

The Intangible Phenomenon of War: Methodological Foundations of Revitalization and Justification of the Architectural and Spatial Future of Ukraine

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The article considers the Russian-Ukrainian war as an intangible phenomenon that formulates a broader view in terms of Ukraine's recovery and development. The material system of the state is formed by a morphologically different but stable environment, while intangible processes are multidirectional and differ in duration and complexity. The concept of the spatial future of Ukraine is based on the integral principles of system development and covers macro characteristics (usefulness, environmental friendliness, safety for people and the environment, aesthetic component, and duration of implementation). The authors substantiate local suggestions for the revitalization of the territories destroyed by the war and the spatial development of Ukraine based on the requirements of intangible.

Keywords: revitalization; post-war recovery; spatial development; intangible; values.

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Abstract



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Introduction

Most studies related to the Russian-Ukrainian war focus on the search for approaches and methods to end it, rebuild what was destroyed, and substantiate development concepts on the methodological basis of functional and material: finance and financing of reconstruction; engineering and restoration of infrastructure (energy, water supply, sewerage); application of international experience in rebuilding war-torn cities to Ukrainian practice; environmental consequences and restoration of the nature reserve fund; spatial planning in wartime and the role of specialists in the reconstruction of the state, as well as the justification of architectural and urban planning forms of reconstruction and spatial development of cities and territories (De Haas & Pivovarsky, 2022; Gorodnichenko et al., 2022; Habrel et al., 2022; Hrytsyuk & Lysenko, 2023; Updated Ukraine Recovery and Reconstruction, 2024). Without denying the importance of materialistic components and calculations, the authors consider the problems of revitalization (returning to life) of devastated territories and substantiation of the spatial future of post-war Ukraine on the methodological basis of the intangible. The relevance of the study is confirmed by the growing role of the intangible in society and its impact on the living space in times of war and the presence of an existential enemy in Ukraine's neighborhood that skillfully operates and manipulates intangible meanings for aggression in the world and in Ukraine. The intangible aspect of war refers to the set of non-material factors and characteristics of the war process (or phenomenon) that lack physical form and material structure but influence its emergence, development, and perception. The intangible encompasses the following groups of factors and characteristics: (a) ideological and philosophical; (b) sociocultural; (c) ethnohistorical and psychological; (d) informational and technological; (e) institutional and legal. The intangible phenomenon is deeper in essence. It forms a higher order of meanings and integrates urbanism, sociology, engineering, economics, and architecture. Revitalization is a broader and more meaningful concept than reconstruction.

Russia's war against Ukraine is caused primarily by intangible reasons (ethno-psychological, ideological, historical, cultural, and value-based differences and confrontations). It has resulted in tragic losses and great material destruction. Therefore, peace, reconstruction of the destroyed, and spatial development of the state should be based on a scientifically sound platform of the intangible as a focus on the root causes. The elimination of consequences (methods, algorithms, justification of architectural and urban solutions) should be coordinated on this basis.

The article aims to reveal the essence of the phenomenon of war in the categories of the intangible – to study and assess the processes and changes caused by the Russian-Ukrainian war, to substantiate theoretical approaches and tools for returning the destroyed territories to life, as well as to outline the conceptual foundations of Ukraine's spatial future on the methodological basis of the intangible.

Methods

Research on the intangible is based on the following assumptions: 1) only a part of an object, process, or phenomenon can be seen – the rest is invisible and must be felt; 2) digital technologies allow both informing and misinforming with “unlimited” accuracy; 3) uncertainty and disorder are important features of the intangible; 4) the problem of the intangible is related to the study of risks (actions and inactions), threats, and accidents, some of which cannot be foreseen and controlled; 5) it is the tasks, processes, and actions that go beyond the deterministic and probabilistic that can have the greatest impact on the result. The study uses a mix of methods as a combination of descriptive-intuitive and empirical-analytical ones. The observation method involves collecting data on current processes and the environment and interpreting and evaluating them. The analytical method aims to “empirically” identify problems, ways, and possibilities of their solution. Data collection is focused primarily on qualitative components, with an emphasis on specific events and their intangible nature. The authors conducted a series of surveys among specialists in the field of intangible (architects, sociologists, psychologists, artists, historians, priests, and experts in the field of cultural heritage protection). The survey also covered students from Kyiv, Lviv, and Ivano-Frankivsk, including those from the temporarily occupied territories. The results were compared with the studies on this issue conducted by analytical centers in Ukraine, confirming their coherence. The emphasis was on urban-spatial manifestations and solutions.

Weekly discussions within the Velykyi Lviv NGO play an important role, involving urban architects (scientists and leading designers), economists, sociologists, and managers. The research is based on longitudinal methods as a study of the processes and phenomena of war over time and the authors' analysis and monitoring of scientific sources on the subject between 2014 and 2024.

The relationship between architecture, space, and war is formalized by a number of concepts (O'Driscoll, 2018). The concept of urbanicide as "the murder of urbanism" is characterized by the destruction of tangible and intangible substances of the city (Ustinova & Pleshkanovska, 2022; Ries & Schatz, 2023; Kuzyshyn, 2023): environment and values, the diversity of the civilizational basis and forms of coexistence; heterogeneity of the environment; memory and culture, as well as historical experience through the destruction of intangible and tangible substances, the "re-configuration" of cities, and the violent exclusion of people from the environment. The concepts that stand out are: wars through architecture, which considers the destruction of architecture as a struggle against the collective identifiers "built into" buildings; the idea of military urbanism as the growth of militarization and securitization of urban spaces and urban infrastructure; forensic architecture, which emphasizes the ability of the urban environment to provide evidence in trials for crimes and human rights violations; difficult heritage, which refers to traces and memories of war, occupation, and dictatorship.

Sociocide as the murder of society (Doubt, 2020) covers issues of family, institutions, gender, ethnic and national identity, consciousness, social ties, the ability of society to self-organize, and the destruction of rituals and social orders, as well as forms of their spatial manifestation. The destruction of cultural heritage, in particular, is seen as a tragedy that gives rise to national security problems – the weakening of the evolutionary link between culture, social values, legal principles, and national security (Finkelstein et al., 2022; Irving, 2024; Poshyvailo, 2024). In the problem of war – space – intangible there is the concept of memoricide as "murder of memory" – the destruction of memorial heritage and cultural genocide to erase traces of the communities that inhabited a city or territory. The destruction of architectural monuments affects the moral state of the nation, because for every nation these objects are iconic identifiers that have the meaning of a totem. The "war through architecture" is a policy of forced oblivion, the introduction of someone else's national, religious, and ideological identity, and cultural genocide (Bevan, 2016).

