Design principles of hybrid spaces in terms of the urban planning regeneration

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Urban planning regeneration is a viable mechanism contributing to the urban development during complex reconstruction of the existing city space-planning structure. The dynamics of changing of urban planning theories and practices are characterized by an integral approach to city development through contradictory processes: intensification of globalization processes on the one hand; searching for identity on the other hand.

**Formation of hybrid spaces** in urban fabric of modern cities is relevant and has significant socio-economic importance to the process of urban planning regeneration. In the context of permeability theory hybridity is determined as multi-layer, multi-functional feature of urban space, where there is no clear separation between public and private; buildings and facilities forming the structure are combined by multilevel public space where its virtual perception is also very important as well as its information capacity and its transformation ability.
Definition - Hybrid spaces are multifunctional architectural and landscape entities, designed by applying the landscape urbanism approach and having the spatial connectivity with adjacent areas.

This research focuses on the principles of hybrid urban spaces design in the context of landscape urbanism such as the integration of dwelling areas and public spaces through the green infrastructure.
The environmental quality of hybrid spaces is defined by its comfortability, multifunctionality and services interesting for: residents and business, tourists and investors, authorities and society (Zanni [1], Ellin [2]).

In the city life and development, the hybrid spaces are rapidly growing city areas with self-organizing qualities, comprising the social and economic, functional and planning, recreation, landscape and composition, as well as environmental aspects. Space hybridization is based on the multifunctional connection with the internal city structure and the suburban areas.

Today the tendency of hybrid spaces transformation into dominant nodal spaces in the city structure is observed. The functional saturation of hybrid spaces depends on the urban planning context and their location. Today the most popular are the hybrid spaces with the mixed structure of the spatial interaction between the residential, social and recreational functions.
Hybrid spaces allow to make city successful. There are four city development stages:

• 1) services offered within the regenerated area and the infrastructure begins to satisfy the citizens, companies and visitors;

• 2) new places of interest are developed to maintain the current business and provide public support to estimated business;

• 3) hybrid spaces highlight their peculiarities and advantages through an active and bright image or communication programme;

• 4) hybrid spaces are supported by citizens, public leaders and governmental agencies and thus attract new companies, investments and tourists.

It should be noted that the modern urban planning practice outruns the theoretical basis and concepts of hybrid spaces development and design.
The establishment of hybrid spaces in the modern city structure is directly connected with the social and economic processes of the city development and also with the current intensification of globalization processes.

Raising of the level of socially economic development in Europe against the background of process reinforcement of globalization and technical progress in 1990s in the 21st century

Active urban development of megalopolises and mother countries

Appearance of new, unique, multifunctional, architectural objects and complexes

Landscape urbanism

Theoretical foundation of landscape urbanism

Urban regeneration of territories

Hybrid Spaces (landscape architectural objects)

Figure 1: Background of hybrid spaces
The role and significance of hybrid spaces for the city development during the postmodernism period

Background of hybrid spaces

The period of postmodern urbanism (Ellin) is characterized by predominance of the Anglo-American branch in theoretical concepts of the urban planning development. One of these branches is the landscape urbanism (Waldheim, Corner, Mostafavi). Landscape urbanism theory is connected with flexible, humane, creative, environmental and socially oriented regeneration approach. The approach aims at the active inclusion of nature into the city structure by maintaining its natural biodiversity to develop an identical and aesthetically attractive urban space. The landscape and urban approaches symbiosis defines a multidisciplinary trend in the landscape urbanism and the focus on hybrid spaces development (Figure 1). The application of the landscape urbanism principles in terms of the city space-planning structure transformation allows to form an urban socio-natural system. The complex approach allows to tackle difficult tasks concerning the urban spaces development at every urban planning level to create a comfortable urban environment.

Hybrid spaces - new types of multifunctional spaces – the hybrid urban spaces. Zanni [1] highlights that urban hybridization is determined by the multi-layered and multi-scaled urban tissue. In his view, it allows to create spaces in the city structure that connect its different parts according to cultural, historical and social context.
Figure 2: Hybrid spaces in the landscape urbanism context. The symbiosis of landscape, architecture, art and urbanism
Development of hybrid spaces in city structures began in the late 1980s. Parc de la Villette is a multifunctional architectural and landscape complex based on the urban planning regeneration of post-industrial abandoned areas and its surrounding working class areas in the 19th Paris district. The hybrid space development of the Parc de la Villette in the Parisian structure has influenced urban planning thinking and led to social and economic changes of its surroundings. It has also become a driver in urban transformations and changes carried out in this district of Paris (Figure 2). In the 1990s Paris, Barcelona and Canberra provided the first hybrid public recreational spaces, such as Promenade Plantée in Paris (by architect P. Mathieux and landscape architect J. Vergely, in 1993), Nus de la Trinitat Cloverleaf park, architects E. Batlle, J. Roig during 1992-1993), the National Museum of Australia, Canberra, architect R. Weller, during 1997-2001). Hybridization of the space-planning structure in these areas was the result of the design and creation of new public recreational space types, based on the integration of the landscape and the urban planning approaches towards the recreational objects planning in the city structure that differed from the common methods and techniques of the urban and landscape planning.
Evolution the hybrid spaces in the landscape urbanism context

