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ISUF Belgrade 30th CONFERENCE

BOOK OF ABSTRACTS

XXX CONFERENCE OF THE INTERNATIONAL SEMINAR ON URBAN FORM (ISUF2023)

PRAXIS OF URBAN MORPHOLOGY

ORGANIZED BY



University of Belgrade - Faculty of Architecture
MorphoLab Research Unit,
and



SNUM

Serbian Network of Urban Morphology (SNUM)

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INTRO

ISUF2023 PRAXIS OF URBAN MORPHOLOGY

Coming from 20 architects, geographers, planers and historians, to more than 600 individual and institutional members across the globe, ISUF presents the important international organization of urban form both for researchers and practitioners. Due to its orientation to both of these fields, ISUF 2023 presents a great opportunity to rethink the praxis, perceived as process by which theory/idea is enacted, embodied and realized.

The theme for ISUF 2023 is drawn from the previous experience and ideas, directed toward systematization and synthesis of intellectual knowledge.

Following this line of reasoning, the Conference tracks are envisioned to confront the topics that are represented as being opposed in order to open up a debate how to transfer ideas to operational knowledge.

A. Good in Planning, Landscapes and Townscapes

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C.3. Pre vs. Post

D. Programming and Rethinking Concepts

D.1. Strategies vs. Measures

D.2. Education vs. Practice

D.3. Quantitative vs. Qualitative research

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TRACK A.

GOOD IN PLANNING, LANDSCAPES AND TOWNSCAPES

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Willingness to Accept Densification and Urban Renewal Procedures as a Function of a Socio-Economic Status

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ABSTRACT

Cities around the world are going through densification developments. Local tenants sometimes tend to resist to these densification processes. This research questions the way in which the socio-economic status of a neighbourhood and its occupants affects the residents' willingness to have densification procedures, and their preferences for built morphology as forms of densification. The research method included conducting an online survey, via Qualtrics platform, where participants were presented with different densification alternatives. 3D modelled illustrations were presented from a bird's eye view perspective. Participants were requested to evaluate these densification alternatives by an online survey. This research focused on two neighbourhoods similar in their built morphology, but different in their socio-economic condition. Tenants from both existing residential clusters and a control group consisted of architecture students, participated the survey. All subjects were asked to evaluate different design alternatives to the tripled densification level of the existing built environment. Results revealed that residents of lower socio-economic background tend to be more positive towards urban renewal projects that include densification. The group of tenants from the lower socio-economic case-study, evaluated more morphology alternatives as improvement of the current condition as opposed to the high socio-economic group that didn't see any alternative as improvement of their current condition. In addition, differences in preferences between the groups of residents versus the control groups were found. The results of this study may contribute to the processes of urban renewal and their suitability for the residents in different socio-economic status.

Keywords: Densification and Urban Renewal, Socio-Economic Status, built morphology, urban wellbeing, willingness to accept urban densification.

Suggesting an interactive computer-generated urban design process focusing on the designers world-view and well-being issues

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ABSTRACT

Population sizes of urban dwellers continue to increase, resulting in dense and crowded neighbourhoods worldwide. Such living environments may negatively impact residents' well-being and health. As a result, the generative design discipline has dramatically evolved, striving to create an automated generation of high-performance design alternatives. Quantitative analysis is often performed during the late design stages when several design alternatives have already been selected. An optimal option would be conducting such analysis during earlier stages of the process, when many more options are still available and when changes would incur fewer resources. Generative methods enable the creation of design alternatives that bridge traditional design methods and those that enable systematic examination of numerous alternatives at the early design stage. This research aimed to develop a generative design process that integrates both the designer and the automated algorithmic process – to deliver a large range of design alternatives at the planning stage while ensuring the designer plays a key role in this process. As such, a method that enables the merging of both quantitative and qualitative assessments is necessary – especially those that can be performed by the designer. This research presents a novel interactive process for creating, evaluating, and filtering many suitable well-being-oriented urban planning alternatives at the neighbourhood scale, using generative tools and computerized analytical measures in line with the designers' preferred parameters. The suggested workflow supports the designer in the decision-making process and can be integrated into current planning processes in architectural practices.

Keywords: computer-generated parametric design, urban design processes, social issues, urban wellbeing, interactive design.

Urban typologies in Hanoi and impact on street-level urban design, pollution and walking

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ABSTRACT

In light of the rapid global urbanization, urban design has been shown to contribute largely to promoting the health and well-being of urban citizens. However, studies of urban design are underrepresented in low- and middle-income countries in Asia, where urban forms are traditionally compact and complex with multiple layers. Hanoi, a typical city in low- and middle-income countries, exhibits five unique urban typologies generated through both official planning, unregulated developments, and historical fluctuations. This study examines the street-level urban design across urban typologies in Hanoi and its relationship with other street-level factors such as air and noise pollution, and the number of pedestrians. The findings showed that old urban typologies tend to report better street-level urban design quality, and a larger number of pedestrians on street, however, a higher level of air and noise pollution than modern urban typologies. The study contributes to our understanding of urban design in Hanoi, providing policymakers, urban designers, and planners with essential insights for sustainable development.

Keywords: urban design, urban typologies, urban forms, pollution, walking.

Decline or Growth? (Re) considering the Development Patterns of the Border Towns in the Republic of North Macedonia

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ABSTRACT

The paper focuses on the border towns of the Republic of North Macedonia (RNM), geographically located in the eastern and western part of the country, highlighting the specificities of their morphology in the context of their recent development and/or decline. The selected examples belong to two different planning regions of RNM: East region – Delchevo and Berovo and Southwest region - Debar and Struga. Providing an overview of the identified directions and patterns of their urban expansion, it will be possible to determine the morphological features which have both affected and reflected their general urban transformations. Currently, the condition of the border towns from the Eastern region indicates the increasing marginalization and, consequently - decline, while those from the Southwestern region register progress and growth on the socio-economic and spatial level. Due to these drastic differences, the paper will provide a comparative analysis of their urban form, simultaneously targeting both the micro and the macro level. Considering the latest studies on urban morphology and its relationship with overall urban development, the paper will also address the identified problems and trends, proposing the planning recommendations for the future transformations and their sustainability in the long run.

Keywords: Border town, urban form, urban morphology, development, sustainability

Public open space and complex plot pattern in non-commercial blocks: Cases study in Nanjing

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ABSTRACT

Public open space is considered to be an essential element for the sustainable vitality of cities. In the process of rapid urbanization in China, streets, large squares, and parks are usually received more attention, while the publicity of open spaces inside blocks is often insufficient. At present, this has also become an important reason for the degradation of the vitality of some large-scale blocks. The original complex plot pattern and property rights relationship are important factors restricting the supply of public open space in the renovation and renewal design of these blocks. This paper selects 10 typical non-commercial blocks in Nanjing, China, which have been included in the scope of urban renewal by the government, and investigates their plot pattern and ownership, building layout, and the quantity, type and layout of open public spaces. The number of open public spaces is lacking, and they are mainly channel-type. Except for the original alleys in the plot pattern, most of them pass through the open plot, without clear ownership definition and good spatial experience. On this basis, this paper proposes a block open space design strategy based on plot pattern and ownership. First, according to the building layout, the pedestrian space connecting the interior of the block and the city streets is formed along the boundary of the shared land by minimizing the transfer of rights. Secondly, form a system that connects small squares in series with pedestrian space and communicates with the open spaces inside each property plot.

Keywords: public open space, street-block, plot pattern, design

Urbanpedia as an exploration to Identifying the common features of pedestrian-friendly districts: A quantitative morphological approach

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ABSTRACT

Creating pedestrian-friendly urban places for the public is a crucial goal for contemporary urban design. As a response, this study proposes a database named “Urbanpedia” with the integration of multi-sourced urban data and machine learning algorithms to identify the common features of the pedestrian-friendly district. Specifically, a series of morphological indicators, e.g., road network, block form, street scale and interface, and urban facilities, has been selected according to classical urban morphology and design theories. The detailed values of these indicators are quantitatively measured among 50 successful cases selected worldwide. After that, the confidence intervals of these key indicators are statistically analyzed to compose an urban design code system that can be efficiently searched. This finding not only contributes to precise urban design practices but also in-depth theoretical understandings in theories. Meanwhile, it also represents an endeavor of integrating design and science towards a new design science.

Keywords: urban design, pedestrian-friendly, spatial indicator, multi-sourced data

Spatial Characterization and Evolution of Large-scale Residential Communities in Shanghai

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ABSTRACT

The construction of large-scale residential communities has become the main way to solve Shanghai's housing problems. After over ten years of rapid development, large residential communities in Shanghai have developed a distinctive urban form and are constantly changing. This paper selects Shanghai's large residential communities built in different periods since 2009, extracts the characteristics of the urban spatial structure and public space system and then investigates the trends of morphological change. The study reaches the following main findings: First, the block form of large residential communities has gradually changed from large and fenced to small and highly enclosed. Second, the public spaces are more evenly distributed with a more appropriate size. Third, the overall spatial pattern has gradually changed from a homogeneous collage to a structured, multi-level layout.Therefore, the large-scale residential communities in Shanghai are gradually taking on the holistic concept of urban community, which is of great significance to guide the communities towards a more healthy, rational and sustainable development.

Keywords: large-scale residential community, spatial structure, spatial morphology, Shanghai

Towards a complex construction of Lisbon's metropolitan leisure and retail morphology?

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ABSTRACT

Looking at the contemporary urban territories, one could argue that today's urbanism seems to be suspended in a constant negotiation between two contrasting alternatives. The first, derives from the assumption that development is about accumulation, with exacerbates static and formal urban attributes; the second, derives from the idea that there is a more flexible, in motion and shapeless expression of the urban condition. Considering concrete examples in the Lisbon Metropolitan Area, the present paper shows two very different categories of public/collective spaces that are especially illustrative of such a double vision of contemporary urbanism. On the one hand, the large peripheral shopping and recreational centers, structured according to polarizing regional logics and macro territorial organizations. "Heavy materials", normally connected to large infrastructures and motorway junctions and associated with other facilities. On the other hand, a set of micro artefacts/activities with countless articulations: street vendors, bars on wheels; "underground" restaurants; improvised art galleries or pop-up shops in abandoned structures; scattered parking spaces transformed into cinemas; unoccupied lots for self-managed productive or leisure gardens; etc. Places where designing functional arrangements is more important than the construction of the architectonic body, where openness prevails over rigidity and rigor. The goal is to generate a fruitful debate capable of approaching the complexity of these two (apparently?) antagonistic logics in the construction of the contemporary city, considering their synergistic complementarity as a starting hypothesis and questioning the idea of the construction of the city, or of the urban, according to a single perspective.

Keywords: Lisbon Metropolitan Area; public/collective spaces; intermittent practices; peripheral shopping and recreational centres.

Updating Roads to Streets. Transforming in-between space to build public space

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ABSTRACT

Mobility infrastructure networks play a fundamental role in cities structuring it urban fabric. It works like tentacles through which the main flows circulate, but sometimes they constitute physical barriers that fissure and fragment the landscape. Taking advantage of accessibility, urbanization colonizes the edges of the infrastructure transforming the road into an element closer to the street. Nevertheless, the resulting urban element is nothing more than a collage between elements like buildings, fences, vacant plots or even publicity signs, becoming evident the absence of an aggregating structure.

Having the Lisbon Metropolitan Area as the study territory, the article focuses on a new phase of transformation of these Roads-Streets.Through the space in-between, road and built fabric, over the last few years, there have been several urban interventions that aim to constitute an elementary structure of public space. Using morphological decomposition, the purpose is to decode the formal principles of intervention in the public space and thus systematize circulation partitions, spaces of permanence that will allow explaining the changes that occurred and how they had an impact on the way the public space is used.

Critical reflection on these case studies reinforces the strategic relevance of the filament road network as a primary structure with a large metropolitan scope. The space in-between emerges as a place of opportunity for morphological consolidation, updating them to streets, and contributing to the sedimentation of new spatial lines of continuity, uniting fragments and building better transition systems between urban elements.

Keywords: Lisbon Metropolis, Public Space, Road, Street, In-Between.

Green Spaces and Urban Fringe Belts: Exploring the Spatiotemporal Evolution of Urban Parks in Terms of Urban Morphology, a case of Nanjing in China

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ABSTRACT

Urban parks are one of the important green spaces, and several studies have showed that they have ecological, economic and social values, but the morphological values were under-investigated. Parks play an important role in the formation of spatial structure and form in urban spatial development. In recent years, research on the confluence of green spaces and fringe belts, although rare, has demonstrated the value that research on the relationship between the two can provide references for landscape management and planning. The fringe belt is an important concept in urban morphology. Its emergence and development are indispensable with the creation and development of green spaces. Taking Nanjing as a typical case, this study investigated the spatiotemporal evolution of urban parks from 1901 to 2010 in terms of urban morphology. This study mapped the distribution of urban parks in several time points by the methods of historical materials climbing, field surveying, and historical maps vectorizing. By exploring the evolutionary process of parks' planning, construction, and adaption, the land use process in the inner, middle and Ming fringe belts was explored. The results show that the parks' distribution in different fringe belt varies over time. The Ming fringe belt has become continuously, while the inner and middle ones are opposite. The amount and area of parks in the Ming fringe belt increased gradually, but the middle decreased dramatically. This research provides a novel insight based on urban parks into understanding the formation of urban spatial structure.