Space is a key concept for understanding war in terms of the intangible. We use a model of five-dimensional space H (human) – F (functions) – C (conditions) – G (geometry) – T (time), which is most suitable for a systemic analysis of the phenomenon of war and its relationship with space (Habrel, 2004: 50-85). The characteristics of the dimensions and their interactions allow us to systematically organize processes and behavior and to identify the most important interactions from the standpoint of methodological integrity. Each dimension in the model is detailed in terms of the purpose of the research tasks and the characteristics of the intangible.

1. The human dimension is central to the space of cities and other territorial systems. In the tasks of spatial planning, a person is considered as an individual and a community (social groups) for which the living environment is created. For the purposes of this study, communities are structured into groups: local residents (by dominant function – student, worker, pensioner), visitors (internal, from other regions, from outside Ukraine), and people with special needs (physiological, mental, vital). There are other intangible characteristics of human dimension as well: value system, level of education, socio-psychological state, and special needs. Social processes and needs in the system are divided according to the level of hierarchy, social groups, and psychomental characteristics, as well as relationships (unfilled ties). Processes that meet the needs, comfort of living, safety, and spiritual and cultural values are implemented in the living space.
2. Functions are important part of our life. Particular attention is paid to the processes of life in the war zone. We classify functions according to their importance, nature, and hierarchy in the system of intangible. Functions are divided into activities, spiritual and intellectual needs, nature and uncertainty of the processes, management and self-organization.

Theoretical background

3. Conditions are divided into: intangible resources, resource allocation, government behavior, requirements and limitations.
4. The geometric dimension of space (configuration, scale, layout, development of the structure of spaces) includes networking, space morphology, proportionality of structures and location of intangible activity centers. Geometric characteristics form a network of “interiors” of space, types and features of their visual perception, and placement of spatial and formative elements. The layout is created in the horizontal plane and, together with the “walls” (buildings and landscape elements and elements freely located in space), it forms spatial interiors.
5. The time dimension covers the past, present, and prospects, and includes the historical characteristics of space and objects, the time regimes of objects’ functioning, the processes of movement and life activity, and the prospects for system development. The dimension of time (operational and tactical time, as well as the time perspective) is important as a non-renewable resource, characterization of the dynamic properties of space, and time constraints on decisions in different spatial situations. It influences the choice of methods for justifying decisions and assessing their effectiveness, and is reflected in the individual components and consequences of war.

Table 1 shows the dual combinations of intangible characteristics of space. A crucial concept in this study is the notion of the life activity space, which we interpret as a multivector space encompassing human, natural, functional, geometric, and temporal characteristics. It is essential to harmonize spatial characteristics on a coherent methodological basis, structure the space, and explore the nature of interactions (two-, three-, four-, and five-dimensional combinations) among its principal elements. Such an interpretation of space, along with further clarification and structuring of intangible characteristics in war, enables a logical discourse on the spatiotemporal interactions between the life activity environment and intangible characteristics of war. This discourse is oriented toward identifying effective ways to utilize spatial potential for preserving Ukraine and ensuring its harmonious development.

Table 1

Dual interactions of intangible characteristics of the state space.

Factor	Human <i>H</i>	Function <i>F</i>	Conditions <i>C</i>	Geometry <i>G</i>	Time <i>T</i>
Human <i>H</i>	values; spirituality; culture; special needs	livelihood; humanitarian policy; information content	standard of living; environmental conditions; safety	morphological structure; density; movement distance	time priorities; population dynamics; prospects for social development
Function <i>F</i>	sufficiency of functions; employment; population capacity	livelihood; state support; intangible needs	competitiveness; attractiveness of conditions; technological efficiency	functional structure of the territory; degree of land development; space structure	change in production; development of infrastructure; productivity of activities
Conditions <i>C</i>	living conditions; social opportunities; administrative and legal conditions	investment potential; resource dependence of functions; environmental impact	quality of resources; layout; requirements and restrictions	nature reserves; recreation areas; polluted areas	dynamics of conditions; consumption intensity; renewability of resources

Factor	Human <i>H</i>	Function <i>F</i>	Conditions <i>C</i>	Geometry <i>G</i>	Time <i>T</i>
Geometry <i>G</i>	development of territories; distribution of social groups; placement of special needs	development of connections; density of intangible needs; functional structure of intangible	border network; special regime territories; distribution of conditions in space	shape configuration; infrastructure integrity; space morphology	dynamics of intangible at the territory; dynamics of network development; territorial changes
Time <i>T</i>	social stability; changes in social structure; migration	functional stability; dynamics of intangible; variability of processes	variability of conditions; environmental safety; consequences of destruction	spatial stability; network development; changes in spatial structure	time limitations; historical potential; dynamics of territorial development

Below is a brief description of other combinations of intangible components of the state space. In combining the dimensions of spatial situations, a person and his or her activities most often cause spatial effects and problem situations, so we will consider only those combinations where the human dimension is present. The interaction of the three dimensions H-F-C characterizes the conditions and resources for meeting people's needs, as well as the compatibility and efficiency of using their intangible potential, comfort, and safety of life. The requirements of creativity and efficiency in the use of conditions, the elimination of harmful effects, and ensuring the compatibility of intangible functions and living conditions are important. The combination of the vectors H-C-G includes qualitative characteristics of the state of conditions, human and territorial potentials, as well as the ability to meet the needs of the population. This combination of dimensions characterizes the living conditions of people in certain areas, the mobility of people, and the communication potential of the territory. The infrastructure for movement and efficient use of transit should be improved to ensure the coherence of these combinations in the lives of people in different areas. The combination of the vectors H-C-T reveals the relationship between humans and changes in spatial conditions over time. It is characterized by indicators of the intensity of the use and restoration of intangible potential and the dynamics of living conditions. There is a need for balanced use and restoration of intangible potential, as well as controllability and stability of changes in living conditions.