Early XX st century - active inclusion of housing in the hybrid spaces

80s - the end 90s of the XX century

Northpark Town center. Atlanta

The National Museum of Australia
R.Weller, 1997-2001

Promenade Plantée

Trinitat Cloverleaf park
E.Batlle, J.Roig, 1902-1993

Diagonal Mar i el Front Marítim del Poble Nou
Herzog & de Meuron, Foreign Office
2000-2004

Yerba Buena Gardens
C. Hartman 2001

The High Line
James Corner Field Operations, Diller Scofidio+ Renfro, Piet Oudolf

Yerba Buena Gardens
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Poblenou District of Barcelona
2012-2016

Embankment in the district Diagonal Mar i el Front Marítim del Poble Nou in Barcelona
2002-2016

Early XX st century - active inclusion of housing in the hybrid spaces

2001-2016

Quater Massena, Paris, Christian de Portzamparc,

Western Harbour district in Malmö Boo1 City

MediaCityUK Manchester
Jim Gibson, Partner, Gillespies

Multifunctional complex on the Sofia Embankment in Moscow, EMBT, Burgos & Garrido arquitectos, TSNIPP
2015
Priority design principles of hybrid spaces in terms of the urban planning regeneration

Modern hybrid spaces in big cities structure have expressed a social recreational purpose with a developed residential or social function.

*Hybrid spaces formation* enables the creation of economic environment which is an economy growth point for the external environment. This capacity is determined by the emerging "concentration" effect in trade. The "concentration" effect is emerging with the "hybridization" of social, business, residential, retail functions in the regenerated city territory.

The hybrid space with vast variety of intermediate functions enables the creation of conditions for new sectors: the incubation process development facilitates information exchange and innovations distribution process, transfer of knowledge, and improves business communication process.

*Hybrid spaces formation* within the regenerated territory is one of the urban planning mechanisms driving social-economical, investment, cultural, business city development. From our point of view, it is worth identifying the priority design principles of hybrid spaces in terms of urban planning regeneration.
Contextual innovation principle

Urban planning variability principle

Functional planning flexibility principle

Cross programming principle

Scaling principle

Landscaping environment adaptation principle
The contextual innovation principle is based on human-scale and natural environmental leading to hybrid space characterized with friendliness, communicability and contextuality. Such hybrid space should reflect regional and landscape peculiarities of the territory. Historical continuance (genius loci) — namely, conservation and reconsideration of heritage — keeps the past in memory, preserves the identity of the area during formation of the new space-planning territory structure. The concept of the Sofia Embankment in Moscow is based on the contextual innovation principle. Adaptation of the project to its monumental environment is formed through upgrading of pedestrian arteries and historical routes that cross the adjacent city quarters, as well as through the adaptation of new housing developments to the neighbouring buildings and green spaces.
Figure 4: Competition project - Concept of multifunctional complex on the Sofia Embankment, Moscow.
Urban planning variability principle

This principle is based on the social-economic approach that enables the forecast of possible functional interaction options which in perspective should define the significance of the hybrid space for the development of its adjacent territories (quarters) and city planning structure.

Prevailing dominant functions (residential, commercial, entertaining, recreational, etc.) within the hybrid space structure define its significance for the urban planning development. Based on the fact that social-economic conditions change affects the functional saturation and functional use of architectural planning and landscaping elements forming the hybrid space structure, it is necessary to forecast several options of urban planning scenario of hybrid spaces development depending on architectural planning and landscaping elements functional interactions.
1 type

The type of communication consists of landscape, infrastructure, spatial orientation, territory organization, leisure area. It means that first of all the architecture and city landscape are assessed but then the attention shifts to the city's conveniences: how the transport, communication, commercial services systems are developed.

2 type

The administration work is assessed: how influential the local authorities are and what kind of their efforts for maintaining and developing the territory are provided.

