8(2), 42-51

Received: 23.09.2022 Revised: 19.11.2022 Accepted: 28.12.2022

*Corresponding author



TERMINOLOGY AND THE STATE OF THE RESEARCH

management of urban development. The need to change the methodology is explained both by the emergence of new tools (computer technologies, information and analytical systems) and by the problems of specialists in updating existing and developing new types of urban planning documentation. Difficulties arise in analysing and evaluating spatial situations (developing and organising the information base and knowledge base about territorial systems), selecting and using methods of analysis and evaluation of situations, and justifying decisions. The priorities in urban development and the criteria for its evaluation are changing. A systematic rethinking of the fundamental categories of urbanism, its theories and methods are required for the dynamic conditions and chaos of the present.

Methodology as a science of methods of cognition and transformation of the world brings order to chaos (develops systemic integrity), organises the thinking of a specialist, and is the antithesis of voluntarism and a tool for overcoming it. It systematises algorithms for solving problems – not chaotic “grabbing and digging” or searching for solutions by trial and error (finding the right solution after everything else has been tried), but a clear ordering in the methods and algorithms of activity (Bilodid, 1971). The key idea of the research is to find ways and methods to bring materialistic and idealistic approaches to urbanism closer together. The materialist understanding of the world proceeds from the decisive and determining role of material and immediate life, the necessity to explore real processes of life, and explains not practice from ideas, but ideological structures from the material (religion, philosophy, morality, law, etc.). The idealistic understanding and explanation of the world are based largely on ideas, will, faith, aspirations, theories, doctrines, and consciousness of people; thus, the principles of idealism in understanding events, processes, and phenomena (Gorodnyak, 2007). While the materialistic understanding of the process in its radical manifestation exaggerates the importance of the material foundations of society’s life, the idealistic understanding overemphasises the role of spiritual, religious, moral, philosophical, legal, and other factors. Depending on what is used as the foundation of the process, there are objective (materialistic) and subjective (idealistic) processes (Vermenych, 2011).

The purpose of this publication is to provide an in-depth understanding of the methodology of urbanism in the context of convergence (convergence, interconnection, interpenetration) of materialistic and idealistic approaches, systematic development and improvement of the science of methods and streamlining of methodological tools for urban planning. *The tasks* are: to structure important categories of methodology and the methodological system of urbanism, to clarify the content of some of them; to organise the knowledge base and information system of urbanism, characteristics and indicators of urban space; to describe the structure of methods, highlighting those that are closely related to the issues being explored; to substantiate practical recommendations, requirements and applied methods of urban planning activities and solving specific problems based on a combination of materialistic and idealistic.

The authors have clarified some concepts considering the specifics and objectives of the publication. *The methodology* is interpreted as the doctrine (science) of *methods* of cognition and transformation of the world, methods are a set of research techniques used in various subject areas according to the specifics of the object and subject of knowledge (statistical, sociological, historical, etc.) (Bilodid, 1971). *Knowledge* – is a set of concepts, theoretical constructs, ideas, principles, laws and regulations that operate in a particular subject area. I. Horodniak (2007) argues that knowledge as a basic category of various systems of scientific research of society is widely used to interpret and explain the process, and consequences of human activity and behaviour. *Urban studies* is a science and activity related to the research of cities and their role in society. *Urban planning* is the science and art of designing cities and territorial systems of various levels, scientific substantiation and creative search for solutions to their spatial organisation and development (Vermenych, 2011). *Characteristics and indicators* – description, analysis, and evaluation of the properties of specific objects, phenomena, processes, and actions. Properties are described by characteristics – those that can be expressed quantitatively are called *indicators* (Iftachel, 2006; Gabrel, 2021). *The systems approach* involves analysing an object as a systemic whole without dividing it into components. *An integrated approach* involves dividing the object into subsystems (units, elements), their factor-by-factor analysis, research and design as separate components, and then “stitching” them together into a single integrity (Zhylynska, 2010).

The objective of the methodology is to explore the cognitive activities performed in various fields of science, to identify general patterns of functioning and development of scientific thinking, and to develop general scientific methods of cognition (Senhupta, 2017; Hnatiuk & Rokhman, 2018). The methodology is a general theory of methods, based on which each specific science develops its methods and individual techniques. One of the varieties is the methodology of urbanism and urban planning, which explores the complex of phenomena that belong to the instrumental sphere of cities, their functioning and development. The methodology examines the totality of territorial systems, tools used in the subject area, objective characteristics and properties of urbanised systems, features of professional activity that play an essential role in obtaining objective knowledge, substantiating the principles, provisions and rules that organise and govern the spatial organisation and development of territorial systems of different hierarchical levels (Posatskyi, 2011).

Many urbanists devote attention to methodology as a science of methods at the systemic level. The development of planning and urban planning theories is traced by A.O. El-Kholei (2018), who recommends means for reforming planning education in Egypt and the organisation of architects’ work; M. Casagrande (2019) considers urban acupuncture as a transition to a model of sustainable urban transformation. The general provisions centred around the





methodology include systemic, comprehensive, structural, informational, merit-centred, problem-oriented, and other approaches. The systemic approach as a category does not have a single definition and is interpreted as: integration, synthesis of consideration of different aspects of a phenomenon or object; a means of research and development of objects that are an organic entity (Kustovska, 2005); expression of procedures for representing an object as a system and ways of developing them; search for different options for performing a particular job with the subsequent selection of the optimal option (Yashchuk, 2019).