Keywords: fringe belt, green space, urban park, Nanjing, landscape

Shan-Shui landscape design in the East Asian historical cities

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ABSTRACT

This study clarifies the design method of Shan-Shui landscape in the East Asian historical cities and establishes theoretical foundations for heritage management. This study addresses the design methods of fourteen mausoleums and their surrounding areas built between the 16th and 19th centuries in the Huong River basin of Hue, Vietnam. The first objective of the study is to clarify how the axis of mausoleums is set up. The second is to clarify the water system including the surrounding area and its landscape structure. Landscape analysis using Geographical Information System (GIS) revealed the followings. First, each mausoleum and its surrounding area was designed to harmonize with the natural environment and considered the views toward it. Second, visual axes to mountain tops were identified in all mausoleums. Detailed GIS-based analysis proved that the axis of the mausoleum was oriented precisely to the mountain top. Third, the mountains, Huong River and the mausoleums are connected throughout the entire river basin by visual axes and water systems. Especially the first-four imperial mausoleums of Nguyen dynasty are structured on the same principle in their respective water catchment areas. This principle, in which the heritage of each period is related to Shan-Shui landscape, and these are combined to form a whole river basin, can also be seen in early modern castle towns in Japan. This approach can be considered common to historical cities in East Asia and is the basis for their specific heritage management.

Keywords: Shan-Shui landscape design, East Asian historical cities, Heritage management

The urban form types of Athens as identified by an open data methodological framework: Assessing the validity and value of the results by expert focus group

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ABSTRACT

Patterns have been traditionally used for understanding and planning cities. However, advanced spatial analysis is increasingly employed for identifying urban types, as it offers an analytical approach to analyze urban form. This research aims to: 1/ explore the types of urban form (i.e. streets, buildings, land uses) in Athens using an open-data methodological framework that incorporates clustering and spatial analysis, 2/ assess the validity and value of the methodology and its results as research output and as a potential planning support tool via spatial virtual focus groups with 20 local experts from the fields of typo-morphology, urban planning, sustainable mobility, urban geography, and urbanism in general.

The results, as evaluated by the expert focus groups, show that the methodology is successful in describing the diverse character of Athens at neighborhood level, while it is useful in the first stages of planning interventions. A key aspect of this research is the exclusive use of open datasets readily available for European cities, resulting to a replicable methodology for comparatively analyzing the urban form of European cities. Another contribution is the conceptualization of a spatially-enabled focus group facilitating interaction among a diverse panel of experts related to the multidisciplinary field of urban morphology. Finally, an important aspect of this work is that it adopts a mixed-method research approach, employing advanced geospatial techniques for identifying the urban types while utilizing the qualitative technique of focus groups to assess the validity and value of the results.

Keywords: urban form, typo-morphology, focus group, open data, spatial analysis

Morphological insertion of parks into the urban fabric and walking behaviour of older adults in Florianópolis

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ABSTRACT

Factors related to the proximity of parks to residence as encouragement for leisure walking had been reported in studies of Colom et al. (2018), Yung et al. (2016), Finlay et al. (2015), Mitra et al. (2015), Pleson et al. (2014), Thompson; Aspinall (2011), Sugiyama et al. (2009). Relationship with water as part of a more pleasant walking experience has also been reported in some of these studies. The aim of this paper was to analyse the morphological insertion of parks in the urban tissue in Florianopolis/Brazil and the walking for leisure behaviour of older adults living in their surroundings. The walking behaviour of older adults who lives in a buffer of 800m of the six main parks in Florianópolis were collected through questionnaires and analysed in this paper, with special attention to the morphological insertion of each one of the parks distributed in the urban tissue. Results shown that the total of older adults that walk for leisure is higher between the ones living closer to linear parks, well connected to urban tissue and that offer visual contact with water. Almost forty per cent of older adults living in the surroundings of parks with these characteristics walk for leisure. Older adults living closer to less connected parks walk less for leisure than the previous ones. Results can help planners to design better parks for older adults, contributing to more sustainable cities and healthy aging.

Keywords: urban parks, walking behaviour, older adults

Evaluation on the morphological structure and facility layout of the mobility hub areas based on the strategy of public transport priority

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ABSTRACT

Car travel consumes finite fossil fuel resources and is a major cause of increased carbon emissions and accelerating climate change. However, the size and shape of modern cities have resulted in people being unable to commute to the towns without car-based transport. In the context of decarbonization strategies, applying public transport priority strategies has become a consensus in many cities in China and Europe. However, with completed urban road networks and the mass of family cars, the question of how to incentivize people to prioritize public transport as a mode of travel has become an issue for city management and designers to consider. To improve the accessibility (the so-called last mile) of the public transport network, many cities have deployed mobility hubs to provide more choices for people to travel. In addition, research has shown that the convenience, comfort, and functional diversity of walking processes can help people to abandon driving in favor of walking or cycling. This paper will look at the morphology of various types of mobility hubs, their design and location, analyze public transport facilities and possibilities to walk and cycle. This study will establish a suitable indicator system through evaluation and provide a basis for subsequent morphological design optimization. This study aims to inspire urban design interventions to increase mobility options, improve the quality of walking or cycling and thus achieve the goal of public transport as the preferred mode of travel.

Keywords: Mobility hubs area, Morphological structure, Facility layout, Path qualities

Qiaonongli No. A: A Study of Living-Spatial Pattern Evolution of Gaoquan House in Pudong from Land Certificates

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ABSTRACT

As a perspective of studying rural spatial pattern, land certificate archives reflect transfer process of the relationships between households and land. It could also visualize and refine the spatial pattern of villages in history. This study surveyed multiple historical sources including land certificate, folk agreements, distribution regulations within families, oral statements, historical maps and files, then investigated the details of policies, population changes and villagers' construction behaviors from the perspective of land property rights. In addition, the process of the residential structure and micro spatial pattern around the Gaoquan house in Qiaonongli village, which adjacent to Shanghai, analyzed and discussed. This study has implications for the research on the evolution of village characteristics in different regions, people-oriented inherit of rural characteristics of Shanghai, and conservation of architectural heritages.

Keywords: Land Certificates; Property Right; Pattern; Gaoquan house; Rural area

Urban form and carbon emissions: An urban design evaluation model for carbon reduction

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ABSTRACT

Cities are playing a key role in global carbon emission. Nevertheless, existed studies either focus on city-scale over hundred square kilometres or building-scale, which lacks the consideration at urban design scales as it is difficult to identify the complex relationship between urban carbon emissions from multiple sources and various spatial and functional elements of urban form. Therefore, this study intends to construct a comprehensive carbon reduction evaluation model focusing on urban design scales, i.e., several hectares to several square kilometres. Firstly, the urban carbon emissions mainly come from building and travel carbon emissions, which are estimated by software EnergyPlus and by questionnaire separately. Secondly, based on related studies, this study extracts 18 design elements related to carbon emissions and quantifies them based on multi-sourced urban data and morphological tools. Finally, Gradient Boosting Decision Tree (GBDT) is applied to explore the relationship between design elements and total carbon emissions, including the relative weights of each design element and the relationship curves. By this way, the prediction of carbon emissions from various kinds of design elements and the optimal interval of each element for carbon reduction can be achieved. Moreover, a grasshopper add-in has also been developed to achieve this analysis efficiently to provide strong support for urban design practice. This study not only fills the theoretical gap what the role of multiple design elements plays on the integrated carbon emissions, but also, more importantly, provides carbon reduction-oriented support for urban designers.

Keywords: carbon reduction model, urban form, carbon emissions, GBDT, design support

Assessing Green-Oriented Urban Development for Norman Creek Catchment, Brisbane, Australia

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ABSTRACT

Urban population expansion leads to the growth and development of cities' physical and social characteristics, thus significantly affecting urban life. The high density of housing and transportation, etc., to meet the needs of society has caused inhabitants to move away from nature gradually (Caula, Hvenegaard, Marty, 2009). Therefore, it is essential to have various types of urban green spaces in cities. This research emphasizes the initiation of Green Oriented Urban Development (GOUD) as a scheme within urban densification. The main aim of this study is to investigate the correlation between the buainess-as-usual Greyfield infill development in Norman Creek Catchment and GOUD. In the first step, the research introduces the GOUD as a strategy, examines its core principles and benefits, and assesses them in the domain of NC Catchment. In the second step, the paper proposes a step-by-step procedure to implement the GOUD strategy targeting urban parks and infill development parcels across the catchment. This paper presents and urban design stud backed up by research using previous literature, cadastral data, land use and green space, and the Queensland Governemnt's digital maps. The study employs Geographic Information Systems (GIS) as a tool to analyse open-sourced government and municipality spatial data to inform preliminary urban design interventions at lot and precinct scale. The study ultimately provides recommendations that showcase GOUD as a complementary approach to the ongoing Greyfield infill development across the NC catchment.

Keywords: Urban densification, GOUD, Greyfield infill development, urban green spaces

Concepts of Urban Deconcentration and Their Long-Term Influence on Spatial Transformation in Polish Urban Areas: An Urban Morphology Perspective

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ABSTRACT

Urban planning plays a crucial role in spatial transformations on different geographical scales; therefore, urban policies are widely recognized to be key to sustainable development. Despite the research interest in the institutional shift in planning in Poland after 1989, the area of long-term spatial effects of the deconcentration policies implemented in particular urban agglomerations have not been explored in depth. In the context of the uncontrolled spatial development that has been intensifying in Poland since the 1990s, traditional urban planning concepts and ideas seem to be the contemporary opposite of the settlement processes observed in the suburban areas of Polish cities. Hence, we aim to discuss the urban planning theories, concepts, and policies of spatial deconcentration and their long-term influence on urban transformation, e.g., garden cities, ideal cities, concepts of greater cities, functional development, and transit-oriented development. The research design is based on the urban morphology approach. We investigated archival cartographic materials, literature, and field inventory data of the largest Polish agglomerations: Warszawa, Kraków, Wrocław, Łódź, Poznań, Gdańsk, Szczecin and Katowice. Our study confirms that many theories and concepts of deconcentration policy were addressed in urban planning in Poland before 1989; however, their implementation in urban agglomerations was weak due to the political and administrative factors disaggregating city and regional development.

Keywords: design concepts, GIS, planning theory, urban planning, urban morphology

Design Study of Transformation of Historical and Cultural District by Creating Shared Communities

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ABSTRACT

In contemporary China, a large number of historical and cultural districts have been remained from the rapid development and expansion of cities. The preservation and transformation of these districts is currently the major component of the urban renewal of China. There are problems of excessive commercial development or isolated conservation in the existing renewal projects of historical and cultural districts in China. In this context, the study took Nanshi Street, a historical and cultural district of Ganzhou City, Jiangxi Province, China, as the research object; and analysed the current spatial status of the district through the typomorphological approach. Analysis reveals the problems of the district, which are the lack of popularity of public spaces, and the abandonment and inactivity of historical buildings. The study proposes a design concept for the renewal of historical and cultural districts through the creation of shared communities, with a view to solving the existing problems. Through case studies, the paper summarized the transformation methods of historical and cultural districts, which are making community-oriented districts, and making sharing-oriented community. The design hoped to create the ecology of the district by equipping living facilities in unused areas, inserting composite functions in historical buildings, and creating shared spaces in vacant streets and alleys. The study provided a model for the transformation of historical and cultural districts, so that these districts can truly live in the contemporary urban environment while connecting with the urban cultural context and expressing the urban characteristics.

Keywords: historical and cultural districts, preservation, transformation, shared community

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Study on the Boundary Space of Urban Villages in Shenzhen from the Perspective of Urban-Village Inclusion

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ABSTRACT

In the context of China's urbanization shifting to stock optimization, the interaction between urban villages and cities and the urban problems they brought were gradually drawing attention. The boundary space of urban villages, as a transitional space connected with the surrounding urban space, had great potential for sharing and deserved further research.

As a city at the forefront of reform and opening up, Shenzhen's urban villages were widely distributed and scattered, accommodating a large number of external population. The study took urban villages in Shenzhen as the research object, studied the spatial characteristics of the boundary and urban problems of urban villages in Shenzhen, aiming to propose targeted optimization strategies.

The study examined the development process of urban villages by reviewing the literature related to the construction of urban villages in Shenzhen. Typical urban villages were selected for field research to summarize the characteristics of their boundary spaces in terms of physical environment, usage conditions and functions, and analyzed the problems.

The study found that the current urban village boundary suffered from spatial segregation, lack of vitality, single function, traffic blockage and insufficient service facilities.

Based on the division of urban village boundary space types, the study summarized the renovation intention for different types. For example, the existing buildings and fences are preserved, but the external spaces of the buildings are improved and renovated to enhance their functionality, culture and publicness.