Four-dimensional combinations provide for the fixation of one of the dimensions of five-dimensional space. Fixation of functions outlines the analysis and evaluation of intangible potential, systematization of space organization tasks, and monitoring the state of intangible processes (relations). When fixing conditions, we assess changes in the organization of the state's territory and external relations. By fixing the dimension of time, we assess the uniqueness of space and the state of the intangible at a certain point in time. When fixing the geometric dimension, the state of processes and trends is assessed to formulate goals and tasks of the state's spatial development. The integral properties of space, i.e. its socio-ecological and economic harmony and intangible nature, are realized in the five-dimensional combination of characteristics.

The formula of tensions in war

The functional-materialistic approach to understanding war interprets it as "work" with appropriate approaches to research, evaluation, and justification of the rules for rebuilding and reorganizing the space of life. In our interpretation of war, the key category is that of tensions (Vassallo et

al., 2021) between the dimensions of space and processes. Tensions have different interpretations: a state of exhilaration, excitement, and concentration of energy for action, a difficult situation, the extent of compression or stretching that occurs in the physical body as a result of external influences, and the concentration of efforts to increase the impact on a situation. All the above interpretations of tensions are constructive and are intended to formalize the nature of the war. The physical nature of the laws of tensions has been experimentally confirmed, and their rethinking and use for modeling the development and reorganization of spatial systems of society's life is appropriate and correct.

Thus, in relation to war, we interpret the category of "tensions" as an increasing complexity of processes arising in the spatial system of the state as a result of external aggression, changes in socio-psychological behavior, concentration of forces on confrontation, as well as concentration and application of efforts to protect and preserve the state. It is important to understand the latent (long-term) and explicit tensions that impact different population groups, different scenarios and alternative development models, and the contrasting nature of the space (Calafati, 2015).

The model of tensions in war is based on the position of external and internal tensions, their heterogeneity, entropy, structurally sensitive parameters of space, and the amorphism or crystallinity of space. Internal tensions in a stable system are mutually compensated by ties and relationships, but it is possible that they can also cause the destruction of the system, when "tension crystallization centers" are created and grow under the influence of passive forces, and the system can self-destruct.

Tensions can be expressed as a dependence between groups of variables – spatial dimensions and "war" factors. The level of tensions in the system is assessed by an integral indicator that includes components of efficiency, environmental sustainability, safety, and aesthetics. It is reasonable to consider the entire array of intangible characteristics of space and their interactions that "shape" war. We suggest considering the tensions in space as a relative indicator, in which the numerator reflects the potential efficiency, as well as the total cost of resources and negative consequences in the system, and the denominator reflects the characteristics of other dimensions of space. It can be formalized the following way (Eq. 1):

$$P_{\varepsilon} = \frac{K_k - (H_b + H_p + H_e)}{H \times G \times C \times F \times T} \quad (1)$$

where P_{ε} is the spatial tension index; K_k is the total potential useful results of processes in the system in conventional units; H_b is the loss of system efficiency caused by military operations; H_p is the intangible losses for society; H_e is the negative consequences for the environment; H is the human dimension characteristics that participate in and benefit from the process; G – is the geometric dimension (location, layout, configuration); C is the conditions; F is the functions; T is the time (duration) of the process and the time required to obtain the result.

After the transformations, we get the Eq. 2 for the tension index:

$$P_{\varepsilon} = P_{max} [1 - f(B)][1 - f(B)] \quad (2)$$

where P_{ε} and P_{max} are the actual and maximum permissible space tension (causing system failure), respectively; $f(B)$ is a measure of space disorder.

The tension index has a spatial value and contributes to the identification of existing trends in processes, analysis and evaluation of existing contradictions in space, and justification of directions for the reduction of tensions and development of the system.

Eq. 2 suggests that the disorder (uncertainty, entropy) of the system is the key to the “problematics of war” and the tasks of rebuilding and justifying the spatial future of the state, which is crucial for the justification of decisions and results. The study distinguishes between the uncertainty of goals, internal spatial situations, and external conditions. There are non-deterministic components and uncertainties of different complexity and nature, which are objective and subjective in nature and differ in terms of completeness, nature, and relevance of information. Simplifying the problem to reduce its uncertainty often does not provide the necessary adequacy of reasonable solutions. Methods of considering uncertainty and its elimination are developed in the theory of probability and fuzzy sets (Coletti & Scozzafava, 2004). With regard to the problem of intangible in war, we have identified the following uncertainties: opportunities and their assessment; partial obscurity of goals, criteria, and requirements; state of the system and assessment of conditions; incomplete information about the system. The human dimension, which defines the nature of war – human nature, behavior, and emotions (fear, stress, determination, and resilience), etc. – is a priority in the disordered space. The theoretical provisions of tensions in war allow us to identify ways to raise tensions in the enemy’s system and effectively combat destructive tensions within our own system.

An intangible-phenomenological martix of the spatial future of Ukraine

The matrix (Fig. 1) is represented and classified as intangible-phenomenological and includes the most general concepts of tensions arising from intangible and comprehended primarily through suprarational intuition. It is used to substantiate the spatial future of the state and to revitalize what was destroyed on the basis of subjective idealistic perception and reflection of the phenomena of war and post-war reality in the categories of intangible.

