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### *HIERARCHICAL ANALYSIS OF URBAN SPACE<sup>1</sup>*

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Multi-level structure of urban space, multitude of subjects of its transformation, which follow asymmetric interests, multilevel system of institutions which regulate interaction in the "population – business – government – public organizations" system, determine the use of hierarchic approach to the analysis of urban space. The article observes theoretical justification of using this approach to study correlations and peculiarities of interaction in urban space as in an intricately organized system. Hierarchic structure of local communities in urban space is presented, depending on objective function, motivation to integration, level of demand and resources. Several levels of local communities' integration are given out by mesoeconomic analysis. The objective of modeling of local communities, business, authorities and nonprofit organizations as subjects of urban space interconnections and interaction is set. This objective is considered as a novelty, because the existing studies focus on the analysis of regions and gross enterprises. This research focuses on modeling of municipal-level objects' functioning (city) and their correlations with objects of other levels of hierarchy. Level and urban space institutions hierarchy is simulated. Matrix of correlations between the subjects within the transformation of urban space is developed. Two models of urban space development are created depending on urban space interactions and correlations, and the qualitative characteristics analysis of these models is presented.

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*Keywords: hierarchical approach, urban space, institutes, inter-level interaction, space development.*

In the context of post-industrial economy, human capital becomes the key resource for the economic development. However, contemporary 'innovative and socially oriented' [23] economy shifts the emphasis from quantitative to qualitative parameters and conditions of human development, and urban space is one of those which appears favorable for the reproduction of human capital. Along with the evolution of economic systems and in the context of information technology development and the priority of the knowledge-based economy, there is also a transformation of cities and urban space, in which hierarchical and network forms of interaction coexist according to the 'power-business-population' pattern. A key feature of the urban space is its multi-level structure, i.e. diversity of correlations between the major subjects, allowing the use of research methods that take into account the factor of hierarchy.

The multi-level structure is not the only characteristic of the objects and elements of the system. Hierarchical analysis is peculiar not so much in the scale of its object, but in the nature of the object – the analysis is primarily exposed to the interference ('miscibility' or inter-reflection) of macro- and microeconomic processes, the character of their interactions and correlations: the impact of macro-level elements on the performance of the microeconomic subjects, as well as the influence of a set of micro

subjects on the formation of macroeconomic trends [17, p. 22]. Consequently, the character of hierarchy assumes that processes occurring in the urban space are diverse.

This hierarchical approach was originally called mesoeconomic but currently the concept is actively investigated in the framework of Professor Y.K. Persky's school of thought. Nevertheless the very notion 'mesoeconomic' has not yet become acknowledged in the sense that different authors give their own interpretation [18, p. 12]. For example, G.B. Kleiner determines mesoeconomic level as 'an activity of companies and interaction between them and their groups – financial and industrial formations, complexes, companies, markets'. I.M. Stammer defines mesoeconomy as a level of specific policies and institutions, which is between the macro level, presenting the general economic conditions, and micro level, which includes businesses and industries [24]. This very approach establishes the subject of the mesoeconomic research as a number of objects of an economic system, which don't refer either to microeconomy or to macroeconomy, but which are most likely to be the subject of studies of the institutional economy and are determined as a set of institutional factors of market objects and their performance [18, p. 27].

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Within the framework of hierarchical approach the subject of the analysis is defined as the interference of economic, social and cultural processes happening in the multilayer urban space; as the character of interaction and correlation of the major subjects of the space, which are the quality of the urban space impact on the characteristics and the results of the performance of the population and businesses as microeconomic subjects, as well as the totality of the micro objects' impact on the urban space development in reverse.

We use the hierarchical approach in studying and modeling the relations in the urban space due to a number of arguments. First, the very space is multidimensional and it includes various entities, including local communities, (population and business) at different levels of hierarchy, municipal authorities, local government, public organizations, and their relations are constantly changing and transforming. As noted by M. Palamarchuk, 'hierarchical structure pierces the social space of a city and urban society, where many individuals (citizens) take certain positions and fulfill specific functions [16, p. 243]. Consequently, the very urban space performs as a hierarchical structure and the urban community is a set of local ones. The elements of the urban space also include mechanisms of regulation of relations and institutes of coordination of the interests of the entities during the process of the space change.