Keywords: urban village, boundary space, optimization strategies

Comparing urban governance and urban form development in Sweden, Denmark and China – Prerequisites for Transit-Oriented Development (TOD) and mobility hubs

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ABSTRACT

Many European neighbourhoods particularly in Sweden and Denmark were designed specifically for individual mobility and today are dominated by private cars and excessive automobile travel. In many new Chinese neighbourhoods walkability to public transport stations is also problematic because of wide roads, rapid motorisation and increase in car traffic. The car-oriented urban form hinders the shift to climate-responsible mobility and possibilities to achieve decarbonisation of the transport. This paper compares urban governance and land and infrastructure development in Sweden, Denmark and China to identify actors and investment in urban development around station areas and inspire new developments that prioritize public transport and mobility hubs. Transit-Oriented Development (TOD) is a development alternative to urban sprawl as suburban car-oriented model by synchronising urban form with public transport. Mobility hubs are new transport infrastructure aiming to boost the accessibility (the so called last mile) by offering on-demand mobility systems as shared bikes and electric cars at public transport stations and in surrounding neighbourhoods. Many municipalities and cities have failed to reduce CO2 based on reduction of car traffic based on political consensus. The investments in infrastructure are enormous and the return on investment for the stakeholders are small if the surrounding urban area is not designed for or does not promote public transport or micromobility. It is important to identify actors and development processes in local and global contexts that could contribute to more sustainable urban form and climate-responsible mobility.

Keywords: urban form, urban governance, development processes, Transit-Oriented Development (TOD), mobility hubs

Quality Evaluation of Child-Friendly Urban Parks: A Case Study of 12 Parks in Yangpu District, Shanghai

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ABSTRACT

Children are vital groups of future urban services, urban parks are important places for children's leisure, entertainment, play and communication, and the quality and service efficiency of urban parks have a profound impact on children's physical and mental health and growth. Shanghai is one of the first demonstration cities in China to build a child-friendly city, and has certain theoretical development and practical experience in building child-friendly urban parks. Based on spatial syntactic theory and the Quality Index of Parks for Youth (QUINPY) method, this paper evaluates the accessibility and park quality of 15 urban parks in Yangpu District, Shanghai, and analyzes the superimposed flow of people, hoping to provide substantive suggestions and inspiration for other cities in China to build child-friendly cities.

Keywords: Child friendly; Park quality; Shanghai; QUINPY

Siegfried Sitte's unique design for Zell am See

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ABSTRACT

The Austrian architect and urban planner Siegfried Sitte (1876-1945) is—after Franz and Camillo Sitte—the last representative of a three-generation family of architects. His extensive oeuvre is divided into two very different creative periods by the caesura of the First World War. In the beginning, there is the intensive collaboration with his famous father Camillo Sitte and the continuation of the latter's urban planning projects. Building on the design principles of his father, Siegfried soon developed an independent profile. From 1903 to 1914, many designs and projects were developed, but however, hardly ever realized. After the war, Siegfried rarely signed planning work as an executive architect. In this second creative period, the focus is now on the academic discussion of urban planning. Surprisingly, it is precisely in this phase that his design for a development plan for the small town of Zell am See (Salzburg, A) is approved in 1925 and becomes one of the few realised urban designs by Siegfried Sitte. What are the special qualities of this—so far hardly noticed—urban design? Can the influence of Camillo Sitte's urban planning theories be traced in the development plan for Zell am See? To what extent does the design respond to the local landscape structures and the built environment in Zell am See? How much of the plan was actually implemented and which of these conversions are still traceable today?

Based on these central questions, one of Siegfried Sitte's few realised urban development projects is discussed and, in addition, a critical classification of Siegfried's oeuvre in the internationally received history of urban planning of the interwar period is undertaken.

Keywords: Siegfried Sitte, Camillo Sitte, Urban Planning Theory, Interwar Period, Austria, Zell am See

Small Interventions – New Praxis of Urban Morphology

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ABSTRACT

Both terms Urban Planning and Urban Design operate on a different level with same goals of improving urban life in the city by creating livable, socially connected, flexible and sustainable public spaces. As a response to a need on developing a new praxis of urban morphology through which a city can overcome social discrimination affected by urban policy, uncertain and unpredictable urban dynamics and environmental threats, a collaborative method called Small Interventions operates as a mediator between the above-mentioned terms. Given that the public space is an essence of the city and community constructions, Small Interventions act small, act temporarily, act continuously and act together seeking the engagement of both city and its citizens in the process of public space transformation. Based on the expansive review of theoretical approaches and practises dealing with the issue of public space design, this method was already tested in Banja Luka from 2019 to 2021. By implementing six pilot projects in Banja Luka, Small Interventions are unconsciously imposing themselves as a possible key to re-socialize engagement and interaction of citizens in public space by strengthening social cohesion and the sense of attachment and identification with public space. Small Interventions is a research method that developed its own methodology composed of sets of mechanisms, tools and methodological steps for public space transformation toward more sustainable and resilient design strategies. The future resides in the concept of “small” as it can trigger wider change and innovation in design process.

Keywords: public space, small interventions, urban design

Between Building and City. The role of typology in public space production

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ABSTRACT

Faced with processes of fragmentation of the urban fabric, public space assumes itself as vital in the reconstitution of elementary spatial continuity lines. The public space aggregates the different built elements of the city while at the same time asserting itself as the main recipient for social activities. The public space is the collective place of the city. In addition, certain architectural typologies configure, through their formal features, spaces of ambiguous use where the classic limit between public/private is questioned, producing spatial systems that function as clear expansion devices of the city's public space.

The article takes the *Square Building* as an example of a typology capable of building formal links that transform the configuration and the way we use public space. The building's spatial and morphological structure creates places of permanence, social gatherings or even alternative circuits to the city urban layout. Starting from the universe of cases developed by the research project "Building Typology: Morphological Inventory of the Portuguese City", it is intended to reflect on the relevance of this typology as a producer of public space and activator of new collective habitats in the city. A morphological decomposition of the architectural object and the closest urban context is made in order to systematize systems and elements that generate the public space dilation. It is intended to contribute to identify architectural composition tools that allow a better integration of the object in the city, while creating spaces for public use that question the rigid limits between interior/exterior and public/private.

Keywords: Buildings Typology, Public Space, Square

A Taxonomy of Liminality: Exploring Open Infrastructure Spaces in Post-Socialist Belgrade

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ABSTRACT

Typomorphological analysis has been used to study building types, but it is rarely applied to open spaces. These spaces are characterised as street networks, urban squares and open space infrastructure. Within that infrastructure, there are other spaces. In the literature, in the critiques of the quality of contemporary public space, there are different manifestations from neglected to invented and others. There can stand out some spaces as a consequence of regime change and different types of usage in new culture system with problems of their perception, maintenance and transformation, such as in post-socialist changes. In this paper, all of these spaces were seen as liminal spaces from pedestrian perspective where it could be individual and collective users bringing various ways of cultural meanings. There is an aim to make a classification of pedestrian liminal spaces in post-socialist Belgrade. The methodology is based on new systematisation and rethinking on existing taxonomies of urban form indicators and decomposition of urban space into urban structural units (USU) approach. There is suggested three types: the first one as a part open communal space of New Belgrade super-block, second one as a part of elevated walking system of Mostar Interchange and third one as a part of pedestrian network of riverfront park "Usce". In comparative analysis between these spaces, the morphology and organization imply a possible measure of spatial quality. This work can contribute to new way of reading and analysing contemporary open public spaces and help in their transformation, especially in a post-socialist context.

Keywords: taxonomy, urban morphology, urban space quality, culture space, individual vs. collective

The investigation of gradients inversion in use that public spaces in the Paraisópolis (São Paulo) and Rocinha (Rio de Janeiro) slums, based on urban morphology methodology.

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ABSTRACT

Favelas are consolidated informal settlements in the metropolises of South America, although they are still part of the city, quite studied due to their formation processes and their urban morphological aspects. The forms, uses and functions of the informal are a consequence of the land's use and different forms of fruition, configuring itself as a complex, fluid and dynamic, defined by the practices of the residents. The spaces present different gradients of privacy between open areas (such as paths, stairs, ramps or crossings), semi-open areas (such as galleries, balconies, private stairs, terraces) and closed areas, which infiltrate the private and semi-private contexts, disfiguring the traditional sense of hierarchy. To understand these spaces, the research juxtaposes the studies of the Italian School of Urban Morphology by Muratori, Caniggia and Mareto, to Kevin Lynch. The intention of rebuilding and narrating the aspects and complexity of human relations built with the urban form in the slums of Paraisópolis (São Paulo) and Rocinha (Rio de Janeiro), proving that the informal city has evidence that the urban form is a capable system generating complexity, resilience, attractive scenarios that are perfectly coherent with the sociocultural dynamics of the favelas.

Keywords: Morphology, Territory, Urban, Informal, Space.

Research on Walkable neighbourhood form indicator in TOD areas Based on Multi-source Data: A case study of Shanghai, China

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ABSTRACT

High-quality pedestrian environment is the key factor affecting the vitality of cities in TOD areas. However, the existing TOD studies mostly focus on general factor such as mixed land use and spatial accessibility, and less consideration is given to various spatial and behavioral factor from a people-oriented perspective. Therefore, this paper aims to explore the key form indicators relate to walkability in TOD areas by comprehensively considering the meso level urban form and micro level pedestrian perception environment. In this research, 6 typical TOD areas in Shanghai were selected as research cases. After capturing urban three-dimensional morphological data, POI data, street scene pictures data and questionnaires data, various analysis methods are used for the TOD areas walkability analysis, such as spatial syntax, GIS, image semantic recognition and SPPS. By analysing the multi-source data, the neighbourhood form indicators related to walkability in TOD areas are sorted out. Then the walkability of case is evaluated and measured including convenience, safety, recognition and comfort four aspects. The results show that convenience is closely related to the richness of POI and road network structure, and Rail lines and trunk roads partially block cross-block walking accessibility within the TOD area. Safety is greatly affected by the surrounding building enclosure and pedestrian path width, and the high motor vehicle flow in the TOD area will also have impact on safety perception. Comfort is affected by both artificial and natural environments, and is correlated with green viewing rate and sky openness.

Keywords: TOD, walkability, urban form, Indicator system, multi-source data

The transformation of the first green belt and urban green space system planning in Beijing

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ABSTRACT

Urban morphologists define a fringe belt as an integral zone with recognisable landscape characteristics at the edge of an urban area. The green belt is the closest model to the fringe belt in urban planning. As an instrument to limit expansion, the green belt is under the pressure of urban growth and natural conservation. Critiques on the green belt indicate that it contributes little to slowing urban expansion and causes leapfrogs. The green belt should be an intended tool for sustainable development. However, there are few empirical studies on the transformation process of the green belt to support the debates, especially from China. Beijing, a typical large Chinese city, set the first green belt in 1958 and rapidly increased its area during the past two decades. Existing works connect the process, which turned the green belt into green spaces of the inner city, with the policies and management without concern the form. The paper investigates the first green belt's morphological transformation in Beijing under the influence of urban green space system planning. Urban planning and the green space system planning layouts in 1958, 1993, 2004 and 2016 are gathered in the GIS platform for large-scale analysis with rigour. Planning documents and policies are supplements to understanding the process. The findings describe the morphogenesis of the first green belt in Beijing under the tension between fringe growth and the urban belt. It provides morphological references for future planning and design in developing countries.

Keywords: Green Belt, Beijing, Urban Green Space System Planning

Assessing the impact of Renewable Energy Installations on urban heritage: the role played by urban morphology.

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ABSTRACT

The growing need in the EU for tapping into renewable energy sources is both due to environmental reasons and to shifting geopolitics. Concern is equally growing over the impact of such installations on urban cultural heritage. Restricting them indiscriminately is not an option, if viability must be ensured for smaller towns which are already economically and demographically challenged. The increasingly popular Energy Communities are rising as a workaround, as they allow users to pool resources, share optimal locations and coordinate mitigation measures. *Territorial and Social Innovation for the Energy Transition in the Iberian Peninsula* is a project funded by the Spanish Ministry of Science that aims to strengthen the territorial planning of the energy transition with innovative interdisciplinary methods. Its transdisciplinary team envisages tools for evaluating impact and improving the decision-making regarding urban heritage. In the realm of renewable energy planning, morphological analysis is mostly used to appraise potential output. Our research combines these methods with those of heritage value assessment following ICOMOS recommendations, and GIS-based visibility analysis. We draw on Space Syntax for an instrumental umbrella able to more effectively characterise heritage-laden districts, and frame them within the larger urban structure. The project still being in the early stages, this presentation will put forward a prototype tool that is easily accessible to technicians and decision-makers, and a preliminary case study establishing proof of concept, in order to elicit debate on the role that urban morphology can play, and its limitations.

Keywords: Renewable Energy, Urban Heritage, Energy Transition, Modelling, GIS.