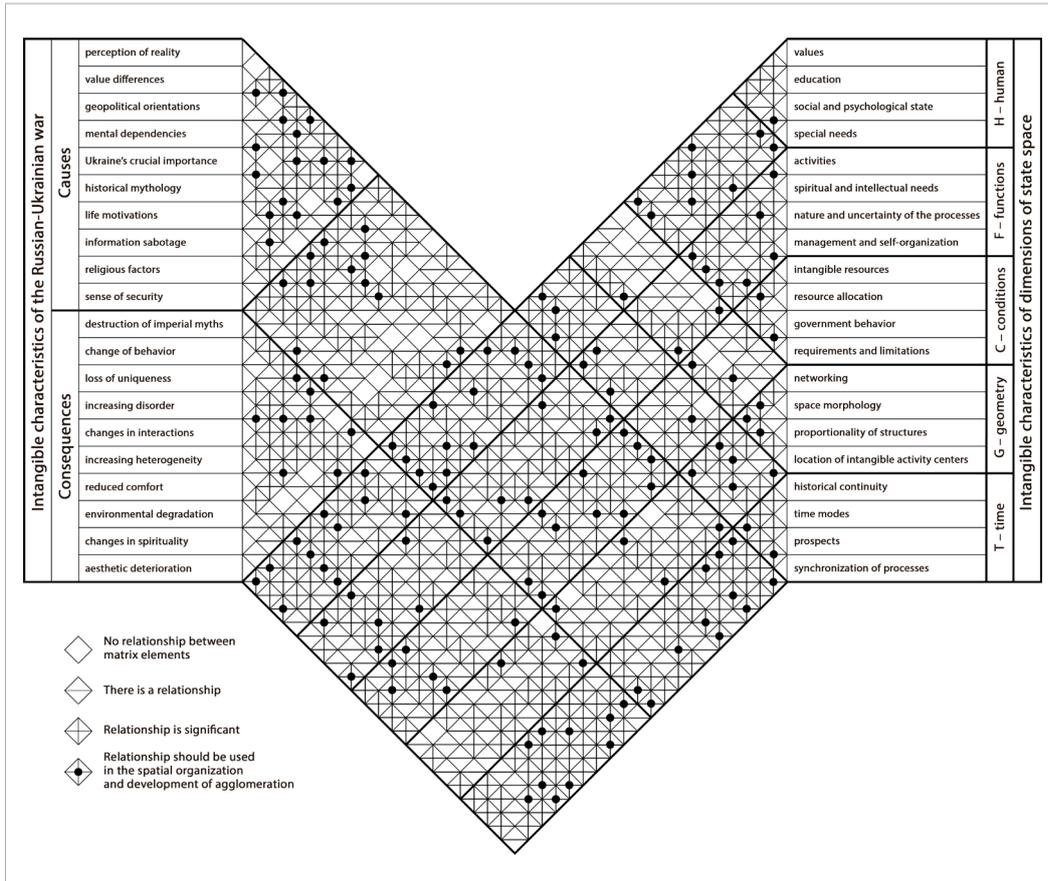


Fig. 1 Matrix of interrelations between intangible characteristics of the Russian-Ukrainian war and intangible characteristics of dimensions of state space. Authors' illustration

The offered intangible-phenomenological model is not mathematical, it outlines an approach to revitalizing and modeling of the spatial future of the state, organizes the discussion about the intangible in war, explains its other reality, and helps to cope with the difficulties of spatial planning of Ukraine today and in the future.

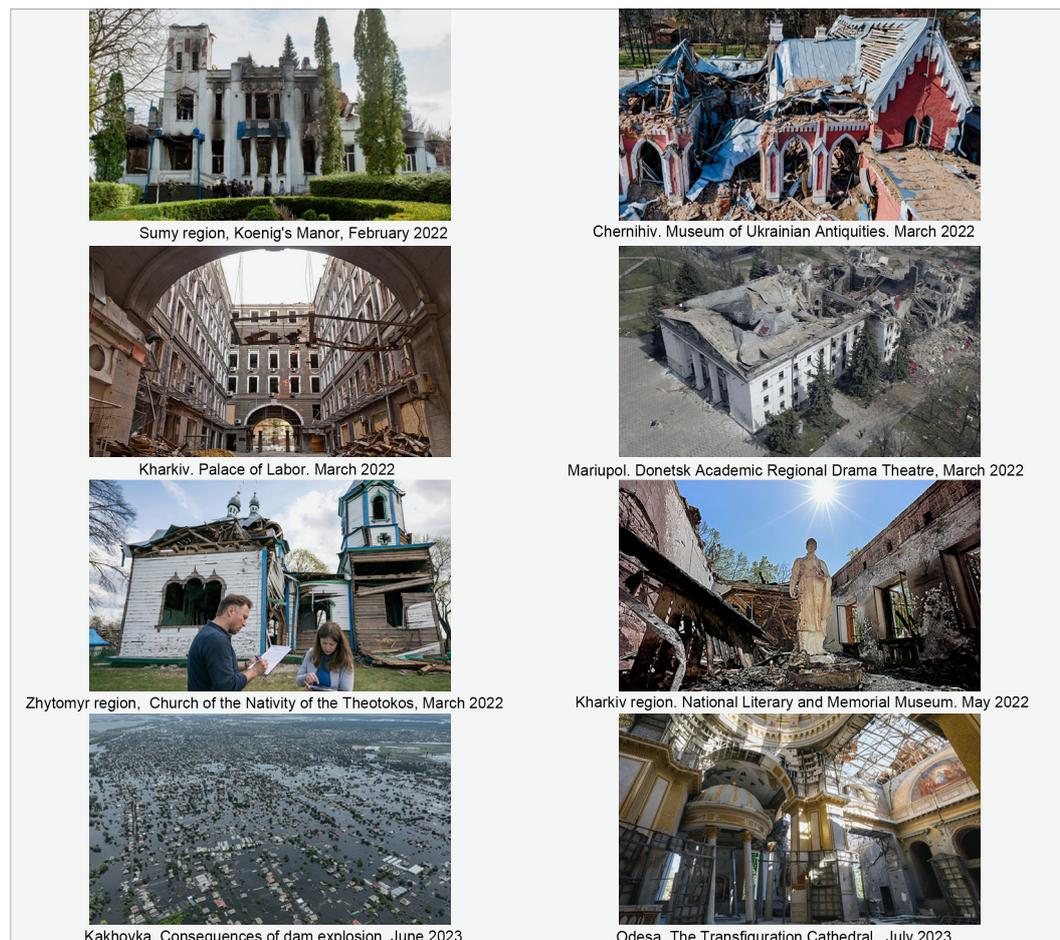
Results

War is primarily about violence and coercion, an act of force (Falk, 2022; Maftey 2023; Rothman et al., 2024). Social violence has a significant degree of autonomy and encourages society to radically change the forms and directions of development (Janowski, 2023; Vinkov, 2023). Spiritual violence is based on punishment for opinions. It is expressed in the form of imposing myths, distorting information, manipulating human consciousness, and destroying human memory, freedom, conscience, and spirituality. Russians consider Ukraine to be an integral part of their history and culture, destroying Ukrainian historical and cultural sites, which indicates that the enemy recognizes a strong and distinctive Ukrainian identity ((Lonardo, 2022; Wiesner & Knodt, 2024; Savchenko & Korotkyi, 2022; Viatrovyh, 2023; Plohiy, 2023; Tytych, 2024). In times of war, people are more vulnerable in terms of their identity, values, and culture, and their protection and preservation play a special role in feeling safe and returning to "normal" life and activities. There is a need for a thorough analysis of the processes and experiences of living under conditions of war and existential threat, adaptive practices of self-defense, and the integration of the population into new living conditions for the post-war reconstruction of Ukraine.