Rutledge's research on planning methods is an extended look at the traditions, methods, and problems of organising research and project justification in contemporary urban planning (Silva *et al.*, 2016). Chinese researchers (Shah *et al.*, 2019; Song *et al.*, 2017; Cao, 2013) explain and expand on several methodological subjects and their application to urban planning practice, identifying new opportunities for cooperation between planning practitioners and scientists, and the application of agreed methods to solve real urban planning problems. In the book edited by M. Rako & F. Savini (2019), planning and knowledge are presented as new forms of technocracy that define modern cities.

Methodological support for urban planning in Ukraine is insufficient and is considered in an aspect-by-aspect manner. Among the researchers are: the initiators of urban planning design of cross-border regions, the developer of the methodological foundations of regional planning Y. Bilokon (2002); M. Demin *et al.* (2022), who have their vision of designing a methodology for the development of territorial systems of different levels; V. Timokhin (2018) traces the universal and cyclical sequence of the deployment of "beauty" and "harmony" in the history and theory of the development of the modern architectural and urban environment, proposes a structural model of the aesthetic development of the environment in the form of a "divine hail". A. Pleshkanovska (2011) explores the complex reconstruction of the city, the phenomenon of social and spatial development; spatial changes in Ukraine and testing of the model of differential urbanism conducted by K. Mezentsev (2017; 2015) *et al.* Urban theories, methodologies, and methods are based primarily on a model of the city that includes people, environment, and activities (Bertalanffy, 1962). Partial theories emphasise social, environmental, historical, economic, and other priorities (Mazur, 2014; Reinert, 2007). The authors of this research have repeatedly addressed the issue of streamlining the methodological tools of urban planning (Habrel, 2020; Musiyaka *et al.*, 2021).

The research of urban systems at the global level attempts to explain the complexity of the city and intercity interactions by isolating some components of social processes and then linking these processes to others that occur both within the city and between cities and the outside world (Alexander, 2017; Li *et al.*, 2018). The basic methodological provisions of urban studies are based on dialectics as a doctrine of the most general laws of development and movement, the source of which is considered to be the unity and struggle of opposites (Vernadsky's noospheric...

2013). The provisions of dialectical materialism were widely used as a doctrine that provides a materialistic explanation of the world, ways of cognition and transformation based on the general laws of dialectics. The materialistic explanation was opposed to the metaphysical one. Current approaches do not oppose the materialistic and idealistic in science, and their combination in the methodology of urban planning is associated with a convergent approach. The key idea of this publication is to find ways and methods of convergence between materialistic and idealistic approaches in urbanism and spatial planning (Galasyuk, 2019). In the era of large databases, when planning and research practices are changing, the potential and depth of information analysis is increasing, new research techniques and procedures are emerging, established methods and new research should be combined and oriented towards gaining new knowledge about processes and phenomena, explaining the basic principles of organisation, functioning and development of urban settlements and territories.

METHODOLOGICAL PROVISIONS, DATABASE AND KNOWLEDGE BASE OF URBAN PLANNING ACTIVITIES

In terms of methodological specificity, the approach that combines the materialistic and idealistic is close to the systemic approach, which studies the patterns and mechanisms of establishing a complex object from specific components, emphasising the diversity of internal and external relations of the system, and the processes (procedures) of combining the main components into a single theoretical picture. In the current conditions, the systematic approach is considered to be the main one in the methodology of urban planning. Systems science emphasises the knowledge and evaluation of the entirety and integrity, levels of complexity of objects, ways of interaction and relationships of system components. Highlight some of the properties and requirements of the systems approach methodology for urbanism and urban planning:

- the systematic approach involves isolating an object from its environment (totality) and considering it as systemic integrity (Kustovska, 2005). Thus, an important systemic property of urbanism and urban planning is *integrity*;
- justification of the purpose is the primary requirement of the methodology, and its systemic property is *purpose establishment* (identification of the general purpose and construction of the purpose tree). The purpose can be set both "from above" (its obligatory refinement after the analysis and assessment of the system state) and "from below" – from the analysis and assessment of spatial situations and systems. When building a purpose tree, the general purpose is divided into local and tactical purposes. At the bottom level of the tree is a system of characteristics and indicators. Here, it is essential to justify the criteria that are important for achieving the purpose and are used to assess the "degree of approach to it" (Shershniova, 2004);
- a property of a system is its *structure* (the structure, interconnection of parts of the entirety). There is a separate scientific methodology of structuralism that explores the



structure of objects, the form and variety of structures that occur in nature, consciousness, and society (Zaucha, 2007);

- The systems approach methodology shifts the emphasis from the study of elements to *connections and relationships*. Communication is the correlation between different phenomena based on interdependence and mutual interdependence (forward and backward, controlled-uncontrolled, active-passive, external-internal) (Medeiros, 2021). If the forces of connection within the system outweigh the external ones, the element belongs to the system; if the external connections are stronger, the element is transferred to the supersystem. For connections in urbanised systems, it is essential to explore their intensity and strength using appropriate methods and tools of analysis and evaluation. Relationships – these are unfilled connections. The relations of similarity, inclusion, and hierarchy are emphasised;

- *hierarchy* is a fundamental property and principle of building and developing a system as an arrangement of parts or elements of an entire in a specific order from higher to lower (Poljak Istenich, 2019).