Urban Decision System Design based on CityScope Platform: Sharing Urban space – A design study of Zhangjiang High-tech Park

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ABSTRACT

Based on the research of MIT CityScope, this paper focuses on the urban design of Zhangjiang Science and Technology Island Park, which is located in the hinterland of Pudong New Area of Shanghai and is a national high-tech park with many new buildings such as research offices and industrial park. However, as an emerging urban science and technology industrial park space design, it has several problems: 1) the function is relatively single, the lack of communication and sharing platform and space for research enterprises to communicate; 2)supporting facilities and public services are not enough, living facilities cannot meet the needs of the working population; 3)the building space is relatively fragmented, the lack of integration and public green space. To this end, this paper proposes to set up two urban space targets for Zhangjiang Science Park, namely, shared space and vitality, as an urban design vision, and uses CityScope design platform to measure urban vitality points. Taking the urban island space as the design scope, we explore the shared space index by abstracting buildings into Lego model as the spatial carrier. The study aims to obtain an augmented reality system for urban design that can be interacted with in real time, and to help stakeholders define the sharing and vitality index of Zhangjiang through data analysis of the platform and assist in urban decision-making in Zhangjiang Science Park.

Keywords: CityScope, Urban design, Sharing Space, Public Space

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Exploring fringe belt vitality: opportunities of the integrated development (the case of Siberian cities, Russia)

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ABSTRACT

Discussion of the fringe-belt concept has hitherto taken place in terms of spatial (Conzen, 1960), economic (Whitehand, 1967, Barke, 1974, 1976), social (Carter and Wheatley, 1979, Slater, 1978) and planning (Whitehand and Morton, 2003, Gu, 2010, Unlu, 2013) perspectives. The ecological significance of urban fringe belt to the biodiversity of the urban ecosystem has been shown by Hopkins (2012), Zhang (2019).
Similar thinking about urban fringes has occurred in relation to Russian cities, and its history merits wider dissemination place in terms of eco- and centralized planning Kukina (2006, 2014), evolution within the fabric of the Siberian cities Logunova (2017, 2019). The fundamental difference of the Russian case is the design of the fringe belts has been carried out according to plan since the reforms of the XVIII century. They have features and laws of development that are also characteristic of the other cultures. Focusing on the cities Krasnoyarsk, Achinsk and Yeniseisk the study examines the relationship between combination of economic, social and ecological resilience of fringe belts in the context of their integration into the sustainable development of urban structures.
The morphological method of the analysis includes QGIS and BigData were used for investigating fringe belts under the pressure of the political and planning features, the Urban and Land Codes, adopted at the end of XX century. The results can be used for the renovation and integrated development of the fringe belts in the modern cities.

Keywords: fringe belts, centralized planning, integrated development

Learning Architecture as a Tool for Urban Regeneration. Formal analogies between Urban Structure and School Spaces

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ABSTRACT

The role of school buildings is no longer confined to educational functions but rather conceived as a part of the city open to the community. While innovative schools should become Civic Centres, they are still disjoint from urban regenerative processes. Although *regenerative design* is switching the focus from objects to place relationships, it lacks theory and tools while school buildings are still designed as self-contained institutions, independently from regenerative processes that are left to planning approaches. Exploring the urban character of *learning architecture* should engage a *regenerative architecture.* To convert the conventional approach to schools from autonomous objects into the catalysts of morphological continuity in districts, the paper investigates their pedagogical design in relation to the discourse on the city. Besides, it explores spatial themes in analogy with the composition of urban spaces. The paper discusses paradigmatic case studies combining the discourse on the city with innovative school buildings. It traces back the idea of Civic Centre in antecedents while exploring how the cognition of the urban form shaped architecture itself, revealing formal analogies between urban structures and architecture. The results offer a novel interpretative key to address innovation in design and regeneration. Reconnecting schools design to urban discourse, the research advances the concepts of *regenerative learning architecture* and S*chool-as-the-City*, enriching architectural themes and typological experimentation. It concludes that schools and learning spaces should no longer be investigated as "specialized buildings" but rather as hybrid architectures and qualifying urban elements within revitalisation and regenerative processes.

Keywords: Urban architecture, Regenerative architecture, Learning architecture, School buildings, Formal analysis

Toward a Morphogenetic Strategy for the Redevelopment of Rust-Belt Areas in Late-Socialist Cities: Understanding Heterogeneous Urban Landscape in Zhengzhou, China

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ABSTRACT

The heterogeneous urban landscape can be used as an index of the incongruous relationship between past and present in the process of social reconstruction. Its characters are often present in large swaths of rapidly expanding old industrial cities in China. To understand their composite structure, two notions in geographical urban morphology — *urban morphological regionalisation* and *decision-making planning* — are used. These notions emphasise the morphogenetic process of these urban landscapes, focusing on the situated holistic ensemble of physical forms and the materialisation by design of hegemonic spatial conceptions, respectively. We submit that, inspired by Christopher Alexander's idea of *structure-preserving transformation*, a sustainable urban environment cannot be achieved without a thorough understanding of the historical development and the concrete composition of its landscape structure. Taking Zhengzhou as a case study, this project seeks answers to the following questions: What is the spatial structure of these industrial districts with the highly heterogeneous urban landscape? To what extent and in which way do residents' spatial practices influence the morphogenesis of the urban landscape? How can the comparative analysis of spatial conceptions and spatial practices be used to ensure sustainable urban planning and design? The answers point to the formulation of a new *morphogenetic strategy* that can operationalise the structure-preserving transformation concept in future urban planning and urban design. They also contribute to advanced morphological research by strengthening its link to environment-behaviour research.

Keywords: late-socialist China; rust-belts; morphogenesis; urban morphological regionalisation; decision-making approach; Zhengzhou

Trajectories of development and decay observed in the Socialist planned cities of Central Europe. Case studies of Tychy and Halle-Neustadt.

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ABSTRACT

The presentation covers the comparison of Tychy and Halle-Neustadt in terms of their spatial and functional structure, history of development and decay, demographics and policies employed to address urban shrinkage. Set in a broader discourse on shrinking cities in Post-Socialist Central Europe, the study narrows its focus on a group of cities established after 1945. The authors aimed to isolate common qualities of the selected cities and unique features, which may have contributed to their different developmental paths. The analysis allowed for a more precise distinction of the Socialist new towns as a coherent research class and enabled an improved understanding of factors, which influence their capacity to sustain spatial and economic cohesion and operational functions of a city. The study was supported by primary research of archival planning materials, on-site excursions, and personal participation in design workshops on urban regeneration. The morphogenetic characteristics of both municipalities, including the form and complexity of their city plans and dominant patterns of development, were juxtaposed. While both cities exhibit comparable densities and share similarities in layout and zoning, specific urban typologies are more divergent. As opposed to the purely Socialist modernist Halle-Neustadt, Tychy had gone through the preceding phase of Socialist realist development. Both cities experienced significant shrinkage but maintained various levels of functional autonomy. A possible correlation between the features of urban form, policies employed and the performance of both cities in the ongoing process of urban shrinkage requires further investigation.

Keywords: Post-Socialist cities, Planned cities, Shrinking cities, Urban regeneration, Urban policies

Residential Morphological Types and Their Population Characteristics in Nanjing, China

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ABSTRACT

In a very long time, China was one of the countries with the fastest growing population and urbanization in the world, and most of the research on Chinese urban form was placed in the default condition of a growing population and its spatial demands. However, in recent years, the number and age structure of China's population have reached a turning point, and relevant research on urban morphology has not yet responded to this transformation. Urban residential area is a good starting point for studying the relationship between urban form and population. This paper selects the completed residential area in two continuous development areas in Nanjing——the old city and Hexi New City for research. First of all, this paper classifies the fabric of residential areas by characteristics such as construction age, number of floors, and unit types. Secondly, the location of the residential area is classified according to the traffic accessibility, the quantity and type of surrounding facilities. Thirdly, the apartment price and the data of the national population census are mapped to the corresponding district classification map through GIS, and the correlation among fabric type, location and population is analyzed. The results show that the fabric types and location differences of residential areas are significantly correlated with the age structure and income status of the resident population. This result can provide a more convenient and effective decision-making and design tool for future urban regeneration.

Keywords: Residential fabric, type, population, urban regeneration

Morphological comebacks. The problems of implementation in historical territories. Russian experience.

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ABSTRACT

During the 20th century, the role of the state steadily increased in territorial development. Collective forms of land management expanded explosively. Private land property was deleted in many countries. This created the problem of erosion of historical spatial morphotypes based on private property. Lot of modernist grand urban projects erased traces of local identity. However, after the crises of socialism at the end of the 20th century, there was a rollback to the liberal territorial development, in post-soviet countries returning private ownership for the land. These factors pointed the problem of adapting collective spaces to private forms of management, as well as the problem of the return of identity. Observing the 40-year experience, we can see the attempts of morphological comebacks. Some examples demonstrate how superficial curious historicism (Skopje, Yoshkar-Ola) erases the traces of modernism. The attempts to return historical parcellation as bases of future development (Moscow, Ostozhenka) is another type of morphological comeback. Then there are some examples of soft approach through urban regulation (Orenburg, Samara, Kazan). The task of the study is to structure the approaches of morphological comeback (revenge). We analyze spatial and land use changes in several historical cities of the Russian Federation during last 2 decades. As a result, we define types of morphological recovering and show the obstacles for the implementation of the method.

Keywords: urban morphology, parcellation, ownership, historic core

Praxis of Urban Morphology in Chinese Urban Regeneration: Division of Renewal Units – Take the Shuangta District of Suzhou Ancient Town as an example

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ABSTRACT

In recent years, the focus of China's urban development has shifted to urban regeneration, and renewal design should take into account the history and culture of the city, the living needs of citizens and the subsequent commercial development. The renewal unit system can flexibly integrate these requirements, and has been widely applied in the practice, and urban morphology methods has strong practicability in the division of urban plan-units. This paper attempts to use the analysis method of urban morphology to divide renewal units and explore the adaptability and expandability of urban morphology in the future development of China's cities. This paper adopts urban plan analysis, typology analysis, qualitative and quantitative combined analysis, and other morphological methods. In addition to basic morphological elements such as streets, plots and buildings, it also incorporates the unique historical relics, cultural heritage, social management system and housing property rights of Shuangta District, and studies its changes in scale and time. Finally, it obtains the unit division diagram from three perspectives of morphology, culture and people's livelihood, and conducts the superposition analysis to divide the plan units for protection and renewal of Shuangta District. The renewal units can serve as the basic unit and provide accurate and valuable basis for future strategic design, development contracting and transformation implementation.

Keywords: Urban renewal, Urban Morphology, Renewal Unit

Urban Design Approaches Based on Multi-Scale Climate Resilience: A Case Study of the Core Area of Suzhou Science and Technology City

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ABSTRACT

Urban climate is considered as one of the most important environmental criteria in urban design, since it significantly affects the layout of open space and building clusters on multiple scales. In practice, integrating multi-scale urban climate research and coordinating the contradiction of space requirements pose challenges to the innovation and optimization of urban design research and design strategies. Taking the urban design project of the Core Area of Suzhou Science and Technology City as an example, this paper explores the technical approaches for the interaction between wind and thermal environment analysis and urban morphology design at both meso and micro scales. Firstly, at the meso-scale, based on Computational Fluid Dynamics (CFD) simulations of outdoor ventilation in summer, winter and transitional seasons, taking the maximum wind speed, minimum wind speed and air circulation degree as indicators, ventilation corridors and open space system were optimized and established to achieve a good urban climate experience all year round. Then, at the micro-scale, a series of urban block models were developed based on Leslie Martin's three archetypal building forms by modifying morphological indicator values such as building height, width and courtyard dimension. Based on Physiologal Equivalent Temperature (PET), thermal environment simulations are carried out for each model to specify the urban block type with better thermal comfort. Finally, as the superimposition of open space and urban block type, design results were tested through simulation analysis to verify the effectiveness of this design strategy in enhancing the city's climate resilience.

Keywords: urban climate resilience, multi-scale, research and design interaction, wind and thermal simulation

The urban project as a tool for the critical reformulation of settlement phenomena. The case of the Europark district in Antwerp

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ABSTRACT

The context of this contribution is the city of Antwerp in the Netherlands. The area is a part of the Europark district, built in the 70s of the last century, close to the river bordering the historic center. There, the municipal administration has directed since 2012 an extensive urban program, aimed at the construction of new housing, to be placed both in the current green areas and by raising the existing buildings. The aim of the study is to experiment settlement strategies capable of interpreting the transformations required by the new housing program according to a vision which, overturning the urban planning practice based on the dominance of the law, instead establish the value of the urban form, the specific scales of the project, the ways through which to resignify, in a logical relationship, the diachronies that cross it. The method adopted is the reading the city, deepening the typological-morphological issues of the intervention area, in turn intersected with the parameters required by the municipal program and with the linguistic characteristics of the neighbourhood. The overall outcome is in fact their critical synthesis expressed through a compositional strategy which, centered on “morphological disagreements”, tries to identify parameters of a new and different notion of “organicity”, capable of dialectically articulating their contradictions. The conclusions, in the making of new experiments still in progress, can therefore be indicated in a theoretical-methodological research aimed at recognizing, signifying and systematizing the value of difference, in the always difficult and alternating process of city construction.

Keywords: urban form, continuity, difference, mutation.