For eleven years, since Russia invaded eastern Ukraine, Ukrainian cities have been experiencing destruction on a scale not seen in European cities since World War II, as well as aggressive changes in both the social and spatial spheres (Fig. 2).

Fig. 2

Destructions of Ukraine during the full-scale invasion in 2022-2023.
Source: tsn.ua



Intangible changes in dimensions are classified according to homogeneous properties, which allows us to identify integral characteristics of transformations and the state of the spatial situation. These are behavior, uniqueness, entropy, synergy, unevenness, comfort, environmental friendliness, safety, aesthetics, and spirituality.

This study uses expert, sociological, and rating methods of assessing processes and changes. The methods of ranking (preferences) and comparing (pairwise and sequential comparison) were used to determine the importance of problems and positive changes. The assessment was made on a scale of more – less and better – worse. Meanwhile, a higher value of the indicator also shows a more significant impact of this characteristic on the spatial situation. The biggest changes are related to human potential – knowledge, values, social processes, and other intangible components. The main intangible changes in the spatial and formative dimensions are reduced to changes in settlement and destruction of the uniqueness of territories, reduction of the level of functional sufficiency of communities, loss of historical and architectural heritage and traditions, and reduction of the level of prospective activity of residents and their motivation for new changes. In general, the assessment of the transformations and intangible consequences of the war is summarized in the following way:

- _ the disorganization and disorder of society and processes are growing and the “normality” of life perception and sense of reality is being disrupted;
- _ violence and death, destruction, serious injuries, and robberies are becoming an integral part of the life processes of society and the environment;
- _ the vulnerability of cultural identity and the destruction of historical heritage is growing (large casualties of Ukrainians and the destruction of culture and national values);
- _ actions related to the will to live and survive are intensified, variability and self-motivation increase significantly, and the “attitude to life” is changing towards a healthy lifestyle and awareness of its uniqueness;
- _ public motivation for knowledge and awareness of the importance of education for the future is decreasing and science is being compromised (traditional scientific centers are destroyed and the quality of education is decreasing);
- _ creative and scientific groups are being formed as the most important values of our time, and the share of highly motivated and active young people is growing;
- _ geopolitical orientations of the society are polarizing, part of the population of Ukraine remains oriented towards Russia and leftist ideas, while the share of people who understand the aggressive nature of the neighbor has increased significantly;
- _ the division of society into active and passive parts is getting deeper (the war has revealed a fault line);
- _ the opposition of values centered around religion is sharpening; a philosophy of seeing the world with a populist perspective is being developed;
- _ spatial chaos in cities and territories is increasing, and the problems of their reform and development are becoming more acute;
- _ the use of spatial potential is worsening and intangible resources (intelligence, energy, information, and time) are being lost;
- _ there is no systematic and algorithmic analysis of the war and its consideration in spatial planning and justification of project decisions;
- _ the dynamism of change is increasing and the forms of interaction in their intangible essence are becoming more complex.

Russia's war in Ukraine aims to eradicate national consciousness, destroy values and social ties, undermine society's ability to self-organize through the destruction of shrines and rituals (2,000 architectural monuments were damaged during the war, more than 600 were completely destroyed), change the type of the socio-spatial system, and imbalance social processes and orders, the essence of which is rooted in the intangible – spirituality, humanity, and the psycho-emotional state. Below we will discuss these issues in more detail:

1. *Worldview and geopolitical changes and implications* include individualism, self-organization, democracy, integration, degree of openness, response to new challenges and influences, leadership, populism, information fraud, justice, and motivations for cooperation. The full-scale war has consolidated Ukrainian society around the values of civilizational choice: democracy, freedom, and independence (86% of the population in the west and 70% in the east support a closed border with Russia, 90% of citizens support EU membership, and 73% support NATO membership (Ilko Kucheriv Democratic Initiatives Foundation, 2024). Understanding of the need for modernization reforms has increased, and soviet nostalgia has almost completely disappeared. The spatial development of the state should be guided by a new philosophical and ideological paradigm: harmony and disclosure of uniqueness, post-industrialization and digitalization, and partial departure from the orthodox principles of globalism.
2. *Socio-mental changes* in conditions and relations include new needs, demographic processes, mentality, and values, identity, and solidarity. Attitudes and behaviors have changed to include trust, cooperation, and cohesion for the common good. The majority of the population of Ukraine, 69%, are ready to endure the hardships of war for as long as necessary to achieve victory. Faith in the Armed Forces of Ukraine (63%), family (49%), and daily work (27%) help to remain resilient during the war. For every fifth, it is religion, belief in God (UCIPR, 2024). These changes are becoming factors of social progress and national consolidation, which, together with the system's ability to respond to challenges and self-organization, should form the basis of the spatial future of the state. The formation of the Ukrainian political nation, civil rights, and freedoms, a common civic position on the development of the state and society, tolerance for all its parts and respect for the indigenous nation, the development of spiritual achievements, and a harmonious combination of the values of the scientific, artistic, and political elites become priorities for society.
3. *Changes in the spiritual sphere*. Since the beginning of Russia's full-scale invasion of Ukraine, the number of religious people has increased from 68% to 74%. A total of 76.1% of respondents accuse the Ukrainian Orthodox Church of the Moscow Patriarchate (UOC-MP) of contributing to the Russian aggression. The share of UOC-MP believers has decreased from 13% (2021) to 6% (2023). More than 80% of respondents support restrictions on the UOC-MP at the legislative level and 60% support its outright ban (Religion and Church in Ukrainian Society, 2023). Religious communities have a great creative potential for prevention, mediation, and reconciliation. The main change in this area is the creation and development of the Orthodox Church of Ukraine, which is Christian in nature and local in form. The information space is monopolized – low-quality content is gaining popularity and negative ideological and political influence on society is increasing. Meanwhile, Soviet-communist toponyms and symbols are being eliminated, and the space of life is being filled with new semantic essences and social thinking.
4. *Changes in attitudes to Russian culture*. The war accelerated the processes of realizing the need for complete separation from cultural contacts with the aggressor country, whose culture failed to fulfill its main function of protecting Russians from barbarism in the twenty-first century (Fedorkiv et al., 2024). Most artists and cultural workers in Ukraine combine their professional work with volunteer work and other forms of assistance in the fight against the enemy, striving to reveal the importance of Ukraine both quantitatively and qualitatively (Culture during