However, the synthesising approach has its own differences from the systemic approach: it combines both materialistic and idealistic aspects of methodology and systemic and complex approaches.

The identified properties of urbanism and urban planning activities are similar to the methodological trends (systems science, system technology, system philosophy) identified by L. von Bertalanffy (1990) and are essential for establishing a general algorithm for the development of an information base, knowledge base and methods of analysis, evaluation and justification of decisions.

The knowledge base is interpreted by the authors as a system of knowledge about the object and methodology of urban planning activities; it should determine the required basic level of a specialist (Silona, 2017). The diversity of tasks and spatial situations does not allow obtaining knowledge for all options; it is designed and developed in the course of work, i.e., when solving particular tasks. There is the knowledge that is provided in the course of the research, and there is the knowledge that is acquired through experience. Knowledge is not just a space for storing data – it is a tool for intelligence and making smart decisions. For these purposes, the following methods are used: analytical, logical (analysis of natural consequence relations), heuristic, methods of synthesis as a necessary condition for justifying decisions, etc.

The specific features of the spatial organisation of cities and territories should be considered against the background of understanding and knowledge of the multifaceted nature of the material and immaterial processes and phenomena, in particular (Habrel & Cosmos, 2022):

- macro processes occurring in society and the global world, the role of states in this system, the model and extent of their intervention (influence) in the socio-economic sphere, and using systemic effects, understanding and considering threats from globalisation processes;

- regional policy (the role of cities and regions), using

“internal reserves”, the phenomenon of self-sufficiency and forms of system management;

- “human factor” and the totality of social relations – social conditions, moral, psychological and other characteristics of the “human” dimension;

- economic relations (forms of ownership, economic systems), economic theories and their relation to urban development;

- new urban and spatial organisation theories of society, trends and theoretical explanations of the development of cities and territories;

- ecological and sustainable development theories and systems resilience;

- the regularities of the general course of human activity in the territories, the development of both material and spiritual culture, and the history of urban planning. The cities and territories of Ukraine have long been developed and managed, and are unique in terms of history and culture.

The development of the knowledge base of urban studies requires *knowledge of the analysis and evaluation of spatial situations and systems*, in particular:

- justification of the purpose and objectives, purpose setting system, identification and selection of criteria, establishing priorities in purposes and criteria;

- understanding of urbanised systems as a hyper-complex phenomenon, knowledge of systems analysis and systems engineering;

- knowledge of the types of situations and system analysis, and the composition and properties of urbanised systems;

- assessment of spatial situations (losses, conflicts and defects in the system, spatial potential);

- determining the efficiency of the system, its reliability, environmental friendliness, comfort, and aesthetic properties.

In addition, the knowledge base of urbanism requires methodological knowledge of *decision-making and development management*, among other things:

- *modelling and forecasting* (deterministic, graph analytical, optimisation models, linear forecasting, simulation modelling, etc.);

- *decision-making*, including under conditions of uncertainty (types and levels of uncertainty, random factors in urbanism, queuing theory in decision-making, development of alternative options, multi-criteria selection, forecasting, justification of the structure and scale of systems, functional organisation, etc);

- *substantiation of the concepts* of spatial organisation and development of systems as basic ideas and principles (functionality, modelling, purpose establishment, flexibility, implementation stages, traditionalism, systematicity, elimination of uncertainty, harmony), and the main macro characteristics of the system.

The knowledge outlines the requirements for urbanism and urban planning, in particular, the requirement of meritocracy (the foundation for understanding the phenomenon is based on two concepts – *meritos*, which means worthy, dignified and is associated with the concept of





meritocracy; and *centrism* – not as a compromise (middle position, but as something that is in the centre of the system and is the foundation for justifying decisions on its development) is interpreted by the authors as a system of knowledge and concepts related to the dignity and system of values of a person and relations in society. This requirement does not imply the priority of intellectual elites in the state and its governance; it is an approach to the spatial organisation and development of urbanised systems based on knowledge, new values (intangible), and the uniqueness of space (geopolitical role, location, history, etc.). This model (Musiyaka *et al.*, 2021) envisages the spatial development of the state based on systemic ideas and new knowledge, the priority of new values, innovations and the latest technologies, and the harmonisation of the state's spatial system as an increase in the coherence of space dimensions. Harmony should be achieved by increasing the efficiency of using the spatial potential by reducing resource intensity, increasing utility, and reducing harmful environmental impacts. Meritocratic requirements define:

- environmental orientation of actions and decisions, understanding of the ecological capacity and limitations of natural resources and nature's ability to self-regulate;
- strengthening the connection between practical activities and scientific research, and the unity of theory and practice. Sociological issues and the requirements of socially oriented solutions are separately highlighted;
- considering the "subjective" components, as there are tasks in urban planning that are poorly structured and cannot be standardised in conditions of dynamic process complexity (models of analysis and synthesis can be verbal);
- problem-oriented approach with the integrity of consideration, when each of the problems of the territory has close ties to the set of problems of the entire system. It is necessary to correctly distinguish them from the environment, establish a hierarchy of problems and their interconnectedness, and perform a cause-and-effect analysis;
- combining knowledge of various related subject areas with urban planning knowledge allows for substantiating the best solutions;
- it is essential to consider the design solution from the rational or functional perspective, and to use knowledge and experience based on user empathy and two-way knowledge transfer between designers and residents (public dialogue);
- the phased development and implementation of systemic concepts (strategies, comprehensive plans), which take a long time, and in uncertain situations these documents "can not work". However, time demands urgent decision-making, thus, the development of strategic documents should be a permanent process and contain a flexible system of recommendations and decisions.