Secondly, there is an asymmetry of interests of the entities and, according to the data [6], it provokes the 'equality-efficiency' conflict, which reflects a contradiction between social and commercial

efficiency of the projects in the field of the city transformation and which misbalances the development of urban space.

The third argument supporting the choice of the hierarchical approach to the studies of the socio-economic space lies in the idea that the cities themselves are built in the hierarchy of the global socio-economic space. The hierarchy of cities in this global system is studied in the research [1]. The highest level of the hierarchy is represented by a network of world and international polyfunctional cities, which coordinate the whole economic process on the basis of the decisions made by the representatives of the international economic elite. These cities are connected by financial flows, communication channels, transport lines, cultural interaction and informational flows. The second level stands for the specialized cities of national significance which are integrated in the national networks and communicate with each other by means of informational flows and material flows of produced and consumed goods. These cities concentrate financial, information, corporate, political and cultural resources and become decision-making centers of national importance. On the third level we can find specialized cities playing the leading role at the regional level and united in the corresponding regional networks [1, p. 241].

Since primary economic analysis divides the economic system into levels on particular criteria [17, p. 155], we have examined the hierarchical structure of local communities in the urban space (Table. 1).

Table 1

**Hierarchical structure of local communities in urban space**

Criteria	Level of hierarchy			
	Subject of Micro level		Subject of Meso level II	Subject of Meso level I
	Households	Companies	Local communities (streets, blocks, micro districts, districts)	Population of the local territory (of a city)
Unification ground	Family connections	Business	Common interests, homogeneity of population needs and its degree	Common territory and business mentality, traditions and customs.
Coordinating subject (the center)	Head of the family	Head of the company (board of management)	Territory public bodies (a committee, a council)	Municipal elective and representative bodies
Target function of the subject	Achieving the maximum utility basing on the satisfaction of material, spiritual and social needs.	Achieving the maximum benefit	Safety of life and business, transport accessibility, comfortable local territory	Improvement of life quality and business conditions basing on the formation of the city social capital
Level of subject requirements	Household and family issues	Company issues	Local issues	City-level issues
Meeting the requirements	Family income	Revenue, benefit, amortization	United resources: subsidiary participation of the population, business, public bodies (PPP mechanism, corporate social responsibility)	Fiscal revenue of the city. Unification of business, public bodies', population resources (non-profit organizations, initiative groups)
Subject action focus area	Basic and optional activity performance		Association in local communities and self-organization aimed at performing their own initiatives in addressing issues of local importance	Solution of city-level issues through the local authorities. The implementation of social activism and corporate social responsibility
Mechanism of subject interaction	Direct interaction		Direct recurrent interaction of the population of the local territory	Indirect and occasional interaction in urban space

Criteria	Level of hierarchy			
	Subject of Micro level		Subject of Meso level II	Subject of Meso level I
	Households	Companies	Local communities (streets, blocks, micro districts, districts)	Population of the local territory (of a city)
Institutes which regulate interaction between subjects in the hierarchy	Family institute, institute of gender-based power[2]	Business institutes [13]	Institutes of mutual understanding, trust, neighbor help. Local government institute as an institute of self-organization. Institute of the competitive selection of social projects	Institute of the local government as a system of local government bodies. Intersectional interaction institute
Foreground form of the implementation of interests and their translation to the subjects at other levels	Oral declaration of will	Document management and written claims	Participation in the territorial public government meetings (gatherings) of citizens, creation of the initiative group of citizens, citizens' applications to the authorities	Participation in city referendums, municipal elections, recall of deputy and elective body members, public hearings, population survey, rallies, picketing and demonstrations.

At the micro level the subjects are focused on the performance of the daily activities, aimed at maximizing their object function. The major activities can be ranked according to their degree of commitment, from the basic target activities (daily work and educational migration, business, investment and construction activity etc.), performed under any conditions, to the optional recreational types (walking, contemplation, rest in a city etc.). At the same time, ‘the majority of the most attractive and popular types of urban activity belongs to the optional group, which is determined by a high level of the quality of urban space’. The amount of optional activities indicates the quality of a city and its space [3, p. 21]. In other words, ‘everyday real life of people depends ... not on public, but on local events’ [22], which determine the quality of life in local areas.