3 type

It is associated with the leisure services rendering: how comfortable the place for tourist is, what benefits and rewards for visitors are available, what events and entertainment are available for visiting. This criterion includes the estimate of the local authorities' efforts for investments attraction

*The hybrid space allows people to form an opinion on this territory, how competitive it is compared to other territories, what impressions people have from this area.*
**History**

**Culture + Urban**

**Education**

**Housing**

**Public space**

**Nature - Landscaping**

**Mixed use is a priority**

**Public access is a prerequisite**

Figure 5: Quai Massena, Paris, Christian de Portzamparc, 1995-2012
http://www.christiandeportzamparc.com/fr/projects/quartier-massena/
The functional planning flexibility principle in hybrid spaces formation is based on the extension of their functional saturation "palette", which not only affects but also defines the capacities of the variability extension as to the architectural typology of buildings and constructions that form the hybrid space. This principle enables flexible introduction of hybrid spaces into the existing urban planning tissue for the creation of comfortable, environmentally friendly, socially oriented and identical urban environments. The urban planning regeneration of residential quarters of the North Fringe district, Dublin [8, 26] and development of quarters Bo01, Bo02, Bo03, and Bo04 in the Western Harbour district, Malmö [15] are the examples. This is a symbiosis of flexible housing planning structure with vast variability of typological solutions, provision of the quarters with the sites of various functional purposes, application of effective engineering infrastructure and modern environmentally sustainable technologies in the landscape organization of adjacent territories on the basis of preservation of their environmental potential.
Figure 6: Western Harbour district in Malmö. Bo01 City
The cross programming principle involves the functional provision of local elements of hybrid spaces infrastructure with certain functions based on the interaction and interrelation effect of intertwining functions. For instance, hybridization in formation of contact areas of hub dominant public spaces consists of functional *interrelation of the linear public pedestrian promenade, local public spaces and residential complexes*. Hybrid spaces formed within the *embankments structure* on the basis of urban planning regeneration and non-functioning railway tracks and trestles and deserted post-industrial territories can serve as an example.

Figure 7: Plan of creating an available social and recreational area – Volgograd Central Embankment
Figure 8: Projects of forming social and recreational areas of Volgograd embankments in connection with the city adjacent areas. The research part of the project by T. Ilyukhina, supervisor – Professor E. Krasilnikova.

- integrated
- permeability
- availability
- accessibility
- environmental friendliness
- and hybrid
- landscape improved communicative social and transport areas for pedestrians and cyclists.
Figure 9: Crimean embankment in Moscow. 2013.
Designers: MAAPI by name of academic Polianskiy and the Bureau Wowhouse, architect is Dmitry Lekin, Oleg Shapero.
Scaling principle

The scaling principle in hybrid spaces formation consists of urban planning typology extension in case of public and residential spaces depending on the specific urban planning context and size of territory. Territorial resource of certain city area defines the possibility of the hybrid space structure of public and residential space creation. This happens because of its urban context and functional purpose. As a result the areas become the image labels of the territory as well as accelerators for development of adjacent territories and city in general. (Example of Barcelona, Malmö, Oslo and Kaliningrad).
Hybrid space

History

Culture + Urban

Commercial

Housing

Public spaces

Nature + Landscaping

Figure 10: Poblenou District of Barcelona
Landscaping environment adaptation principle

The landscaping environment adaptation principle is the return of the nature priority to the city spaces. This principle is based on the application of theoretical concept of landscape urbanism. Through the scenario approach principle local "green" and "blue-green" framework of public recreational spaces within hybrid spaces structure is formed. Maximal inclusion of natural landscape components into the "green framework" structure is formed on the basis of biophilic approach application. Structuring of the public recreational spaces is performed through the application of not only one main principle of theoretical landscape urbanism — use of horizontal surfaces, but also in the "green infrastructure" formation all the buildings and constructions forming hybrid spaces are involved regardless of their functional purpose. The formation of local green infrastructure of hybrid space is based on the scenario approach should be integrated with transport framework of the territory and pedestrian links system, — this is how the connection with the adjacent territories is created (Porta Nuova, Varesine, Milan)
Figure 11: Porta Nuova, Varesine, Milan The Varesine district sits on a three-level podium and comprises offices and residential space.
Hybrid space

Safety and bio-positivity

Utilization of the “natural style” in floral decoration of a social and pedestrian area of the embankment backshore in Copenhagen, 2008.


Dania park in Malmö. Using the “natural style” in creating landscape compositions of the main pedestrian promenade at the Dania park embankment. Regional approach to the arrangement of the greening system of the park, 2008.
Hybrid space

Public access is a prerequisite

Glass Bubble Neptuna – Malmö
Architect Monika Gora, 2006

Climate greenhouse café, Malmö, B01 district, Sweden, photo 2008.
General Conclusions and Reflection

• The urban planning identity of hybrid spaces and social economic efficacy are the main and essential approaches to hybrid spaces formation through the different territorial levels. Described above, the priority principles of hybrid spaces formation provide the means for the creation of hybrid spaces as economically effective, investment attractive, unique and memorable city territories.

• Mentioned examples of urban planning practices show that hybrid spaces are generally the markers for different functional parts of the city. Creating of unified architectural image of the hybrid space located in the central part of the city is connected with the fact that residential structures forming the hybrid space, usually "dissolve" – they are integrated into the architectural and planning context of hybrid space. This occurs on the due to the public spaces serve as the main communicator between them. Integration of residential complexes in the hybrid space structure occurs through active interaction with public, green spaces and transportation infrastructure.
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