Dayanggou Social Housing Project in Nanjing: Characteristics and Design Methods of Sustainable Renewal Community Form

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ABSTRACT

The urban system can be described as an internally articulated structure where various levels of subsystems, for example, cultural, environmental, political or economic, continuously evolve and influence each other in ways that are largely nonlinear. With the increasingly serious urban problems and the growing demand for sustainable development of economy, society and environment , sustainable urban forms have attracted much attention since the concept of sustainability was put forward. This paper sorts out the research on sustainable urban form including physical spatial form, mental world, and social construction of space. According to the concept, there are different scales of sustainable urban systems, and select the sustainable community as middle-level scale that has not yet been systematically studied. Combined with the sustainable development goals of society, economy, and culture, the collection of elements and indicators of sustainable urban forms such as accessibility, density, diversity, connectivity and transformation of land use will be analyzed under this scale, and then can be used as the guidance on other material space design. This study will analyze the Dayanggou social housing project in Nanjing that takes the form of sustainable renewal community based on theoretical framework above, and this case with design methods can be a prototype of the future sustainable urban form.

Keywords: urban form, system, sustainable renewal community, design methods

Research on the Renewal of Quanzhou Open Residential Area from the Perspective of "Space-Behavior" Mutual Feedback

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ABSTRACT

Designing for sustainability requires us to intentionally and creatively explore and implement radical changes in cultural as well as environmental spaces. The research reflects on an interdisciplinary, action research which takes the ambiguous zone between cities and residential areas—the public space of open-style residential districts as an object, and communicates with three different interest groups based on the principle of sustainability: the government, real estate developers, and local residents to form linkage of knowledge and demands. The research objective was to develop a community-participating and iterative design model for the government to efficiently solve problems, reduce carbon emissions, and improve living comfort and convenience.The research methods included Ethnographic methods, workshops, open-ended questionnaires and interviews, and big data analysis. It was concluded that by proposing sustainable iterative "micro-renewal" design as the "living" structure of the open residential public space, it guided residents to participate in community development and pushes its planning and design in a more pragmatic direction. The research should be significance for transcending the constraints of the current consumerist paradigm to co-create a better future.

Keywords: Public space, Micro-renewal,Sustainability,Open-style Residential Districts

Construction and application of Spatial density evaluation model for Metro station: A case study of Tianjin Metro Line 3

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ABSTRACT

The metro station area is a complex functional area with mixed land, traffic and human flow in the city. The density evaluation of the metro station area space can not only promote its own coordination and optimization, but also promote the synergistic and sustainable development with the urban space. The study takes a holistic view of the station space and integrates three levels of indicators: traffic ability, functionality and development intensity for a comprehensive evaluation of spatial density. To achieve the ultimate goal of coordinating the allocation of station space resources, improving the traffic efficiency of rail nodes, and providing a quantitative reference to the synergistic co-construction of station space and urban space. The study uses the mathematical analysis method twice to screen the core influencing factors, uses the principal component analysis (PCA) to establish a multiple regression equation model. The study shows that by comparing the impact factors, the developmental differences between similar station areas can be discovered, and comparing the spatial density of urban areas and station areas can understand whether the development level of both is consistent and whether there is room for improvement and optimization. For example, the high-density Jinwan Square Station and the low-density Zhou Deng Memorial Hall Station, which are also scenic station areas, differ in floor area ratio, number of bus stops, open space ratio and other indicators. The presence of low and medium density subway stations in high density urban areas, etc.

Keywords: Metro Station Area; Station and City; Spatial Density; Model Evaluation

Townscape management practices guided by urban morphology theory: reflections and perspectives on design guide

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ABSTRACT

Tonscape management and morphology control have become important tasks in recent years. Design guide, as a management tool guided by urban morphology, can effectively achieve landscape control and guidance, have gained wide recognition in many countries. In his early research practice, Conzen explored the use of historical geography to delineate townscape units by distinguishing the hierarchical structure and components. The approach to townscape management was then further developed by UMRG at the University of Birmingham. One of the representative results is the urban design guide. Looking back at the design guides prepared by English Townscape School in Essex and Chester, Samuel in Asnières-sur-Seine and Kropf in Stratford-upon-Avon, it reveals that morphological level and form-based zoning are the theoretical core, to translate the regional characteristics into management requirements. However, the implementation process has revealed some problems. Morphology is not a mere theoretical framework, but rather a basis for making multi-objective decisions on practice. It should also emphasise inclusiveness, which should be regularly evaluated for self-improvement, to achieve multi-party participation in decision-making. In China, as a non-statutory technical control framework, design guides have been put into practice with Chinese socialism. Influenced by the public ownership of land, design guides are often a means of target control, lacking care for the morphological components. In response to it, UMRG.CN has carried out a series of design guides in China, including Lushan, Wenquan Town and West Lake, reflecting social changes in context of the socialist China, and building a critical framework for Chinese design guide.

Keywords: Design guide, Urban morphology, Townscape management, Decision-making

A Study on the Spatial Layout of Chinese Traditional Academy Architecture Based on the Mathematical Relationship of Yi-ology— Taking the Traditional Academy in Hunan as an example

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ABSTRACT

Aiming at the problem of convergence and characteristic crisis in Chinese contemporary architectural culture and urban culture, this paper attempts to find a solution from the study of Chinese traditional architecture. The academy is an important type of traditional Chinese architecture which location and layout reflecting the integrated thought of "architecture, people and environment". The Yi culture originated in China is an important text for interpreting the theory of traditional Chinese architectural space, its world schema and meaning are integrated into the construction of traditional architecture. Based on the perspective of Yi-ology, this paper takes the traditional academy in Hunan, China as the research object, through field research, literature review, typology analysis, shape grammar and other research methods, as well as combining qualitative and quantitative analysis, exploring the mathematical relationship and the inner generation mechanism behind the spatial layout of the traditional academy architectural groups, constructing a mathematical relational diagram of its spatial layout, in order to establish the design method and mathematical model of the spatial layout of contemporary group buildings which are based on the mathematical prototype of the spatial layout of traditional academy, so as to guide the spatial layout design of contemporary group buildings.

Keywords: Traditional Academy, Spatial Layout, Yi-ology, Mathematical Relationship, Group Buildings

Toward a Smart Mobility Framework on Oxford Road

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ABSTRACT

The world's population has increased rapidly, leading to urbanising many ruler areas, and it is estimated that around 75% of people will live in cities by 2050. Therefore, cities will require new urban design methods and smart sustainable systems to face future socioeconomic and environmental challenges. Mobility is one of the main components of urban infrastructure and city systems that have been developed to reduce global carbon dioxide emissions. Cities in recent years have endeavoured to adopt new smart sustainable transportation system that has been implemented differently according to the city's infrastructure and community needs. The smart mobility concept aims to eliminate the negative consequences of current transportation systems by more efficient mobility options for future cities. Mobility is not only related to urban infrastructure but is also an important aspect of the city's built environment and public life. The public space that is available for everyone to enjoy freely is shaped by the movements of the urban environment, including bicycles and pedestrians. In this paper, design principles for public space are covered by using smart mobility dimensions. Oxford Road, which is an iconic street in Manchester frequented by many people daily, is chosen as a case study area. The case study area urban context and mobility systems situation will be assessed by using mixed research methods such as observations, photos, serial visions, counting and mapping. The outcome of this research will produce a smart mobility framework that supports the city's future urban developments.

Keywords: Smart Mobility, Urban Mobility, Urban Design, Public Space, Urban Infrastructure.

Mongrel/Džukela urbanism – Morphological schools and eclectic fusions

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ABSTRACT

Morphology is a science about the essence of form (Goethe, 1988 [1817]; Steadman, 1979; 2014; Marshall & Çalişkan, 2011). There are different approaches to study form and cities. Urban morphologists look at the physical form and structure of cities, processes of formation and transformation, evolution of cities and dynamics of urban change. The International Seminar of Urban Form (ISUF) is established around the notions of three morphological schools rooted in geography, architecture and urbanism/planning inspired by MPG Conzen, Severio Muratori and Henry Lefebvre respectably. This paper discusses eclectic as morphological term, genealogies and classifications of morphological schools and possibilities for eclectic fusions and mongrel/džukela urbanism in urban morphology. The paper is inspired by Balkan cities where mongrels persist on streets and inspirations in urban design as mongrel discipline (Carmona, 2014). Eclectic is defined in the Oxford dictionary as "not following one style or set of ideas but choosing from or using a wide variety". Džukela (mongrel) is an "ursprache" word for a street dog on the Balkans that is typically a tough, rough and sturdy mix of dog breeds. Urban morphologists faced with theoretical and practical considerations and urban problems can follow the approaches and theories established in schools or they can create mongrel/džukela morphologies.

Keywords: eclectic, urbanism, urban design, fusion

The position of aesthetics in the contemporary urban design in Serbia

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ABSTRACT

In this paper, the methodology of contemporary architectural and urban design and planning is discussed. The main standpoint is that architectural or urban form as a complex phenomenon that results from design activities should represent not only utilitarian-technical but also spatial-experiential and visual-aesthetic elements. This issue has been widely discussed in the discourse of urban morphology where the urban form has been defined in its complexity. However, the practice of urban design and planning in the contemporary context in Serbia, but also elsewhere neglects most of the non-utilitarian aspects of architectural and urban form. The concept of the spatial order has been stated as the key point of introducing the aesthetic principles in architecture and urbanism, either through means of geometry and abstraction or through instruments of architectural and urban design competitions and other spatial checks provided by professional committees and wider debates. Some of the findings have been included in the debate on the upcoming National Architectural Strategy of the Republic of Serbia.

Keywords: architectural & urban form, urban design practice, visual-aesthetic principles, spatial order, Serbia

View protection by methods of zoning ordinance and regulation

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ABSTRACT

Panoramic views of significant urban landscape elements provide cultural value, but in the process of rapid transformation ability to observe valuable elements of the landscape for citizens can disappear. It leads to destroyed identity of place. This encourages the authorities of European cities to develop ordinance to regulate the parameters of new construction in city areas. Despite the growth of the global practice of landscape protection, in Russian cities, politics of view protection remains at the level of strategies and rarely shifts to the zoning ordinance and limits building parameters that most significantly affect the appearance of urban landscape. This work is aimed to find methodological substantiation of the process for determining the limit parameters of new development to preserve panoramic views. Research objectives are based on: study of the theoretical foundations of visual assessment of landscapes, case-based identification of a list of regulated parameters allocated through existing research methods in visual perception studies, forming of the recommended algorithm for fixing parameters in the system of urban land use and zoning regulation and determining the list of limiting parameters of development, testing of the methodology on the example of the city of Vladivostok. Research methods include the use of 3D modeling tools, GISanalysis and visual perception modeling(isovist). A concept for translating the results of the analysis of visual perception of the urban landscape into a list of regulated characteristics and development standards were identified. Gradation of limit values of the parameters was given within the boundaries of each selected subzone.

Keywords: urban planning, visibility analysis, view management, view protection, zoning regulation

Research on the constituent elements and measurement of COUM based on multi-dimensional matrix: From the perspective of urban morphology formed by building blocks

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ABSTRACT

The complex three-dimensional characteristics of urban morphology are the product of joint influence of social, economic and other factors, so the study of complexity of urban morphology (COUM) can help to discover the laws of formation and development of urban morphology. However, most of existing researches on COUM adopt nonlinear research methods such as cellular automata and self-organization, which can better simulate and present the complex characteristics of urban morphology, but can only recognize COUM in a vague way. The specific elements and measurement methods of COUM lack some explanatory power. Based on this, what are the elements of COUM and how do they interact with each other? How to measure COUM in a logical and interpretable way? This paper studies urban morphology from the perspective of building blocks. The constituent elements of COUM are decomposed into four characteristics of the building, such as single shape, spacing, orientation, height fluctuation. Then, the interaction between them is explained through morphological network and multidimensional matrix, and the data is normalized. Finally, based on the matrix difference algorithm, the COUM measurement method is constructed, and taking Nanjing, the megacity of China, as an example, the COUM values of different blocks are measured and verified on the spot. The research found that the consistency between the measurement results and the questionnaire results reached more than 76%. Also, the urban morphology corresponding to different levels of complexity presents mixed, homogeneous and discrete morphological characteristics, and derives uniform collage, irregular discrete and other types.

Keywords: complexity of urban morphology (COUM), constituent elements, measurement, dimensional matrix

The "Underneath Spaces" Within The Contemporary City. Morphological investigation of residual areas as opportunity to reduce waste of urban land and community severance.