The database in urban studies is interpreted considering different approaches to information and its management (Silva *et al.*, 2014). Data processing methods are subjective, and the level of data information depends on the accuracy of the methods used in information processes. Development of: various data structures and types; forms

of data representation; concepts of linear data structures, fields and data space; database, bank, and data warehouses; data interpretation and generalisation; data validation and diagnostics; forecasting and planning as a task for intelligent systems.

The information base for the development of cities and territorial communities includes tangible and intangible characteristics. The properties of any system are described by characteristics – those that can be expressed quantitatively are called indicators. Indicators of urbanised systems usually describe the material essence of the system as an object:

- *efficiency* – includes usefulness, costs, effects, and is associated with using resources, primarily non-renewable ones, and new technologies;
 - *functionality* (functional sufficiency, usefulness) is a value that changes with the change of the argument (people's needs and motivations). This category is relative, with important situational characteristics of relevance and individual understanding of needs and expectations for opportunities;
 - building *density* (population);
 - *the complexity of the planning structure* and the development of connections as a physical characteristic of space;
 - *the scale of objects (elements)* and the system in the supersystem – interpreted as a relative value (scale, measure) of the importance (weight) of the system.
- The characteristics of the intangible essence of urbanised systems are, in particular:
- *comfort* (in terms of everyday life, the satisfaction of physiological, technological and other needs), the possibility of immediate communication and participation of residents in urban processes and self-organisation;
 - *security* (personal and social), which is related to physical, functional and psychological safety. The urban environment has vulnerable and dangerous fragments, and the concentration of people in megacities threatens to cause large losses in the event of epidemics, natural disasters, military conflicts, or terrorist attacks;
 - *aesthetics* – compliance of the environment with the requirements of aesthetics and the general laws of artistic cognition and artistic reflection of reality;
 - *informational and semantic meanings* – the reflection of the content of objects in figurative and expressive terms. They include subjective attitudes towards the environment; communication between people, threats, etc;
 - *cultural-spiritual* characteristics as a state of humanisation of the living environment, morality, and cultural and ethical provisions of urban life.

Consider *three integral parameters of the state of urbanised systems* that combine the tangible and intangible:

1. *The quality of living conditions* is an evaluative category of living and working conditions. It is based on the characteristics of the *quality of life* (including an assessment of the totality of welfare conditions as understood and perceived by the population). It is a dynamic balance of satisfaction with life and all its aspects. An essential component of this category is *the level of "gap" between expectations and reality*. A tool for assessing the quality of



life is considered to be the *standard of living*, which covers various components, including housing and its affordability (Maslov, 1943), and *the quality of urban space*. Their components are related to health, social opportunities, safety, leisure time organisation, aesthetics, comfort, and information and semantic meanings.

2. *Urban resilience*. Sustainability and sustainable development inherently places environmental issues and care for the environment at the centre of urban activities, although it considers aspects of economic activity and is oriented towards a difficult-to-predict (uncertain) future. The nature and growing pace of urbanisation increase the pressure on the environment and make the category of urban resilience a special one, which is oriented towards countering the new challenges of the present.

3. *The socio-environmental and economic efficiency of cities* includes environmental, social, economic, and technological characteristics as attractiveness for business and the efficiency of urban systems.

Thus, it is possible to track the impact of today's realities on changes in the methodology of urban planning. The author emphasises the *information approach to scientific knowledge* of objects, processes or phenomena, according to which information aspects are primarily identified and analysed and the information-centred method of exploring urbanised systems is used. An essential methodological condition for the convergence of the materialistic and the idealistic in urban activity is creativity, which is the ability to propose new (creative) solutions. The creativity of an urbanist as a metaphysical category does not explain the phenomenon of the birth of an idea (design solution) and is closer to the creativity of an engineer than an artist. It is based on knowledge and information, on thinking and worldview, i.e., on the ability to justify new things (to act outside the box), and not just to derive new things on emotions and creativity (Oakley & Banks, 2021).

The authors identify signs of creativity:

- the highest degree is both establishing something new and "being a discoverer." In addition, interpretations are seen as creativity, for example, the application of general patterns to particular cases;

- the interest of the creative process for the "creator" who rejects clichés, exposes abilities, and enjoys the solution and idea;

- the creativity of urbanism is close to engineering, it is based on intelligence and knowledge of laws and the canons of art;

- artistic creativity – primarily a product of imagination and influence on human emotions. Creativity in art is oriented towards connoisseurs and is sometimes associated with deception (to catch the tastes of customers), while engineering and urban creativity and ideas have more objective evaluation criteria;

- For creativity as a process (from the idea, and search for elements to the synthesis of the general), the primary idea is the idea that manifests itself as a concentrated impulse of originality and can be fundamental or ordinary. The signs of creativity in urbanism are constructiveness,

productivity, and the importance of the idea;

- ideas can be fake and populist, in particular, in the socio-political sphere, which is closely related to urbanism. For example, the communist idea of "good intentions" is groundless, but it can stupefy and attract to the masses with its simplicity, designed for primitive understanding;

- new trends in art are conditioned by changes in conditions – for example, the emergence of formalism is associated with the emergence and opposition of photography, which perfectly reflected real paintings. Changes in urban creativity and the emergence of new ideas are conditioned upon changes in political and socio-economic conditions, and aesthetic preferences (Renaissance ideas, socialist realism, etc.);

- the emergence of new ideas requires conditions and a critical mass in society and among professionals. It should be highlighted that the creative potential of the Ukrainian people is high, both in the artistic sphere and in engineering and the establishment of innovative engineering solutions.