We completely agree with Y.K. Persky and Y.V. Dubrovskaya who suppose that the studies of correlations of the meso level objects are mostly focused on regions and big economic performers, so that mesoeconomy is identified with regional economy only, that leaves aside a municipal entity as a subject of the research [19, p. 35]. In our research we follow the pattern of the hierarchical approach and choose this idea as a basis for further investigation. Thus we state a new research task in the framework of the urban space and it is aimed at allocating additional meso economic levels of hierarchy (meso level I, meso level II) in order to model the hierarchical structure of the local communities.

Currently there are no accepted scientific criteria for the classification of subjects and objects at particular level of hierarchy in economic science. Consequently, we follow the exposed logic in defining mesoeconomy and meso economic level and assume that the subject refers to a particular mesoeconomic level when it has multiple relations with the subjects at other levels and when it determines their behavior.

The subjects of the meso level (II) are represented by the local street, block and neighborhood communities, and they connect local authorities and micro objects (companies, households). Micro objects self-organize into formal and informal social ones (e.g., citizen meetings, initiative groups) on the basis of common interests and homogeneity of needs,

characteristic of the particular area, and addressing the issues of co-residence and business. Within the Y.K. Persky’s school of hierarchical analysis, the local government (and local) community, as its full subject, is attributed to the mesoeconomic level of the hierarchy [19, p. 43]. The local self-government is financially based on self-funding and on the resources of municipal budgets, so that is an additional argument which helps us to include these subjects into the mesoeconomic level of hierarchy. The interaction of subjects in such kind of associations is supported by institutions of mutual understanding, trust and neighbor help. Such participation of the population in the public government of the territory contributes to the success of their interests and initiatives by means of influencing the local authorities through the mechanism of public hearings, participation in local referendums, municipal elections, public hearings, legislative activity, population surveys, conferences, rallies, picketing, demonstrations, i.e., in the form of legal and civic engagement.

At the meso level (I) joint economic, social and cultural interests of the population of the city are performed through business, participation in local cultural projects, festivals and processions. Business is implementing the institute of social responsibility by improving the quality of life in the city, it landscapes the surrounding space and organizes parking places within the construction areas, it constructs sport and leisure facilities, children playgrounds and park areas, it modifies public engineering and utilities infrastructure and repairs facades of buildings, which are private companies. That is the way the mechanism of social interaction is supported by norms of trust in society and promotes the formation of social capital in the city and its identification as a tourist, cultural, historical and industrial or innovation center.

In our research we prefer to use the hierarchical approach also basing on the existence of inter-level interconnections in the urban space, of both economic and socio-cultural character, and multi-layered forms of existence of urban communities. Local communities, as the core of the city, interact in the following spaces: environmental and recreational, cultural, spiritual and entertaining, economic and social, political and managerial. These spaces build a

certain hierarchical structure, and each of the level reflects the qualitative component of the urban space through the prism of institutional processes, governing inter-level interaction and mutual influence of all subjects. As noted by T. Y. Kovaleva, the interaction of subjects (in our case – subjects of the urban space) ensures the integrity of the socio-economic system,

which is a key quality required for the effective functioning of the multi-functional hierarchical system of institutions [13, p. 203]. Thus, we've modeled the key elements of the hierarchical structure of the urban space and the institutions regulating their interactions in Table. 2.