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ABSTRACT

Nowadays, we face a common urban phenomenon referring to seemingly unattractive and obsolete areas beneath elevated transport infrastructures, defined as "*residual urban spaces*" or "*flyovers*". These places, created by past urban planning processes, are in a state of decay representing a waste of precious land resources in dense cities like London. Flyovers physically divide communities and require requalification strategies to reclaim public areas and integrate them into the urban network. This study aims to investigate the morphological and topological features of neglected flyovers, defining a spatial and social classification system to fill the void in the understanding of "*residual spaces*". By analysing the tridimensional impact of undesirable urban places on a neighbourhood scale, this research seeks to identify feasible spatial and socio-economic improvements promoting urban interconnections and community bonding measures. Conventional morphological analysis alongside space syntax methods and data mapping on a GIS platform are used to measure building forms, fabrics, and functions through figure ground and urban block analysis, residential-retail densities and visual connectivity analysis. Findings suggest that areas adjacent to the Westway flyovers in London lack diversity in land usage and show inadequate socioeconomic service provisions, reducing nearby property values. Additionally, patterns in urban morphology reveal community severance between the north and south of the Westway. Improving spatial, social and visual connections, and introducing communal facilities, multiple improvements could be reached. In conclusion, addressing undesirable urban spaces through analytical approaches and reconfiguration design proposals on their morphological character will contribute to creating more sustainable, resilient and livable cities.

Keywords: Residual spaces, elevated infrastructures, urban morphology, space syntax

The Plan, the Plot and the Mantlepiece; Recent Impacts of Plot Truncation on the High Street

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ABSTRACT

In the typical small town, burgage plot supported street and street supported plot. In this relationship plot depth was essential, providing the flexible backup from which retail frontage enlivened the street. The work of Conzen has revealed the physical dimensions of this relationship as fundamental in the morphology of the town. In modern development, town centres are called upon to maximise intensity by accommodating increased land use across block-cores and back-lands. In pursuit of this however, emerging patterns of plot truncation are common and the balanced relationship between street and plot as a support structure is frequently overlooked, leaving the frontal plot to enliven the street but to do so with minimal depth in the space left over after truncation. This paper draws from a programme of research on a sample of European towns, examining progression in plot-depth over time, using cartographic regression, planning records and retailer interviews to reveal emerging change in the relationship between plot depth and the activity of the street. Increased development of the block-core is found to steal space from the tails of street-fronting plots which as a result suffer limitations on their flexibility to organise retail presentation to the street. One retailer likened the experience to trading from a mantlepiece. Findings reveal, among others, an emerging tendency for shallow plots to attract only transient uses, affecting clearly the options of the plot to enhance the street with a stable permanence. A primary theory of interdependent urban structure is forgotten in the course of practice.

Keywords: Plot, street, truncation, retail, town

Genetic code of urban historical landscape: characteristics, mechanism and inheritance approaches

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ABSTRACT

The urbanization process has exerted influence on urban historical landscape to varying degrees, which leads to the loss of local features. As a "genetic factor" that affects the characteristics of urban landscape, the genetic code of urban historical landscape plays a critical role in the formation and development of urban landscape. It encompasses not only the stable combination of urban landscape elements but also the cultural, institutional, and other factors that underlie it. As for the preservation and development of urban historical landscapes, it can be facilitated by identifying the genetic code of urban historical landscapes, analyzing their generation mechanism, and devising the approaches to the inheritance of it. With Chongqing as an example, this paper adopts digital methods to interpret the historical maps of different periods and to identify the elements and characteristics of those historical landscape in Chongqing. The spatial analysis method of GIS is used to extract the genetic code of historical landscapes in Chongqing, including the street networks, plots, and buildings. By exploring the generation mechanism followed by the genetic code of urban historical landscape through morphological analysis, it is found out that the genetic code of historical landscapes in Chongqing stems from the wisdom of "conforming to and utilizing nature" and the orderly spatial pattern under the concept of "propriety and camp city." Urban construction is supposed to preserve these genetic codes based on a full understanding of their intrinsic value, while inheriting and developing traditional urban construction wisdom through understanding of its generation mechanism.

Keywords: Urban historical landscape; Genetic code; Generation mechanism; Inheritance approaches; Chongqing

Research on Micro Renewal Strategy of Old Campus Public Space from the Perspective of Everyday Life——Take the South College of Hebei University of Technology as an Example

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ABSTRACT

University campus is an important space for the healthy growth of students, carrying all kinds of daily activities such as teachers and students' education, scientific research, study and life. In the context of the stock-based era and the trend of younger users of campus, there is a serious mismatch between the existing space planning of old campuses and the daily usage of teachers and students. Due to the lack of overall control of the campus and neglect of public space, the completed "plug-in" construction has brought about problems such as increasingly fragmented campus space and low comprehensive performance. This research attempts to create rich daily life scenes, revitalize the vitality of the old campus and explore the practical and theoretical dimensions of micro renewal of old campus public space. This study conducted behavioral observation and questionnaire interview on the South Institute of Hebei University of Technology, and conducted statistical analysis on the data obtained. The campus has some problems, such as decadent edge and corner space, chaotic traffic line system, improper parking area planning, poor interaction of environmental landscape elements and so on. What deviates from this space is the urgent use needs of teachers and students of South Campus for shared communication, comfortable pedestrian system, natural healing space and so on. The old campus should re-connect the fragmented campus public space into a dynamic whole through gradual and systematic micro-renewal.

Keywords: everyday urbanism; public space; micro renewal; old campus.

Research on multi-scale complexity characteristics of urban morphology and optimization methods based on information entropy: Case study in Nanjing

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ABSTRACT

The complex and self-organized urban morphology contains diverse information, which provides people with rich and interesting experiences when visiting a city. Urban morphology is valuable to compare across scales due to its fractal structure. Previous studies have demonstrated through abstract mathematical models that cities have better morphological effects when their morphological complexity follows an inverse power law from large to small scales. This paper aims to construct a quantification method of urban morphology applicable to multiple scales, analyze the complexity change pattern of the case city, compare it with the expected value of the inverse power law, and then propose a targeted optimization method. This paper takes Nanjing Old Town as an example which contains 20069 buildings built in different periods, then generalizes the building plan outline data to construct the association network at different scales, and uses the basic principle of information entropy to calculate the complexity in the association network. The research found that the complexity of Nanjing Old Town was much lower than the expected value of the inverse power law at the measurement accuracy of 5-15 meters, indicating a deficiency in the richness of small-scale public space; the complexity was lower than the expected value at the measurement accuracy of 0.5-5 meters, indicating that the changes of the street interface were not obvious. The research concluded that quantifying the complexity of urban morphology is conducive to locating urban morphological problems at specific scales and specific spatial locations, thus providing targeted references for urban morphological optimization.

Keywords: urban morphology, complexity, multi-scale, information entropy

Impact of Urban Green Spaces and Street Canyons on The Microclimate of an Urban Area

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ABSTRACT

Urban Heat Island is mainly due to rapid urban expansion and depleting green spaces. Urban greening is vital in lessening the effects of increased heat stress in cities. The street geometry and the buildings flanked on either side of the street influence the microclimate of the streets. This study is focused on the impact of urban green spaces and street canyons on the microclimate of an urban area with three urban parks in Chennai, the capital city of Tamil Nadu state, India. The study area covers an area of 200m radius around each of the three parks. The study areas combine residential and major commercial spaces with a built environment ranging from low- to high-rise buildings. Air temperature, globe temperature, and relative humidity were measured using a globe thermometer, and wind speed was measured using an anemometer. The measurements were recorded at street intersections and mid-blocks for every 2 hours interval, from 06:00 hrs to 20:00 hrs. The results of this study revealed that the aspect ratio of the street canyon and vegetation influence the outdoor thermal environment. Due to vegetation, the locations near the parks showed significantly higher humidity during the morning hours. Narrow roads showed higher Mean Radiant Temperature, possibly due to the aspect ratio and the materials in the canyon. Temperature differences were observed in streets with similar aspect ratios due to vegetation and albedo of the built environment.

Keywords: Microclimate, Green spaces, Street canyons, Aspect ratio,

Visual analysis of streetscape and urban morphology of a historical town – a case study of Srirangam

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ABSTRACT

A historic town is defined by both tangible and intangible characteristics. In terms of tangible characteristics, the urban morphology of the setting plays a significant role in place memory. It gives a location its identity, conveys its history, past events, and people's lives. Urban development and growth have long posed a threat to historic districts. The architectur

al heritage of a structure is determined by its design components, distinguishing features, façade treatment, color, and texture, among others. Due to the rapid evolution of urbanization, these characteristics are changing, which has an impact on the heritage character. The addition of new buildings and modifications to existing structures degrade the traditional urban morphology of the place, its streetscape's quality, hence degrading the built environment. Documenting and assessing the changes that occur in a historical town may be the most critical aspect of heritage/historical town conservation. This paper attempts to understand the changes in traditional urban morphology and architectural heritage elements of residential streets around the temple in Srirangam, Tamil Nadu. To understand the changes and the visual continuity and cohesiveness of the street façade, photographic documentation and analysis was employed. Public perception was obtained through preference survey using photomontage technique. There is strong attachment to the traditional architectural elements and preference for historical façade. There is concern among the tourist in terms of lost characteristics of the streetscape.

Keywords: Visual analysis , Street scape , traditional façade

Integrative - qualitative and quantitative - urban planning methodology, a application case from Brazil

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ABSTRACT

This paper presents the methodology used to define the guidelines to the Urban Mobility Planning (PlanMob) in eight municipalities of Santa Catarina, Brazil. of sensitive to the local peculiarities of the cities and the challenges of implementing the project. The activities were planned and executed simultaneously, in nine stages during twelve non-consecutive months. The work proposal involved the organization of tasks and deadlines, the systematization of data and information provided by the Municipality, lectures, capacity building and training offered to the Technical Commissions, support in the sensitization process of the actors (representatives, population, and public managers), follow-up of public hearings and thematic sessions, preparation of partial reports, and preparation of the Final Technical Report. The community was invited to participate in five specific themes: Road and Traffic System, Land Use and Occupancy, Environment and Assets, Public and School Transportation, Active Transportation. The Diagnostic resulted from the composition of technical and empirical data and defined the guidelines for the prognostic, elaborated through computer simulations with traffic projections using the data collected in the field by the Technical Commission. Social representatives were called to the debate with the purpose of outlining the urban mobility paths in each municipality, registering the urban mobility planning guidelines. Among the actions following the elaboration of PlanMob is the development of detailed and budgeted sectorial projects to make it feasible to obtain resources to guarantee their execution. The process of monitoring and acquisition of urban mobility data are permanent actions for updating PlanMob every 10 years.

Keywords: urban planning, methodology, land use, active transportation.

Acoustic Pollution As A Factor Of Livability Scales Within Urban Open Spaces. A comparative analysis study on acoustic pollution associated with spatial configurations in busy junctions and their correlation to public health

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ABSTRACT

Immense increase in urban population has led to rapid urban sprawl and congested centers. This paradigm shift has opened a wide range of public health degradation, especially on mental health issues. Spatial characteristics of urban spaces play an important role in mitigating those affects. This paper concentrates on how the spatial configuration of street networks and buildings forming busy junctions can contribute to public health. Looking through the lens of liveability and concentrating on the operating variables of comfort, searching what could disrupt their balance. A comparative analysis is conducted, concentrating on the correlation between the configuration of an urban structure and acoustic pollutions, and how do they effect human behaviours within a space. This paper applies a set of qualitative and quantitative approaches. Using data collection tools, that include observational analysis revealing human behavioural, movement patterns, and stationary activities within busy junctions. This study analyses potential movement of street network in Kings' Cross – Elephant & Castle junctions via applying Space Syntax analysis methods to further show the correlation between Space–People–Acoustic Pollution. Not to mention, data covering urban, environmental, economic, demographic, and socio-cultural analysis. The outcome of this research allows gaining a better insight on the relationship between buildings and the spatial formation created by it and help design better junctions in terms of acoustic comfort.

Keywords: Acoustic Pollution-Human Behaviour- Comfort -Urban Structure-Space Syntax

Quantitative Review and Feature Identification of Informality Streets: The Case of Longtan Ancient Town in Chongqing City

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ABSTRACT

The morphological evolution of the streets in the mountainous ancient town is a manifestation of the informal street construction mode. Informal streets are linear spaces with a sense of place, with the inhabitants as the main body of construction and breaking the standardized road design scale. The article proposes the concept of informal streets, and constructs an evaluation system of 3 primary indicators, 8 secondary indicators and 20 tertiary indicators based on the relationship between the bottom of the figure and the flexible spatial distribution, and then quantitatively evaluates and identifies the spatial components of streets. The study takes Longtan Ancient Town of Youyang County, Chongqing City as an example, and selects its building and road plan forms in 2010 and 2020 to measure the indicators. In its informal evolution process, the road network density increases, the non-orthogonal rate decreases, the width mutation rate decreases, the interface density increases near the nodes, and the node space greening coverage increases. Combining the above results and road evolution law, we propose the renewal and transformation measures based on the analysis of street planform.