The increasing role of the intangible and idealistic in approaches to the spatial organisation and development of territorial systems is a condition for reforming some provisions of the urban studies methodology, shifting attention to things that cannot be defined, methods of their research and consideration in decision-making. The "human" dimension is at the centre of the intangible.

RESEARCH METHODS, REQUIREMENTS AND RECOMMENDATIONS FOR THE DESIGN AND DEVELOPMENT OF URBANISED SYSTEMS

Nowadays, a wide range of methods for researching and justifying design decisions is known and used in urban planning. Due to the commonality of considering the materialistic and idealistic, it is advisable to introduce some changes at the level of methods and practical recommendations. The authors divide the methods into groups: *analysis of spatial situations; assessment of the state of situations and systems; justification of decisions*; their classification and analysis, and changes are presented.

1. *Methods of analysing spatial situations* are divided into groups: urban planning studies, analysis of natural and landscape conditions; methods of special analysis:

a) *Urban planning research methods* include analysis:

- situations (composition, structure, connections);
- problems of the system's state (security, social, humanitarian, spatial and environmental);
- cause-and-effect connections;
- structural analysis;
- functional organisation of systems;
- density of buildings and facilities across the territory;
- defining the boundaries of the zone of influence of the central elements;
- zoning of territories by the intensity of connections;
- location of public attraction centres.

b) *Methods of analysing natural and landscape conditions:*

- natural (relief, water supply, vegetation as components of the landscape);





- landscape analysis of the territory;
- uncomfortable and disturbed elements;
- resource conditions of the territory.

c) *Special methods of analysis:*

- the compositional structure of the city;
- historical-genetic analysis of the spatial organisation of urbanised systems;
- interconnection of natural and anthropogenic landscapes in the area of urban influence and the junction of different natural and landscape systems;
- analysis of processes in the system.

2. *Methods for assessing spatial situations and systems (comprehensive assessment and diagnosis of the state of systems)* (Spatial organization..., 2004). The evaluation includes criteria:

- system efficiency, which is assessed as the ratio of utility to costs and consequences (utility fee); includes components of utility, resource intensity, harmful effects, safety, aesthetics of space, ergonomics and usability. Efficiency depends on the structure and composition of the system, and is a time category – it can be high today but lost in the following periods;
- functional sufficiency – ensuring that the system's functional processes are secure, timely and consistent. It includes the time dimension and is provided by: infrastructure productivity, the number of objects, the volume of works and services per physical unit, the time during which services must be provided (work performed), the duration of service provision, and the coefficient of variability;
- spatial potential (resources and capabilities of the system);
- issues, ranking them by their impact on the situation and interconnectedness;
- limitations (thresholds) for the development of the system (moral and environmental imperatives, regulations, etc.).

Indicators of the real situation are defined as the ratio of the actual value to the regulatory value or the best value in other systems of this type. Includes assessments of: spatial potential; strengths and opportunities; losses, weaknesses and threats; system efficiency; reliability; comfort; aesthetic characteristics. A comprehensive assessment is based on a preliminary factor analysis and is reduced to using a SWOT assessment (weaknesses and strengths that describe situations within the system, and opportunities and threats that come from the supersystem, i.e. the external environment) (Spatial organization..., 2004). Assessing the state of the system is a prerequisite for decision-making,

which can be performed by both individual specialists and integrated groups of analysts. The choice depends on the purpose, tasks, and object of analysis and evaluation.

3. *Justification of decisions – ideas, principles and methods.*

The conceptual provisions of the spatial organisation and development of urbanised systems are centred around the *key idea of increasing the system's sustainability* and include policy:

- security (from national military doctrine to citizen security – psychological, food, environmental, social, cultural, and legal);
- humanitarian (development of values, raising the cultural and spiritual level of society);
- environmental (harmonisation of life and health of the population, balanced use of resources);
- social (demographics, elimination of inequality and poverty).

The solution is based on specific *principles and methods of spatial organisation and system development* (Fig. 1).

Among the methodological changes that are becoming a reality in modern urban planning are the following:

- combining materialistic and ideological approaches, bringing them closer together and developing a common methodological platform that covers the entire chain – analysis, assessment of spatial situations, justification of urban solutions, implementation and monitoring of project proposals;
- The dynamic development of computer technologies and information and analytical systems is an effective tool in the methodology of urban planning, expanding computational and analytical capabilities, allowing for a more objective assessment of the spatial situation, and making a more informed choice from a variety of solutions. In these conditions, the importance of the intellectual and creative component of a specialist, their creativity and ability to offer new ideas and solutions is growing. It is the purpose of this research and the purpose of uniting the material and the immaterial (idealistic) - knowledge, values, etc;
- the growing importance of a specialist's knowledge and intelligence as an ability to propose new ideas. They are manifested from the very beginning of the question as the ability to see and justify the problem, and then permeate all stages of urban planning. The computer, new technologies and methods of convergence of the materialistic and idealistic emphasise the importance of thinking, fundamental knowledge and creativity, the ability to see dependencies and synthesise solutions, and to avoid over-formalisation of "computer" justifications and decisions.