Table 2

**Hierarchy of urban space levels and institutions**

Urban space level	Urban space institutes, which determine the character of inter-level interaction of the key subjects.
Territory background	Values, norms and mental stereotypes: traditions of historical areas and customs of the peoples of the territory; attachment to the place of residence; "attraction" to the territory of residence of the ancestors; genetic and acquired susceptibility to natural conditions; addiction to the architectural styles and forms of the city and to the spatial configuration of objects; land tenure and territory building institutes.
Living environment	Institute of neighborhood; institute of trust; institute of public oversight; house construction funding institute; institute of share financial participation in house construction; institute of construction activities regulation [20, p. 122–125].
Business environment	Institute of trust; contracting institutes; institutes of property rights protection; dispute resolution institutes; reputation institute; business funding institute; education institute; institutes of creation a network of relations; partnership institute; social responsibility institute; competitive and market adaptation institutes, etc. [13, p. 200–205]
Transport infrastructure	The choice between public and private transport basing on traditions and preferences; rules determining the level of risk liability while driving; standards characterizing the culture of the road traffic; institute of creation and consolidation of walking and driving city plan; institute of accident prevention; traffic regulations; corresponding infrastructure institutes; road construction funding institutes.
Public services and recreational space	Institutes of the interaction of the population while using public places; holiday family traditions; norms that define the quality of public foodservice.
Communication and leisure space	"Third places" institute; institute of the interaction organization: creative playgrounds, exhibitions, private views, art clubs, fairs, leisure centers; mass - media channels; leisure management traditions.
Ecological space	Institutes of environmental protection; ecological values of the population and enterprises, who discharge into environment; standards that define the culture of cleanliness habitats; institute of collective works aimed at cleaning the surrounding areas; institute of "subbotnik"; the rules determining the behavior of the population towards cleaning and waste disposal.
Scientific and educational space	Institutes of the protection of intellectual property rights; institute of rights and responsibilities of state authorities and local self-government in the sphere of education; educational standards and educational activity licensing; professional standards institute; institute of the organization of partnership according to the "education - science - industry - government relations" pattern [15, p. 188].
Cultural and spiritual space	Institute of interoperability of national cultures, coexistence of ethnic groups; religious institutions; confessional identity institute; ethnic identity institute; institutes of creation and consolidation of urban culture; institutes of the influence of cultural norms on the behavior of citizens [13, p. 201]; assimilation institutes.

The 'territory background' level of the hierarchy is characterized with specific traditions and customs of the population of the territory, attachment of a person to the place they live in, "sticking" to the usual social circle, attraction to the place of residence of the ancestors. The formation of these institutes takes place over a long period so that it affects territorial preferences of the population and imposes "psychological" and "economic" costs of emigration associated with the change of domicile and habitual environment [26, p. 53].

The "economic" costs can be specified as spending time and money on a new job search, moving

and property transportation, renewal of the documents and re-registration. The "psychological" costs include the loss of traditional social, infrastructural environment, the need of psychological adaptation to the new place of residence, to the new workplace, adaptation to the mental characteristics of the population of a new territory, basing on ethnic and cultural spatial differences, and to the multi- and polynational essence of the population. As emigration violates the social structure and consumer relations, the family changes its residence only when dissatisfaction with their status quo is large enough to justify the costs of emigration [4, p. 141–143].

The expressed idea is supported by the survey on the possibility of emigration to another region [27]. In addition, a city or a district as an administrative unit plays an important role in determining the quality of other services. They are lawfully possessed by their inhabitants and determine the accessibility of public goods: the right to use municipal and urban programs, access to schools and kindergartens, and so on [20, p. 21].

Values, norms and mental stereotypes also include adaptation to architectural design and planning solutions in urban development, as well as genetic and acquired susceptibility to specific environmental, climatic, and seismic characteristics of the area, as well as the need in contemplation of habitual natural landscapes.

At this level correction and regeneration of the institutes are determined by the paradigm shift. The issue is described by V. Knyaginina who supposes that its major trends are the emergence of a new generation of people who are making new demands on the quality of the urban space, and the changing balance of power in the "man – environment" pattern, as well as technological innovative solutions in the living environment [11].

New generation of citizens is less influenced by institutes at this level (traditions and stereotypes), they are less attached to the place of birth, so the level of mobility of population (especially young people) and the tendency to "vote with own feet" for the quality of the urban space increases. Generally, the population moves in order to find better ecological conditions, favorable climate, good level of life and ability to gain new experiences. We acknowledge such global trends in respect of growth of the level of economic well-being and opportunities of population self-expression, the increase of leisure time and life expectancy, the prevalence of those who prefer active contacts in urban space in the age structure. All these trends determine the functional priority of the urban space as a space for experiences, communication, democratic and social activity performance, self-actualization [26, p. 27-28].