the war (2023)). The perception of the values of national culture – identity, emotional affinity, and solidarity (differentiation along the lines of “friend or foe”) – is being reformed, which gives confidence in critical situations and is evaluated according to the criteria of truth and justice. Clear “definitions of community,” its features, and integral socio-cultural parameters (commonality, mentality, and identity) are becoming important for the spatial future of Ukraine.

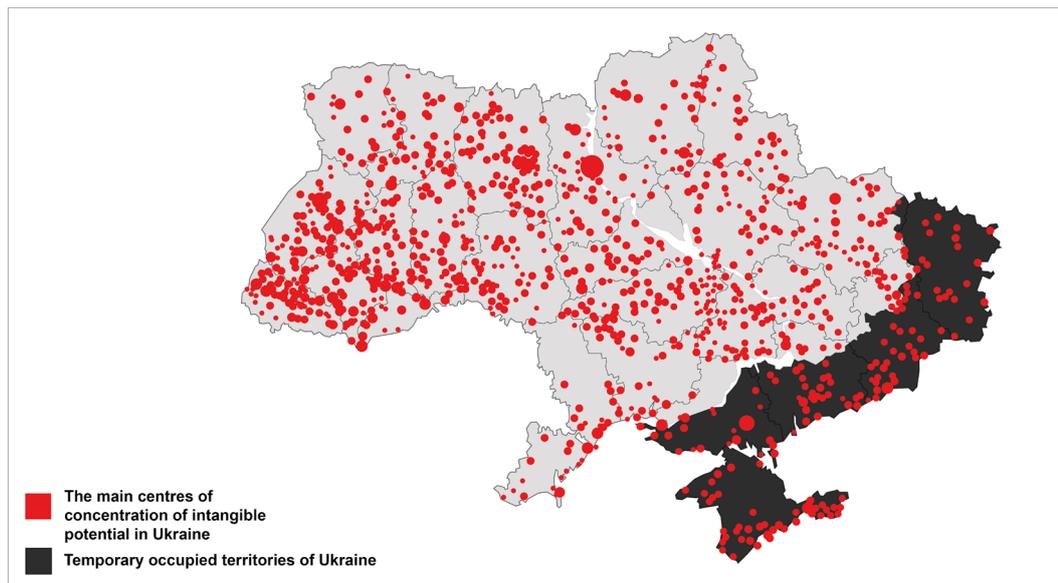
5. *Changes in activities* are focused on the economic system, social responsibility of business, the powers of the state, oligarchy, and corruption. The oligarchic-clan type of economy formed in independent Ukraine is in antagonistic relations with society (Hryhorenko & Shnitser, 2022). The oligarchic forms of state governance are also growing stronger – the war has created additional conditions for corruption, which is penetrating deeper into all spheres of society. At the same time, the phenomenon is being rejected, the culture of management is transforming, and the consciousness of the “owner” as a self-sufficient and active person capable of critical thinking is being revived. There is a return to what was based on human authority and relationships, the search for optimal combinations of spatial subsystems, and the disclosure and consideration of uniqueness and heterogeneity, as well as new forms of activity. Focusing the state on the needs of “priority sectors” (agriculture, engineering, startups, etc.) can help to improve the effectiveness of the results.
6. *Nature and landscape changes and losses.* Covering 5.7% of Europe, Ukraine is home to at least 35% of European biodiversity (over 70,000 species of animals and plants), including the unique nature of Podillia, the Donets Ridge, the Dnipro Sands, the flora of Slobozhanshchyna, etc. More than 20% of Ukraine’s protected areas are affected by the war, and about a quarter of Ukraine’s agricultural land is currently unavailable for use (UWEC, 2024). For the purposes of reconstruction and spatial development of the country, it is important to develop a system for assessing and monitoring natural and landscape changes and losses and the prospects for restoring ecosystem functions.
7. *Intangible aspects of changes in the country’s settlement system* are determined by the geopolitical position in the suprasystem, established forms of settlement, development of networks, etc. Many urban settlements in Ukraine have lost their city-forming functions and are searching for new ways of development in the context of war, depopulation, and reforms in the country. Some settlements have reached the limit of their capacity and are stagnating or even degrading – there is no systemic urban policy and no new ideas for revitalization. The high rate of housing construction in the large cities of the “rear regions” leads to an increase in disordered space, uncontrolled “sprawl” and loss of urban image, and deterioration of conditions for the integration of residents and the environment. Changes in the resettlement system in the country require the implementation of large infrastructure projects based on the requirements of the new humanitarian, security, and spatial policies (Brown, 2019; Kaliandruk, 2022; Zdioruk & Tokman, 2023).
8. *Innovative and technological processes* and transformations in the state are directed towards innovation, creativity, and the use of social capital opportunities related to knowledge, information, technology, ideas, creativity, etc. Ukraine has lost centers of scientific research and development of new technologies, while the influence of science on processes in the country has decreased. Ukrainians are still capable of offering new ideas and creative solutions as evidenced by the contribution of our compatriots to global science and technology, the presence of large IT companies in the country that work with global firms, the development of innovative infrastructure, its penetration into all spheres of life, the use of creative technologies, etc.
9. *Institutional changes* concern the state policy on governance, national security, fundamental values, spheres of activity, and the environmental situation. The competence of the administration is decreasing, while the completion of the administrative-territorial reform and the

transfer of powers to the local level brings competent people to lower levels of government and eliminates the “problem of incompetence” in public administration. Parliamentarism as a form of governance in the state is being destroyed, and the role of oligarchy and “feudal” relations is expanding. The basic changes have been made in the administrative and territorial structure, the system of national law, the legal framework for spatial and urban planning activities. New technologies and innovations in the field of management and spatial organization of territories have been introduced. In general, the institutional environment in Ukraine is a complex, unstructured, sometimes contradictory, multi-level, and inefficient system that lacks a single direction in terms of the system of features and specifics of individual areas and designated regulatory centers to avoid duplication.