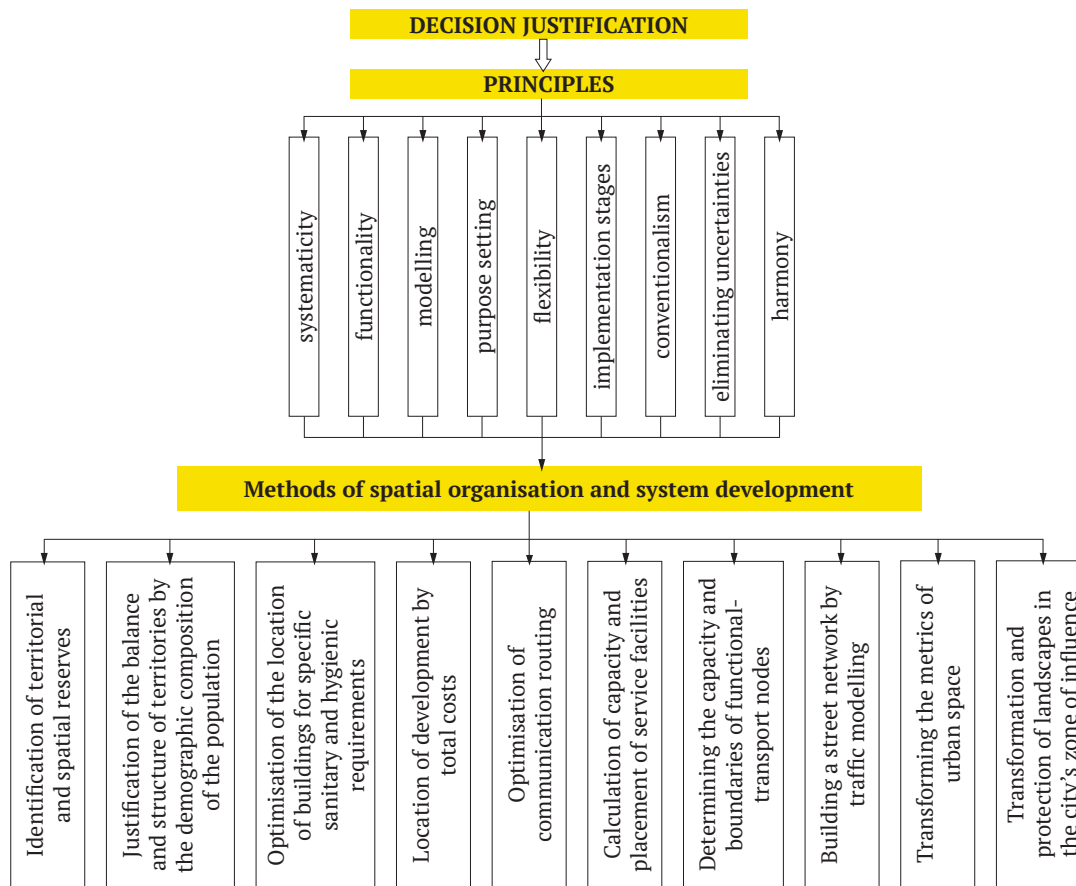


Figure 1. Principles and methods of substantiation of solutions for the spatial organisation of urbanised systems

Source: author's development

The requirements and algorithms for substantiating decisions proposed by the authors are as follows: to competently develop a purpose tree with criteria at the lower level, to prioritise and hierarchise requirements and purposes; to objectively assess resources (including intangible resources) and means of achieving the purpose and partial purposes; to reasonably determine the areas of development and decision options; to professionally predict and assess the adverse effects and threats from various alternatives; to determine the optimal solution using the methods of single and multi-criteria optimisation and analytical and emotional choice. A selection condition – if the system model (as a simplified reflection of reality) is appropriate (reflects the main properties of the system and has a high coefficient of approximation to reality), the selection and evaluation criteria are reasonable, the selection methods are correct, and the experts – professional, then the right choice can be expected.

CONCLUSIONS

Architects and urbanists are facing complex problems of updating and developing new design documents for the spatial organisation and development of territorial systems of different hierarchical levels and managing their implementation in the current realities of Ukraine. Updating the methodological platform of urbanism – theoretical foundations and principles (knowledge base), structuring

of information (databases – hierarchical, network, relational, temporal, distributed, post-relational, multilevel), streamlining of methods of analysis, assessment of the state of systems and justification of decisions on their spatial organisation and development, which is already a necessity today, considering the active transition to large databases, which changes the practice of planning, research, principles of organisation, functioning and development of urban settlements and territories, etc.

Urban development is considered a set of purposes, criteria, priorities, and constraints. The multiplicity of purposes (strategic, tactical, regulatory) and criteria necessitates a multi-criteria analysis and evaluation of decisions. The design of territorial systems is oriented towards their integrated development – strengthening useful properties, eliminating or weakening harmful ones, etc. A prerequisite for reforming some provisions of the urban studies methodology is the growing role of the intangible, which is centred on the human dimension and idealistic in approaches to spatial organisation and integrated development of territorial systems, emphasising aspects that cannot be defined, methods of research and consideration in decision-making.