Institutionalization of "communication and leisure space" consists in the formation of institutes of the "third places", which are a special communication mechanism that enables people to unite work, education and business negotiations functions in a single temporarily and spatial dimension. The "third places" are areas of communication, recreation and professional activity, so they are local sub-centers in the pattern home ("first place") – work ("second place") – areas for communication and leisure activities ("third place") [11]. The function of a "third place" is to provide some space for social interaction: informal and thematic meetings, the establishment of useful contacts in creative and business environment, networking and dialogue, exchange of ideas and experiences, functioning of urban communities as unities.

Institutes that govern relations on different levels of the hierarchy of the urban space (Table 2) are described in the research [2, 12, 13, 14, 15, 20, and 25]. Institute modeling of the urban space in the field of construction, real estate, house building, and transport

infrastructure is implemented in the research [20, p. 108-124; 14].

We completely agree with the research of T.Y. Kovaleva who has modeled the problem of intellectual entrepreneurship as viewed through hierarchical approach [12], so that it could be reformulated in a more general case of entrepreneurial activity in the urban space. Maksimenko I. I. investigates the issues of institutions, scientific and educational environment [14]. Bazueva E. in her research examines the gender power that structures the relationship between individuals at the micro level of the hierarchy of the urban space [2]. Shuvarikova Y.V. deals with the problems of institutionalization of the environmental space subject relations of the territory [25].

"Transport infrastructure" institutes are represented by the system of cultural traditions and values of urban citizens and by informal rules (culture of road traffic and behavior in public transport, rules determining the level of risk liability while driving; the scale of walking and driving city plan; values, which determine the choice between public and private transport) and formal ones (traffic regulations, rules of behavior in public transport, programs aimed at preventing accidents). This level may concern the corresponding infrastructure industry: project organization, quality laboratories, companies engaged in consulting, audit, examination, documentation, certification of technologies in road construction, roadway quality control.

Cultural and spiritual institutes regulate relations in multinational and multi-religious urban space. Growing urbanization and internationalization of the world economy and increasing inter-regional mobility of labor resources give rise to unregulated migration flows that determine changes in the ethno-social structure of the urban population that causes problems of ethnic groups coexistence, interaction between national cultures and the regulation of religious disputes [8, p. 193, 197]. Relations within this space are governed by the institutes of creation and retention of specific types of cultural behavior and interaction in the urban space [13, p. 200]. These cultural norms determine the way the citizens identify themselves as the residents of a particular type of a city (a scientific city, a tourist center, an industrial centre, a cultural capital, a financial centre, etc.) and also the way indigenous citizens react on visitors and new residents, and the way these norms affect the level of "friendliness" and "tolerance" of the city on the whole. Institutes at this level preserve and strengthen the traditions of the city, its identity and ability to preserve traditional patterns of economic and social activity, as well as an ability to accept innovations. Institutional effectiveness at this level helps to develop inter-confessional relations and improves the effectiveness of inter-ethnic and linguistic interactions in the urban space.

The study of the urban space within the framework of hierarchical approach is based on the analysis of relationship in the 'population – business – government – public organization' pattern and its impact on the quality of the urban space. Consequently,

we use the matrix method to model these correlations, so that we analyze the summary of the tabular representation of relationship between indicators of the hierarchy at different levels [17, p. 103]. In our research the 'business' category is represented by the subjects of investment and construction activities, as they transform the urban space and change it rapidly. [6, p. 132].

The relationship between the key subjects of the urban space is summarized in a matrix in such a way that a row presents the sources of exposure, and a

column shows the acceptors (Table. 3). Each cell of the matrix characterizes interaction of decisions made by subjects at the same level of the hierarchy and decisions of the subjects of the other hierarchical levels.

All micro objects of urban space (individuals, companies) are influenced by decisions taken at the meso level by local government, which acts at 'that very close to the population' level of public authorities with an unique opportunity of implementing policies in the interests of local communities [19, p. 34].