Keywords: Informal Streets, Quantification Framework, Morphological Evolution, Renewal Strategies

Research on the vitality evaluation and influencing factors of historical and cultural areas: A case study of Shangxiahang District in Fuzhou City

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ABSTRACT

Street vitality is the key of the protection and renewal of historical and cultural areas, and it is also one of the measurement standards of block morphological design. This study is based on urban morphology, selects Shangxiahang District in Fuzhou City as a sample, and constructs a quantitative evaluation method for the vitality of streets and alleys in historical and cultural areas by combining field survey with POI data and thermal maps. The street vitality value was obtained from the two aspects of activity intensity and activity duration. Through multiple linear regression method, the impact of four groups of nine vitality factors on the vitality of the street was analyzed, including functional mixing, street space richness, building diversity, and traffic accessibility. It is found that the factors linearly correlated with street vitality are the mix of commercial formats (P=0.012), the area ratio of informal commercial space (P=0.025), and the richness of building facade elements (P=0.039) in order of significance P. However, there is no obvious correlation between the street vitality and factors such as land use mix of functions, block scale, and the proportion of old buildings. Finally, according to the extracted high-quality vitality factors, a targeted street vitality rejuvenation strategy is proposed. This study can provide theoretical support and optimization direction for the renewal design and block morphology of historical and cultural areas.

Keywords: Historical And Cultural areas, Street Vitality, Influencing Factors, Vitality Improvement Strategy

Differences in spatial design: organic urbanism of autonomous space versus formal urbanism of conventional open urban spaces in Ljubljana

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ABSTRACT

The images of cities are changing under the influence of neoliberal urban development, which dictates the design of profitable urban spaces, their use, aesthetics, and the location of new buildings. Along with the exclusion of residents from spatial decisions, these spaces are becoming monotonous and emptied, subordinated to services and infrastructure that attract visitors rather than residents. However, in the city of Ljubljana we can also find an autonomous space that is not subordinated to contemporary design trends, nor does it impose its design frameworks upon the city. In this contribution, we, therefore, address two questions. The first is related to the research of design principles that could attract residents back to emptied urban spaces. The results of the first question are compared with the results of the second question, which is aimed at studying the functioning of the autonomous space of Metelkova and the mental-spatial boundaries that have been established towards this space. In this context, the influence of alternative art, which is the only common point between the autonomous space and other conventional urban spaces, and the community's activity in creating spaces that are appropriate to the scale of the human being are also examined. Through visual and spatial analyses of Metelkova, typologies and ambiences with a unique artistic language were discovered, providing a basis for criteria of human scale design and comparison with typologies of emptied spaces. Some of them thus indicated the potential for community design and enabled reflection on the mental-spatial boundaries established towards Metelkova.

Keywords: autonomous space, emptied open spaces, alternative art, community design, human scale

Evaluation of the 1960s and 2000s of council housing in the context of spatial integration: the case of Nottingham, United Kingdom

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ABSTRACT

Council housing in the United Kingdom was supplied in distinctive historical contexts; thus, we can distinguish different approaches and typologies. This paper, therefore, aims to compare the high-rise Lenton Estate, built in the city of Nottingham in the 1960s, and the social housing campus, built on the same site after its demolition in 2012, by focusing on the perspective of sustainable urbanism. Space Syntax is applied as a key methodology to understand the current form of urbanism and the associated spatial practices in these neighbourhoods to investigate and discuss social inclusion and walkability. The Space Syntax approach emphasises the importance of a differentiated spatial layout in shaping urban activities and experiences and has been used in urban design to create more walkable, integrated, and accessible urban environments. After assessing the general spatial configuration of the new campus, field studies have been conducted to observe which integrated areas have been activated and by which uses. The overall research impact of this study is to discuss in a comparative approach how the council housing campuses built in the same area in two distinctive historic periods differ spatially to evaluate their impact on urban integration. It can be stated that the spatial configuration has been improved after the demolition and has since offered a more integrated and, thus, more activated urban area.

Keywords: sustainable urbanism, council housing, spatial integration

Social housing and urban growing: geometry and history morphologies. Valencia city as a case study

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ABSTRACT

Valencia City, the third bigger city in Spain with around 850,000 inhabitants and a metropolitan area near the double, hosts a series of social housing interventions since 1939 until nowadays that show the relationship between social housing and development policies in connection to both the urban growth and town planning history. After Spanish Civil War was finished in 1939 the first social dwellings in Spain were programmed and realized in terms of quick, cheap and easy solutions building them up in the outskirts of the cities. As the cities spread out in relation to the number of inhabitants increase, they provide the incorporation of the former social settlements into their urban structure. On the other hand, after Bologna protection plans in the 80's new ways of urban renewal have been attended in old towns concerning new social dwellings realizations throughout a new dialogue with the existing city. An overview sightseeing on Valencia city case, metrics and morphology show the transition from an initial completely free settlements in the land until the final, tight adjustment to the historic city morphology. EVHA manage more than 14,000 dwellings all over the Valencian Land, of which near around 4,000 correspond to Valencia City area. Either located in the periphery or into the old town social dwelling interventions refer to different urban growth theories along 20th century. Valencia City interventions can be considered as a case study model able to be exported to many other similar European cities.

Keywords: urban growing, urban history theories, urban plots, old town pattern [Keywords]

Examining Role of Regulatory Mechanisms on Unbuilt Spaces within Urban Setting of Vadodara City, India

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ABSTRACT

Urban planning is at the core of development of any village, town, or a city and plays a vital role in shaping urban fabric of given precinct. The juxtaposition of built and unbuilt fragments forms the complex mosaic contributing to the formation of distinct identity and characterization of a place. The urban morphology is an outcome of the continual process of transformation occurring within these complex layers of a place. This research paper is focused on examining these determinants especially the local development tools used within Indian context. The main objective of the study is to measure the influence of regulating mechanisms on unbuilt spaces of city fabric. Method employed will be based on empirical study based on taking a transect from historic core towards suburban farmland within urban setting of an Indian city. Here, the study is anchored on Vadodara - the cultural capital of Gujarat state located in the western province of India. The urban form of the city resonates it's rich cultural, natural, and built heritage. Investigations will encompass both urban planning and urban design based tools undertaking comparative study of influence on these unbuilt spaces of the city formed as a resultant of the typological expression of the built form around it. Findings reflect that contemporary urban design tools such as form-based codes provide comprehensive multidisciplinary approach accounting for both built and unbuilt spaces crafting local distinctive character to a place.

Keywords: Regulatory Mechanism, Urban Morphology, Unbuilt Spaces, Form-Based Codes, Building Regulations

Type and Distribution: A Study of Mixed-use Characteristics Based on Block Form in Nanjing Old City Area

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ABSTRACT

The construction of intensive city is an important guarantee to promote the sustainable development of cities in China in the future. Scientific control of block form and reasonable mixture of block functions play key roles in the overall intensive development. However, the block form in China has its own uniqueness and complexity, and mixed use within the block scale is lack of reliable objective cognitive methods. These, to a large extent, affect the contribution of urban design and architectural creation oriented by mixed-use development practice. This study first analyzes the material form composition of super grids in the spatial structure of Nanjing Old City Area, and divides reasonable block form units. Secondly, the POI data-based method of Mixed-use Index (MXI) on the level of blocks and the GIS platform-based approach of mixed-use mapping are discussed in order to measure and express the mixed-use degree intuitively and effectively. Finally, the above methods are applied to Nanjing Old City Area, and the type and distribution characteristics of mixed use on the block level are analyzed and interpreted. The research results will prove that the quantitative and graphic method can effectively identify the mixed-use degree from the perspective of morphological scale, which can be used for the analysis of urban spatial relations, and may provide practical reference and technical support for the intensive development of urban space.

Keywords: block unit, mixed use, POI data, mapping, distribution pattern

Conclusions drawn from wildfires

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ABSTRACT

Globally much attention is given to the wildfires in California. This paper reports on the rebuilding process of homes destroyed by recent wildfires in the San Francisco Bay Area. An international team selected three residential areas located in high risk Fire Hazard Severity Zones, a rating made by California's state agency responsible for preventing and extinguishing fires in unincorporated areas outside municipal or federal jurisdictions. The agency's responsibility extends to 31% of California's land area. The selected sites are located in the so-called Wildland Urban Interface, meaning residential subdivisions in vicinity of park lands with intensive tree cover. The sites represent three landscape types with different vegetative covers: redwood forest, chaparral and grassland. Two of the three sites have endured wildfires; the third has not been reached by wildfires but is equally at risk. The research team used onsite observation and focused interviews with homeowners, government and firefighting officials. The team also used images recorded with infra-red technology and graphics that capture impression of fire damage, as well as GIS/3d modeling of land form, building footprints and vegetative cover. The team found that elected public officials at the local level currently encourage agency staff to authorize rebuilding and to expedite the process. There remains, however, much concern in the professional planning and design community about the continued risk of wildfires even under mitigated circumstances. The article concludes with a discussion of policy options geared to reducing exposure to wildfires and hazardous evacuations.

Keywords: wildfires, reconstruction after disasters. fire hazard severity zones

The Urban Morphology of Tiradentes / MG/ Brazil

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ABSTRACT

The dissemination of knowledge on Urban Morphology finds a vast field in courses or in workshops for undergraduate and postgraduate students, who are able to comprehension concepts, applied them in future studies and thus become further acquainted with the field of knowledge. This work aims to focus on an extension course that was held in the School of Architecture at the Federal University of Minas Gerais, Brazil, (UFMG) and which that brought together students and professionals from interdisciplinary fields of knowledge interested in the study the urban form. The course was designed to equip students to absorb issues and acquire skills related to the urban structure, with emphasis on urban programs of greater functional complexity, aimed expanding historical cities and examining the impacts on the traditional urban landscape. The teaching initially took place through classes covering the main current conceptions and methods of analysis of the urban form. Additional methodological strategy adopted the examining the elements of Tiradentes, colonial city located in the estate of Minas Gerais. Themes were distributed over three axes - the traditional related to the evolution and formation of the urban landscape, investigations of the typological transformations arising from public policies, urban expansion and tourism and finally, environmental issues related to the open space and the landscapes recovery. After the field study, seminar discussions on these aspects were held for the preparation of the final book containing chapters to be published this year and presented at ISUF.

Keywords: Extension Course, Undergraduate and Post graduate Students, Tiradentes, E-book

Planning x praxis: the evolution of three Brazilian urban regions

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ABSTRACT

The British idea of satellite cities associated with the proposal for urban decentralization was globally disseminated in the middle of the last century. It was also adopted and specifically adapted in the planning of three Brazilian regions - the northern region of the state of Paraná (1940s), the Federal District (1960s) and the northern region of the state of Mato Grosso (1970s). The three regions examined showed different levels of the activity of urban planning and control. This article explores what this means for current urban forms and for their future planning. What is evident today in these regions is a transformation from the original planning proposal, with a sprawling configuration differing from the one initially built. Therefore, it appears that the evolution of Brazilian satellite cities transformed the originally applied concept. The configuration of the city-region is related to the process of decentralization of the population, services, employment and the urban growth of the periphery, in its most generic sense. The tentacular urban form, opposed by the creators of the satellite town, reappeared in the urban spread of the cases studied here. However, this spread could favour the establishment of green areas in coexistence with urban occupation, indicating a possible path to a more sustainable future.

Keywords: urban form; regional planning; new towns; urban sprawl

Cities à la dérive. How formal unity becomes multiplicity in urban morphology

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ABSTRACT

If we equate the city to a 'body' whose 'limbs' correspond to each other in a relationship of mutual cooperation, urban infrastructures are the 'ligaments' that guarantee its conditions of possibility. However, a post-humanist vision cannot stop at merely noting the evidence of facts and describing them through simple analogical correspondences. In fact, the proposed representation, does not take into account how and why those systems of relationships and components constitute a historical fact and not a pure datum at our disposal. In order to obtain plausible answers, it is of particular importance to reflect on the state of crisis of the 'urban body', that is, on the conditions that determine its progressive disarticulation, up to its possible collapse and dismemberment. In particular, it is useful to distinguish those conditions that are directly attributable to the human will from those that are beyond its control. Once again, a post-humanist view helps to overcome the distinction between a subject (active) and an object (passive), in which the former is the bearer of will while the latter is the bearer of necessity. This essay, therefore, intends to address the issue in the light of a growing awareness of the debate on the Anthropocene, in which man is subjected to forces that escape the schematic opposition between nature and culture. In this way, it is intended to demonstrate that the crisis of our time can make it possible to understand transformations of the city that have so far remained without convincing explanations..

Keywords: Urban form, infrastructure, unity, multiplicity, morphology

Deindustrialization of a city: Change in the fringe belts of Adana, Turkey

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ABSTRACT

With the advent of neoliberal politics in 1980s, cities began to be conceived as the places of capital accumulation, where the old production places were seen as the places of redevelopment. In many industrialized cities, the production facilities were moved to other locations worldwide that in turn revealed itself with high rates of unemployment and social change in those cities. The change from production uses to service uses is evident in the fringe-belt areas of cities that can be easily followed through the erection of new building types in the urban landscape.

Departing from the question(s) "how was deindustrialization process realized in fringe-belt areas? How did this process give effect to the change in the character of cities? What is the overall effect of the deindustrialization process on the historico-geographical structure of cities?", this study aims to discuss the effect of change in the fringe-belt areas of cities during the deindustrialization process on their character. A plot-by-plot investigation is conducted in inner and middle fringe belts of the city of Adana, Turkey. The results revealed that the transformation processes in the fringe belts gave rise to the emergence of new consumption spaces, in which once the most important factories of the city were existent. While a city of production turned into a city of consumption, the fringe-belt alienation has been evident in the erection of new buildings, such as shopping centres, office blocks and hotels, in the urban landscape, and a development cycle in the plots.