The author emphasises the significance of improving the methodological culture and development of the urbanist's systemic thinking (level of thinking and reflection, worldview and outlook), their creative potential and the set of professional knowledge, skills and abilities to





implement projects and other functions of professional activity. New changes, information, and methods disclose a systems perspective as a synergy of urban planning activities for researchers and specialists in design (decision-making) and management of urbanised systems. None.

ACKNOWLEDGEMENTS

CONFLICT OF INTEREST

REFERENCES

- [1] Alexander, C. (2017). *The city is not a tree*, sustasis press. Rotterdam: Sustasis Press
- [2] Bertalanffy, L. (1962). The western theory system – a critical review. *Protective Systems*, 7, 1-20.
- [3] Bertalanffy, L.V. (1990). *Das biologische Weltbild: Die Stellung des Lebens in Natur und Wissenschaft*. Vienna: Neudruck.
- [4] Bilodid, I.K. (1971). *Academic explanatory dictionary of the Ukrainian language (1970-1980)*. Kyiv: Naukova dumka.
- [5] Bilokon, Y.Y. (2002). *Function and structure of form in regional planning*. Kyiv: Naukova dumka.
- [6] Cao, K. (2013). Modern theories of migration planning. *Planning Theory*, 12, 321-323. doi: 10.1177/1473095212451042.
- [7] Casagrande, M. (2019). *From urban acupuncture to the third generation city*. London: Routledge.
- [8] Demin, M.M., Yatsenko, V.O., & Korotkova, T.M. (2022). Some issues regarding the methodology of the initial stage of the formation of territorial communities as group systems of the local level. *Urban Planning and Territorial Planning*, 79, 13-26. doi: 10.32347/2076-815x.2022.79.13-25.
- [9] El-Kholei, A.O. (2018). *Development of planning theory: Manuals for practice and education*. Egypt: Menoufia University.
- [10] Habrel, M. (2021). Geometric problems in urbanism. In *Municipal economy of cities: Scientific and technical collection* (pp. 58-68). Kharkiv: A.N. Beketov Kharkiv National University of Urban Economy.
- [11] Habrel, M., Kosmii, M., & Habrel, M. (2022). Meritocentric model of spatial development in Ukraine: Implementation of the general scheme of planning of the state territory. *Spatium*, 47, 21-31. Retrieved from https://www.researchgate.net/publication/361720872_Meritocentric_model_of_spatial_development_in_Ukraine_Updating_the_general_scheme_of_planning_of_the_state_territory.
- [12] Habrel, M.M. (2020). *Methodological approach to the development of the concept of industrial organization and urban development*. Lviv: Lviv Polytechnic National University.
- [13] Halasyuk, V.V. (2019). *Conceptual foundations of the transformation of the economy of Ukraine*. Kyiv: National Academy of Management.
- [14] Hnatiuk, Y.S., & Rokhman, B.M. (2018). *Philosophy of education and science. Methodological and theoretical problems of philosophy*. Ivano-Frankivsk: Symphony forte.
- [15] Horodnyak, I. (2007). Features of the formation and functioning of socio-economic knowledge. *Psychology and Society*, 3, 55-62. Retrieved from <http://dspace.wunu.edu.ua/>.
- [16] Kustovska, O.V. (2005). *Methodology of the systematic approach and scientific research*. Ternopil: Economic Thought.
- [17] Li, G., Sun, S., & Fang, C. (2018). The varying driving forces of urban expansion in China: Insights from a spatial-temporal analysis. *Landscape and Urban Planning*, 174, 63-77. doi: 10.1016/j.landurbplan.2018.03.004.
- [18] Maslow, A.N. (1943). Theory of human motivation. *Psychological Review*, 50, 370-396. Retrieved from <https://psychclassics.yorku.ca/Maslow/motivation.htm>.
- [19] Mazur, A.H., & Mazur S.A. (2014). Spatial aspects of the development of regional economic systems. *Collection of Scientific Works of Vinnytsia National Agrarian University*, 1, 26-32.
- [20] Medeiros, E. (2021). The global development formula. *Sustainability*, 13(9), 52-62. doi: 10.3390/su13095262.
- [21] Mezentsev, K., & Havryliuk, O. (2015). Testing the differentiated model of urbanization in Ukraine. *Economic and Social Geography*, 73, 15-26. doi: 10.17721/2413-7154/2015.73.
- [22] Mezentseva, K., Oliynyk, Y., & Mezentseva, N. (2017). *Urban Ukraine: In the epicenter of spatial changes*. Kyiv: Phoenix.
- [23] Musiaka, L., Habrel, M., Habrel, M., & Kosmii, M. (2021). Non-material considerations and uniqueness in the planning of the development of urban space: Example of Lviv. *European Spatial Research and Policy*, 28(1), 307-333. doi: 10.18778/1231-1952.28.1.16.
- [24] Oakley, K., & Banks, M. (2021). *Cultural industries and the environmental crisis: New approaches for policy*. Berlin: Springer.
- [25] Pleshkanovska, A.M. (2011). *Cities and epochs*. Kyiv: Institute of Urban Studies.
- [26] Poljak Istenich, S. (2019). Participatory urbanism: Creative interventions for sustainable development. *Acta Geographica Slovenica*, 59(1), 127-140. doi: 10.3986/AGS.5142.
- [27] Posatskyi, B.S. (2011). *Fundamentals of urban studies. Territorial and spatial design*. Kyiv: Polytechnics.
- [28] Raco, M., & Savini, F. (2019). *Planning and knowledge – how new forms of technocracy are shaping contemporary cities*. Bristol: Polity Press.
- [29] Reinert, E. (2007). *How rich countries got rich... and why poor countries stay poor*. London: Constable & Robinson.
- [30] Sengupta, U. (2017). *Defining the urban*. London: Routledge.
- [31] Shah, S., Modi, P., & Shah, H. (2019). Big data analysis in urban planning. *International Journal of Engineering Research and Technology*, 8(10), 355-359. Retrieved from <https://www.ijert.org/big-data-analysis-in-urban-planning>.
- [32] Shershniova, Z. (2004). *TAK. Public administration*. Kyiv: KNEU.