Table 3

**Matrix of correlations between the subjects within the transformation of urban space**

S	P	MA	ICA	NGO
Population	X	Establishing the requirements to the quality of urban space (requests, petitions, complaints, public pickets). Participation in public hearings and public examination of the General plan of the city, and of the programme of integrated territory development, projects of landscaping areas, projects of reconstruction and construction of new socially important projects, optimization of public transport service. Free will in the elections of municipal authorities.	Establishing the trends in demand for housing and social facilities as well as transport infrastructure.	Establishing active positions on the issues of territory development. Formulation of information requests and legal support demand on issues concerning the protection of rights of residents of the local areas. creating initiatives concerning the improvement of the city
Municipal authorities	Providing social guarantees, observance and protection of rights of local communities and support of the constant development of the territories. . Ensuring public safety. Attracting investment in infrastructure, public utilities, and housing. Regulation of land relations and rules of real estate turnover. Foresight and prevention of negative social consequences of social and income stratification of the city. Systematic control of the environmental situation in the city. Formation of recreational space Preservation of historic and architectural heritage of cities. Monitoring the social well-being of the population, public hearings, civil service examination. Public hearings and civil expertise.	X	Formation and allocation of land plots for construction, provision of engineering infrastructure. Issue of permits for construction and commissioning. Financing of the construction of objects of social infrastructure is planned in the municipal budgets.	Organization of accessibility of public areas. Development of alternative transportation corridors and modes of transport. Improvement of legislation system aimed at supporting the development of territories. Creation of a positive image of the region. Provision of favorable conditions to business. Foundation and development of local communities' legal, political, cultural, intellectual, business, spiritual environment. Conduction of population survey and sociological research on the development of public spaces of the local areas.
ICA	Landscaping of the territories , adjacent to the building objects, laying of engineering communications		X	Participation in corporate social responsibility projects
Non-governmental organizations	Public organization of Information and legal support for the protection of the population rights as the residents of the local areas. Organizational work aimed at encouraging social activity of local communities dealing with the improvement of urban space	Initiating public hearings on issues of urban development, land use, landscaping, building territories, and cultural projects. Public examination of projects for construction of socially important infrastructure objects.	Public examination of projects for construction of socially important infrastructure objects Public criticism of unscrupulous developers	X

\* Note: P – population; MA - municipal authorities; ICA – the subjects of investment and construction activities; NGO – non - governmental organizations.

Municipal authorities focus on performing economic functions in order to support life necessities of the territory and needs of the population in public

goods provided within municipalities, as well as improving the quality of local communities' life [19, p. 34–37].

They ensure the implementation of social safety net and consistent development of the territory; they maintain public safety and encourage investment in infrastructure, public utilities and civil construction. Local authorities prevent negative consequences of social and property stratification of the city, create public spaces and recreation areas, and try to preserve historical and architectural heritage cities; they promote the development of networks of production, trade, scientific and educational institutes. That is the way they weave the continuous tissue of the urban space and neutralize the negative effects of segmentation of urban areas according to the type of population, type of housing and availability of public goods.

Population and business of local areas assess the performance of local authorities through the prism of successful solution of the issues of local importance, providing, thereby, a direct or indirect impact on the functioning of municipal authorities. Public hearings and public examination of projects and programs of development of territories, as well as free will in the elections of municipal authorities and monitoring the social well-being of the population, requests, petitions, public pickets – all these institutes ensure the implementation of the feedback mechanism in the "population – local authorities" pattern. Depending on

the quality of these institutes, the population takes real or nominal part in territory management.

Self-organization of population and business in formal and informal public associations helps to improve the accuracy of the information request of local communities, broadcasted from the microeconomic level of the hierarchy to the level of municipal authorities. According to G. B. Kleiner, this "broad and valuable public field", acts as a "third beginning" [10, p. 10] and provides information and legal assistance to population on the issues of protection of their rights as residents of the local territories, encourages social activity of local communities in the sphere of improvement of the urban environment. Thus, the processes occurring at the micro level of the hierarchy are reflected in activities of collective associations of citizens and business, and are multiplied in the development trends of local areas and the city as a whole.

We have examined the nature of interaction and relationship in the urban space as a subject of the hierarchical approach and we have identified two models of urban space development (compact and unfocused). So we present the comparative characteristics of their quality parameters in Table. 4.