Intangible reasons and factors that have been and remain decisive in the new realities are primary in the outlined changes in the state. Their material manifestation is derivative. The intangible potential in the space of Ukraine (Fig. 3) plays a crucial role in these transformations. However, there are still threats and problems for the future—preservation of the oligarchic-clan model of the state, increased corruption, and disappointment in hopes for a better future.

Fig. 3

Intangible potential in the space of Ukraine.
Authors' illustration



The proposed assessment of the intangible nature of the changes and processes caused by the war substantiates the need to reform important provisions of the methodology of urbanism and spatial planning. Meanwhile, the growing role of the intangible and idealistic in approaches to research and justification of decisions on the reorganization and development of territorial systems of different hierarchies puts knowledge, values, and creativity of professionals, authorities, and society at the center.

Discussion

The spatial revival and revitalization of Ukraine’s space based on the scientific platform of the intangible includes the revitalization of national identity as a return to life of lost values, the priority of the intangible in the restoration of the state and its space, subsidiarity and self-organization, integral principles of organization, transformation, and development of systems – unity (development of interactions between the components of the system and with the environment), harmony (balance between dimensions of space, their integrated coordination, and formation of comparative conditions of life and self-development in partial spaces), and individuality (development of the state, regions, and individual subsystems based on their uniqueness and local mental, cultural, and spiritual characteristics).

The priority of the intangible implies a choice based on the criteria of dichotomies: memory – oblivion; land-economic – urban mentality; revitalization – liquidation; closed – open systems; development of existing – formation of new spatial connections; “integration – isolation”, etc. Comparison of intangible dichotomies and their analysis and evaluation make it possible to establish priority areas for the spatial reorganization and development of Ukraine, in particular, the openness of the state’s space to the environment, flexibility of systems, dynamics of change in changing scenarios, development of historical cities and small urban settlements, etc. Below we specify several provisions:

1. Revitalization of national identity. It is impossible to substantiate the spatial future of Ukraine without perceiving it as a unified state different from Russia. The difference in the entire system of worldview, values, ideas, and ideologies directs Ukraine’s national identity toward a combination of modernity and historicity as a return to life of unrealized principles of the past in the new realities of the present. The basis of the Ukrainian identity is reflected in the provisions of the national idea crystallized in the nineteenth century: anti-imperialism, integration into the European cultural and political space, focus on the people as historical entities, and civilizationalism as accession to world civilizations. With the restoration of independence, the national idea was elaborated in terms of pluralism (the nation is not homogeneous) and orientation to the future (opportunities for the younger generation). The key here is to revive historical memory and combine it with the tasks of the present.
2. The new urban policy in the state on the platform of the intangible envisages a more active development of small towns and villages, as their environment is most in line with the new realities of Ukraine, increasing the dispersion of the settlement structure, and the development of small elements through the redistribution of resources in their favor. The revitalization of small urban settlements is becoming a stimulant for the development of the regions and the country as a whole. Intangible sector is being fostered, in particular: re-industrialization, structural transformation, and modernization of the old industrial regions of the state that are currently in the war zone, adjustment of the settlement system and justification of the new zoning scheme of Ukraine based on the characteristics of intangible and their reflection in the solutions of the General Scheme, and equal access to services and human-centered requirements. The justification of urban policy in Ukraine should focus on the territories temporarily not controlled by Ukraine, displaced persons, depopulation, and changes in migration processes.
3. Revitalization of urban traditions and culture. The spatial forms inherent in the urban mentality of Ukrainians are manifested in subordination to natural and landscape conditions, “freer” settlement planning, smaller scale of elements and spaces, as well as in the architectural plasticity of the environment. It is important to ensure the sacralization of space and the revival of traditions, culture, and spirituality, which involves not only rebuilding cities according to norms and “templates” but revealing the unique features and “spirit of place” that make each of them unique, with its own atmosphere, soul, reaction to external influences, and individual “behavior”. This will contribute to raising the level of social life, structuring the community as a social system, activating its role in decision-making, social cohesion, and spatial organization, reviving cultural heritage and reinvesting in intangible structures – cultural heritage and spirituality objects, as well as traditional crafts and new activities related to intangibles and new opportunities for residents’ livelihoods.
4. Strengthening the socio-mental integrity of the state’s spatial system, including the settlement and functional planning structure of the territory, recreational, agricultural, and other functions, increasing the multifunctionality of the use of territories in the social aspect of revitalization of villages and rural areas, and returning to active life of remote and degrading settlements. The intangible properties that form the basis of the scientific platform for the

reconstruction and development of Ukraine are capable of reproduction, frequent repetition, motivation to act, and individualization. They can be real and virtual, short-term, long-term, or permanent, and can depend on the means of implementation. Socio-mental integrity creates the memory of change, which is associated with the movement of people, rapid change and loss of landscapes, emotions, and recognition, i.e. things and processes that seemed eternal. They are changed by time, war, realities, and technology. Intangible realities are becoming an important requirement and component of the development, preservation, and use of the space of existence and the justification of humanitarian and spatial policies at different hierarchical levels.