- [33] Silona, T. (2017). Urban planning and technological innovations. In *International Conference on General Science and Youth Construction* (pp. 210-223). London: ICCSA.
- [34] Silva, E., Healey, P., Harris, N., & Van den Broeck, P. (2016). *The Routledge handbook of planning research methods*. London: Routledge.
- [35] Song, Y., Shao, G., Song, X., Liu, Y., Pan, L., & Ye, H. (2017). The relationship between urban form and urban organizations: An empirical study in China. *Sustainability*, 9(7), 1150. doi: 10.3390/su9071150.
- [36] Spatial organization of building systems. (2004). Kyiv: A.S.S.
- [37] Timokhin, V.O. (2018). Divine City in the aesthetics of the architectural and urban environment. *Architecture*, 895, 95-99. Retrieved from <https://science.lpnu.ua/sites/default/files/journal-paper/2019/nov/19604/21.pdf>.
- [38] Vermenych, Y.A. (2011). *Historical urbanism in Ukraine: Theory of urban studies and methodology of lithography*. Kyiv: Institute of History of Ukraine.
- [39] Vernadsky's noospheric thought. (2013). Retrieved from <https://zn.ua/ukr/personalities/noosferne-mislennyavernadskogo-html>.
- [40] Yashchuk, V.I. (2019). Theoretical and methodological approaches to planning and management of the reproducible fog space. *Economy and Society*, 20, 496-503. Retrieved from https://tourlib.net/statti_ukr/yaschuk7.htm.
- [41] Yiftachel, O. (2006). Re-engage the theory of planning? Toward south-eastern perspectives. *Theory of Planning*, 5(3), 211-222. doi: 10.1177/1473095206068627.
- [42] Zaucha, Y. (2007). Is spatial planning the driver of this development in Polissya? *Planning, Practice and Research*, 22(3), 463-471.
- [43] Zhylynska, O.I. (2010). *Scientific and technical activity in the context of self-organization*. Kyiv: Parliamentary Publishing House.

Микола Михайлович Габрель

Доктор технічних наук
Національний університет «Львівська політехніка»
79000, вулиця Степана Бандери, 12, м. Львів, Україна
<https://orcid.org/0000-0002-2514-9165>

Михайло Миколайович Габрель

Кандидат технічних наук, доцент
Університет Короля Данила
76018, вул. Євгена Коновальця, 35, м. Івано-Франківськ, Україна
<https://orcid.org/0000-0002-9822-6424>

Конвергентність матеріалістичного й ідеалістичного в методології містобудівної діяльності

Анотація. Реалії сьогодення вимагають змін і розвитку урбаністичної методології як науки про методи з охопленням усього методологічного ланцюжка – від уточнення понять, впорядкування завдань і встановлення характеристик об'єктів до методів аналізу, оцінки й обґрунтування рішень, а також містобудівного проектування та управління розвитком міст. Метою даної публікації є поглиблене осмислення методології урбаністики в контексті конвергенції (зближення, взаємопоєднання, взаємопроникнення) матеріалістичного й ідеалістичного підходів, впорядкування і розвитку методичного інструментарію містобудівної діяльності. Містобудівна діяльність розглядається як сукупність цілей, критеріїв, пріоритетів, обмежень. Множинність цілей – стратегічні, тактичні, нормативні, і критеріїв зумовлює потребу змін методології, аналізу й оцінки просторових ситуацій, а також обґрунтування рішень, зокрема вимог багатокритеріальності. Проектування територіальних систем скеровується на інтегрований розвиток, підвищення обґрунтованості й ефективності втілення концепцій їх просторової організації. Стаття за своєю сутністю методологічна – підкреслено важливість підвищення методологічної культури та формування системного мислення урбаніста (рефлексії, світогляд), його творчого потенціалу й сукупності професійних знань, умінь і навичок виконання проектів та інших функцій фахової діяльності. Це надзвичайно важливо в епоху великих баз даних та інтернету, зміни практики планування й дослідження, збільшення потенціалу й глибини аналізу інформації, появи нових технік і процедур. Інтегрування нових методик досліджень має скеровуватись на отримання нових знань про процеси і явища, встановлення закономірностей і підвищення обґрунтованості принципів організації, функціонування та розвитку урбанізованих систем і територій

Ключові слова: методи; зближення матеріалістичного й ідеалістичного підходів; багатокритеріальність; знання; інформація; дані