Table 4

**Comparative analysis of models of the urban space development**

Difference criteria	Project and planning city structure	
	Compact model	Unfocused model
Background of the city transformation	Renovation of set territories in the trend of the increasing role of information and knowledge-based sectors. Change of the functional purpose of urban spaces. Redevelopment of industrial areas at the expense of multifunctional building construction	Suburbanization of the population due to the environmental factor. tendency of decentralization of residential areas associated with the possibility of remote access jobs in terms of computerization of the society and development of telecommunications
Applicability of the model for the city development	Dominance of effectively developing on compact areas branches and sectors in the structure the urban economy [28]	Possibility of conducting business or obtaining income locally or remotely; low frequency of long trips during the travel migration
Dependence of the population on natural and climate conditions	Resistance to climate change. Less dependence on weather conditions due to the high territorial (hiking, biking) availability of key infrastructure objects (education, work, leisure)	Increasing dependence on weather conditions due to the high fragmentation of residential areas, and great length of a city, especially in countries with temperate and cold climate
Influence of site development on the surrounding environment	Less impact on agricultural land and environmental resources	Pollution of suburban natural landscapes due to centrifugal tendencies in the resettlement
Accessibility of transport infrastructure. Prevailing modes of transport. City scale.	High accessibility. Dependence on private vehicles is lower due to the reduction of the trip distance. Prevalence of public transport. Reduction of fuel consumption. Walking and cycling scale of the city.	Limited availability. Additional costs for road building and creation of parking places. When the trunk road is low or overdense there occur losses of time and overmileage, as well as environmental losses. Aggravation of transport problems due to the increase of physical mobility of labor force in the information society [5]. High dependence on private transport. Car scale of the city.
Accessibility of municipal engineering and public utilities	Low cost of creating objects infrastructure per unit area, greater efficiency in the elimination of accidents	High cost of connecting engineering facilities with the residential areas on the periphery of the city
The availability of social, leisure and cultural services	High availability due to high concentration of social and cultural institutions, trade and consumer services	Difficulties in accessing leisure, sport, works of art and culture services due to the territorial fragmentation of residential areas and cultural sites
Social and psychological climate	Involuntary presence in crowds and public places causes psychological discomfort and irritability, forces the growth of need for privacy. Density of urban space blurs the	Violation of the integrity of the social city space: emerging closed spheres of economic activity, segmentation of urban areas based on population characteristics and the type of housing. Differentiation of territorial conditions and availability

Difference criteria	Project and planning city structure	
	Compact model	Unfocused model
	boundaries of social differentiation and wealth inequality at the expense of opportunities for professional growth and education [1, p. 238].	of public goods to different local communities. Asymmetric development of urban areas
Social adaptation of the population in the urban environment	Increasing probability of finding a job or gainful employment. Possibility of orientation on public transport and reduction of costs for maintenance and service of personal motor vehicles. Increasing crime rate.	Increasing possibility of avoiding the communication channels, difficulty in acquisition of cultural values due to the placement of residential areas on the periphery of the city while the culture institutes are concentrated in the center.
Features of housing and rental relations	Increase of the land price. Stimulation of construction development beyond the boundaries of the forbidden areas	Differentiation of property price and rental rates for central and peripheral objects. The increasing ability of purchasing cheaper and more spacious housing on the outskirts of the city

Table 4 shows that the peculiarities of the urban area planning are determined by the socio-economic development of the city. An idea of compactness is an important principle of the transformation of a large city, so that it presumes a uniform distribution of population and residential development in the city. It presupposes the absence of pronounced disparities in the territorial conditions of the city, in the quality of the urban space and in the availability of public benefits for local communities. Nevertheless the idea of compactness does not imply territorial restrictions when placing a city, but it means achieving the following effects: the low degree of segmentation of the living environment, reduction of differentiation of the population density distribution and concentration of business between the local areas of the city; the alignment of transport accessibility index of the city areas, improvement of the efficiency of transport services; reduction of index variations of density of the economic use of the territory; uniform coverage of the city territory with public utilities and social infrastructure.

Summarizing the given data, we would like to underline that our analysis has proved the priority of a hierarchical approach in the study of the urban space as a complicated multilevel system. The environment can develop in harmony only when all the interests of subject transformations are well balanced. In this case intensity and potential of inter-level interaction depend greatly on the institutional structure of the urban space [20, p. 112-113]. Further on we would like to identify the main areas of occurring dysfunction of the institutes, which organize the functioning of urban space, and also to define the key vectors of management actions which can overcome the institutional inefficiencies and eliminate imbalances in the development of the urban space.

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