5. Self-organization in the revival and development of territories is actualized by the local government reform and the expansion of cooperation opportunities. It has been confirmed by the Ukrainian practice of helping the army and displaced persons during the war and should be preserved in the post-war reconstruction and spatial development of regions and the state. The principle of “rebuilding better than before” is irrelevant – communities need to monitor the situation, take into account the time dimension, and justify the needs and prospects for the future on the basis of the requirements of increased efficiency, participation, and responsibility of the authorities. The new approach should be implemented through spatial planning rather than national economic plans, focus on revealing the uniqueness of systems rather than formal compliance with procedures and unification of decisions, and revitalize and spatialize Ukraine based on knowledge and values, as well as creative, critical, and systemic thinking of the authorities, community, and professionals in justifying, implementing, and monitoring decisions.
6. Multifactorial differentiation of the spatial structure of the country according to the criteria of intangible, taking into account the uniqueness and peculiarities of natural and landscape conditions, settlement patterns, historical and cultural features, types and forms of economic activity, as well as expanding the typological diversity of the country’s spatial elements. This includes highlighting areas with high intangible content, improving tourism and recreation, agricultural culture and technology, as well as high-tech industry, food, chemical, pharmaceutical, medical industries, IT technologies, green industries, and transport. The development of networks of specialized security infrastructure, tourist routes, and historical and cultural centers, as well as the dynamic development of social infrastructure driven by the rapid development of public demand, information technology, and the formation of new values in society, are becoming important.
7. Preservation and harmonious use of the intangible potential of the landscape: implementation of the principles and foundations of humanization of landscape planning – environmentally oriented and aesthetically expressive solutions. This is especially relevant for Ukraine in connection with the destroyed territories and the destruction of landscape and recreational areas of the regions. It requires defining the boundaries and types of use and rationalizing the system of protected areas, bringing their total area to the standard, and reducing the aggressiveness of anthropogenic impacts on the environment.

In the concepts of revitalization and justification of the spatial future of the state, it is important to take into account the damage and intangible destruction of territories, the psychological shock of invasion and war, the loss of military and intellectual personnel, and other consequences.

We have substantiated the following proposals for the Concept:

- _ restoration of Ukraine by and for those who remain. Justification of decisions on revitalization and development of the state in the context of depopulation;
- _ spatial reindustrialization, innovations, and new technologies;
- _ reform of the education system and abandonment of formality – formation of thinking,

- knowledge, skills, and competencies and respect for rules, laws, and orders in society;
- _ focus on young people and their consolidation around the future, common goals, values, behavior, and cooperation;
 - _ institutionalization and development of civilian control over the fight against corruption;
 - _ international cooperation and justification of the limits of the system's openness as a condition for its "separation" from the external environment and preservation of its uniqueness and harmonious development;
 - _ improvement of local self-government and power relations in view of new military and political situations and realities;
 - _ strengthening of the national security of the state, creation of protection and defense structures, and their organic integration into the environment;
 - _ neutralization of the imperial ideological influence of Russian Euro-Asianism and its aggressive religious and political pressure becomes a priority of the state humanitarian policy and strengthening of national identity;
 - _ sacralization of space and creation of new symbols and semantic forms in architecture and the living environment;
 - _ information content of public spaces, memorialization and reflection of the heroism and sacrifice of the struggle for independence;
 - _ countering enemy information "weapons" and new forms of threats, restructuring the information space within the country and its external influence, and reflecting them in the state's spatial policy.

These conceptual proposals, humanization, aestheticization, and inclusiveness and safety of life become mandatory in the organization of space. The emergence of new war-related objects, structures, and spaces in settlements (checkpoints, training centers, rehabilitation facilities, housing for displaced persons, defense infrastructure facilities, and facilities for the protection of the population and critical infrastructure) plays an important role in today's urban and state space. It is necessary to preserve and develop them to increase the safety and security of the environment. The spaces of the reconstructed Ukraine should be humane, sustainable, healthy, safe, and active, and the future of the state should be seen through the quality, values, and safety of life.

1. The "realistic" ideology of explanations of war suggests that human behavior is motivated by rational elements and a conscious calculation of material benefits and losses. Without denying the importance of the material, the authors formulate a broader view from the perspective of the intangible (including cognitive, emotional, value, aesthetic, etc. components). Understanding the nature of war in general and the Russian-Ukrainian war in particular in terms of the intangible helped to streamline methods and study stochastic processes and changes in the war. The study confirms the hypothesis that the Russian-Ukrainian war is primarily caused by intangible causes that result in casualties and material destruction. Accordingly, the restoration and justification of the spatial future of Ukraine should be based on the scientific platform of the intangible as the elimination of the root causes, and on this basis, the destroyed territories should be brought back to life and the state should be spatially organized.
2. Given the multifaceted nature and poor predictability of the intangible, in addition to conventional methods, the study uses sociological surveys and longitudinal studies of the intangible nature of the war in Ukraine, as well as changes and processes in the state. The analysis of the interactions between the intangible and the concepts of "architecture - space - war" reveals the spatial manifestations of the intangible in the Ukrainian-Russian war. A five-dimensional space model is used to reveal spatial interactions in the context of the intangible nature of war.

Conclusions

The concept of tension in the state of the system is introduced and analyzed to organize the processes in the space of the state and to identify the most important interactions in them from the standpoint of the integrity of the methodology.

3. The following transformations and changes in the system are identified: a) those that enhance the development processes, lead to the weakening and degradation of the system, and change along with the morphology of the system and transform it; b) expansion of stronger functions and processes that displace weaker ones; c) changes caused by the exhaustion of resources and the extinction of the activity of processes in the system. The material system of the state is formed by a morphologically different stable environment, while intangible processes are essentially multi-vector and different in duration and complexity. It is intangibility that causes changes and the emergence of new qualities, problem situations, and opportunities for development in the system.
4. The study offers an intangible-phenomenological model for substantiating decisions on the revitalization of the destroyed and spatial future, which is presented in the form of a matrix, the dimension of which is determined by the number of its elements and their pairwise combinations. It makes it possible to deepen the understanding of reality, as well as create a harmonious post-war environment, to reconcile the intangible components of space and the characteristics of war both within the system and with the suprasystem, to outline an intangible approach to substantiating decisions on the reconstruction and modeling of the future, and to solve the complex spatial planning problems of the current period.
5. The study substantiates the scientific provisions and conceptual proposals for the spatial future of Ukraine and the revitalization of destroyed spaces following the requirements of the intangible and their architectural and urban forms. The concept is based on the integral principles of organization (reorganization) and development of systems – unity, harmony, and individuality. The macro characteristics of the future include usefulness, environmental friendliness, safety for people and the environment, aesthetic component, and duration of the proposals' implementation. They become a platform for substantiating local design solutions for the revitalization of war-torn and depopulated territories, as well as for the spatial development of Ukraine.

A conclusion may review the main points of the paper do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions. Make sure that the whole text of your paper observes the textual arrangement on this page.

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