Keywords: fringe belts, deindustrialization, urban character

Fringe belts in the global South

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ABSTRACT

The fringe belt is a key concept developed in the historico-geographical approach to urban morphology. Recently, several fringe-belt analyses were published from different geographical contexts, outside Europe, where the concept was conceived. In the Global South, particular socio-economic conditions resulted on profound spatial diversity represented by large-scale cities with accelerated growth, the presence of informality and dynamic transformation of urban form elements, especially plots. Yet, the literature review makes evident that few studies have compared the differences of fringe-belt features in global North and South. Addressing this gap, a comparative analysis between the fringe belts of dynamic Southern cities and long-standing urban areas of Northern cities is provided. Three applications into Birmingham, Mersin and Salvador, are presented. Similarities and differences of the contexts are discussed, as well as their reflection on the formative and transformative fringe-belt processes. The fringe-belt models developed according to the city historical formation are compared. The different timings, scales, and the permanence of elements of urban form are outlined. This exploratory study reveals that in the global North, cities with spontaneous development and established urban forms might keep their fringe-belt features longer. In the Southern context, dynamic growth and transformation of urban forms challenges the maintenance of plots, especially open spaces that change their character to (informal) residential use. These findings are important to foster discussions about further developments of the fringe-belt concept, such as the proposal of innovative models and its utility for planning in different contexts.

Keywords: fringe belts, global south, Birmingham, Mersin, Salvador

Study on the evolution of green space morphology and carbon storage estimation in the urban-rural fringe of Xiamen, China

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ABSTRACT

In the context of rapid urbanization in China, urban boundaries are spreading outward, and the urban-rural fringe zone, as the vanguard of urban expansion, has been fragmented by the dramatic impact of urban expansion on its original green space. The green space is the spatial carrier of vegetation carbon sequestration, and its dynamic changes are bound to affect the carbon storage in the urban-rural fringe zone. This study hopes to investigate the relationship between the spatial changes of green space and carbon storage in urban-rural fringe areas, to provide guidance for low-carbon construction and sustainable development of cities, and to provide reference for urban planning and policy designation. Since the establishment of Xiamen Special Economic Zone in 1980, the city has experienced more than 40 years of rapid urbanization, and the urban boundary has spread rapidly from the main island to the bay area outside the island, which is representative as the study area. The carbon stock of green space in the urban-rural fringe of Xiamen is estimated by using remote sensing estimation method combined with sample land inventory method, and the spatial indicators of green space are screened and calculated based on spatial analysis and statistical methods. The key green space form indexes are finally selected and used as the basis for formulating a low carbon city planning strategy combining resilience and rigidity.

Keywords: Green space form, Urban expansion, Urban fringe, Carbon storage

Fringe Belt Areas in the Process of Being a Capital City: The Case of Ankara

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ABSTRACT

Capital cities stand out as one of the symbol cities of the countries with characteristic features, especially their historical and cultural values. Capitals, which enter the process of development and transformation while becoming symbol cities, witness numerous morphological changes. The historical past of Turkey's capital Ankara, a Roman city before an Anatolian town, shows the region's significance and indicates the existence of areas with urban traces. In this context, fringe belts, which bear historical traces, are crucial for sustaining Ankara's urban values and need to be examined. This study aims to investigate the formation and transformation of the fringe belts of Ankara on winner projects from the Planning Competitions, which were held in different time periods after the declaration of the republic. The main question is how Ankara's fringe belts have changed in line with these urban plans. Within the scope of the study, the historical city map and urban plans were analysed starting from 1924. In the study method, maps and plans were overlapped in the QGIS program to examine the fringe belts' spatial change. It has been concluded that robust strategies have yet to be developed for fringe belt protections by evaluating the plans' decisions and results. Fringe belts have disappeared in some areas, while others have changed their character due to the urbanisation pressure. Moreover, fringe belts that have survived thus far are in danger of extinction. This study provides a better grasp of the importance of Ankara's fringe belts and contributes to the fringe belts' protection.

Keywords: Ankara, fringe belts, historical development, urban morphology, urban planning

Outdoor Tourism as Redefinition of the Urban Fringe

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ABSTRACT

The city of tourism involves a redefinition of the urban edge concerning the landscape theme. The temporality of living in prestigious contexts but without constructing a solid context, both morphologically and socially, involves the creation of dormitory habitats and urban voids. The evolution of the world of tourism, the market's needs and demands determine the disuse of some structures that are not always replaceable, also in the face of the necessary landscape conservation. The Italian Adriatic coast represents a very particular type of fringe, where the transience and uncertainty of the fabric are linked to seasonal usage times and important historical stratifications. The transition, for example, from codified tourism, such as summer camps, to more organic tourism, such as open-air tourism, involves the simultaneous presence of largely disused buildings and expanding accommodation facilities. Furthermore, the continuous presence of the infrastructure, which accompanies the linear development of the coast, generates an urban system whose quality is always in balance. The context of open-air accommodation facilities constitutes an excellent compromise between possible good design practices and land occupation to preserve and enhance the existing context. The article proposes a targeted analysis of the cited context and the identification of some situations of comparison, highlighting the value of open-air accommodation facilities intended as bubbles for preserving a landscape that the impact of tourism mass should also suppress.

Keywords: Transition, Outdoor tourism, Landscape preservation

Evaluation of Urban Typologies and Land Affordability surrounding core city in Kolkata Urban Agglomeration

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ABSTRACT

Cultural awareness and inclusive city design increase urban health and well-being. Urban forms at the macroscale are dense, diverse, and multidimensional. Hence mesoscale urban planning studies have gained less attention, especially in India. Despite significant social, built, and physical inequalities, India's economy is the fifth largest globally. India has several cultures. Hence, per-capita income varies widely throughout. The urban typologies of three significant municipalities on the southern periphery of the Kolkata Urban Agglomeration were examined in this study (KUA). Thakurpukur-Maheshtala and Rajpur Sonarpur are near the centre city, whereas Budge Budge is an industrial suburb south of the inner city along the Hooghly River. Visual analysis and a reconnaissance survey of five urban typologies in the research regions compared them. The major typologies identified include ancient preliminary settlements near an old water body, slums along suburban railway networks and older industries, industrial zones along the river or on agricultural lands of urban fringes, and housing complexes in the outer peripheries or peri-urban areas of emerging urban centres to facilitate urban growth and expansion. Each urban typology affects built and unbuilt space. According to the findings, the population's economic traits are different and varied compared to the core city's. So, the study examined KUA's urban typologies and socioeconomic structures as they moved away from the core city. Furthermore, the research provides policymakers, engineers, urban designers, and planners valuable insights for sustainable urban management policies, techniques, and initiatives in regions around KUA's core city.

Keywords: Land prices, Socioeconomic segregation, Urban typologies, Urbanization

A Review of Historic Urban Landscape Enhancement in China after 1920s: From "Open Museum" to "Social Infrastructure"

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ABSTRACT

In recent years, projects the studies of the concept of historic urban landscape and conservation practices have been in full swing. It is clear that social and historical influences play the key role on territorial form. A large number of studies have been conducted in both urban morphology and landscape design. In China, due to the long history of landscape understanding and the introduction of modern planning disciplines from western countries, design projects in multiscale shed lights on the consciousness of historic landscape conservation in the 1960s. These practices can be summarized as two main themes: preservation planning and urban design (mainly involving parks, gardens or squares). Through the "landscaping" process of typical heritage sites and their contexts at different time periods, this paper illustrates how these built environments identified as historic landscapes, have evolved at the practical level from single architectural display under macro urban planning to a systematic and integrated urban infrastructure during the last 60 years. In particular, 3 projects (Beijing Central Park, Fangta Garden and Jinling Dabao'en Temple Ruins Park) presented the enhancement of urban parks and tourist areas are selected as the case studies which identify the key intuitive social and spatial linkages established between built heritage and urban form.

Keywords: Historic landscape, Built heritage, Urban design, Conservation, Urban form

Assessment and evaluation of the sunlight quality of urban forms related to their morphological characteristics

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ABSTRACT

As urban forms are shaped by various factors including socio-economic and climatic ones, their quality in turn affects people's living and social activities. The accessibility to direct sunlight is one important quality of urban forms, for both buildings and urban places. Since sunlight quality is determined by morphological characteristics such as orientation, building height and spacing, sunlight standards controlling these factors were legislated in various countries, and resultantly reflected in morphological characteristics of urban fabrics. In China, while residential constructions are controlled by strict sunlight codes ensuring minimum sunlight hours, no code for sunlight quality is in other areas of construction, leaving the actual sunlight quality of urban forms in question. Therefore, a comprehensive evaluation, which includes sunlight quality in both buildings and urban places, is needed for understanding the current and improving in the future. Taking the case of Nanjing, this study adopts five mesoscale samples of urban forms, including residential and public areas. Sunlight access data are extracted from all buildings and public activity spaces in the sampled areas, and evaluated through data comparison and analysis. The evaluation results show the average difference of sunlight hours between the residential and non-residential buildings under the control of sunlight codes, as well as the actual sunlight quality in places of public activity without sunlight control. Results of this assessment will help optimise the overall quality of our urban buildings and spaces, and will of course inform changes in urban form.

Keywords: urban form, environmental quality, sunlight quality, morphological characteristics

Women's safety and urban form: a perspective from Kochi (India)

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ABSTRACT

The world is urbanising fast. Official estimates report that around 70% of the global population will live in cities by 2060. While this phenomenon is assumed to be beneficial, social inequality and safety issues are on the rise. Among the latter, women's safety in the urban environment is a topic of particular concern due to rising numbers of assaults. However, systematic investigations of the relationship between women's safety in cities and urban form lack. In this paper, we explore such relationship in Kochi (India) by correlating 24 urban types (UTs), i.e. distinctive patterns of urban form, obtained from previous work, with four indexes of women's safety (i.e. presence of people in streets, feeling of safety, visibility, gender diversity), extracted from an open dataset by Safetipin, a social organisation focusing on gender issues in the urban space. Four UTs out of 24 are consistently correlated with the set of four indexes. Three of such UTs are inversely correlated: two UTs present sparse, relatively low density, urban fabrics with very small or very large buildings; one UT shows a very fine grained, however relatively sparse fabric with very small buildings. Conversely, one UT shows positive correlations with safety. It is characterised by a compact, fine grained urban fabric and relatively small buildings. The paper ends with a discussion on what the outputs of this work might signify in terms of prescription vs description of specific forms for tackling issues related to women's safety in streets.

Keywords: safety, morphometrics, classification, correlation

Evaluation of urban parks' layout based on big data and crowd behaviour simulation

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ABSTRACT

A reasonable layout of urban parks should appeal to neighboring residents and thus improve the use efficiency of parks. However, the most commonly used evaluation indicators of parks (e.g. green coverage, green area per capita) have difficulty showing how effective their layout is or guide the planning. Therefore, the paper takes residents' use of urban parks as an important criterion of parks' layout. Residents, parks, road networks, and other urban elements have intertwined and formed a dynamic and complex urban environmental system which the study of urban parks requires a clear understanding of. To propose a new evaluation model of urban park layout, the paper first analyzes relevant factors including area, accessibility distance, residents' distribution, and park attractiveness. It then introduces the urban complexity theory, uses core algorithms such as multi-agent system and power-law distribution to link the data and model parameters together, and completes the construction of the model. Finally, the case study of the old city of Nanjing, China validates the model. The simulation result shows that: 1) the model can make an effective evaluation of the layout of urban parks; 2) compared with the number or area of parks, use efficiency is a better indicator for evaluating urban parks; 3) the distribution of residents of a city significantly influences the layout of urban parks; 4) one has to consider multiple factors to determine a park's characteristics which greatly affect its use efficiency.

Keywords: urban parks, use efficiency, multi-agent system, power-law distribution, big data

Modernism versus walkability. The case study of two post socialist housing estates in Lodz, Poland

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ABSTRACT

In post-socialist cities of Eastern Europe, modernist housing estates accommodate a large share of the urban population. This is the case in Poland, where the development of prefabricated concrete modules of large scale led to the construction of new housing districts on the outskirts of all the major cities. The pick phase of this process took place in the 80-ties of the last century. In the current paper, we look at two such estates - Widzew and Retkinia, located in Lodz, Poland.

The analysis focuses on the environmental aspects of walkability as one of the key features of livable and sustainable neighborhoods. The variables which are commonly considered key for walkability are densities, supply of public transport, and mixed-use development. Normative frameworks that address this topic include density, diversity, design, and destination accessibility. Other authors stress aesthetics, safety, and comfort.

Following the Athens Charter, modernist estates feature different circulation organizations than traditional neighborhoods. Typically, formal walking paths became separated from other transportation modes. In the current paper, we aim to examine the relationships between the initial assumptions, formal design, and the functioning of these places. We trace the actual pedestrian paths and compare them with the results of configurational and composition analyses. These are complemented by the typo-morphological and density analyses of distributions of destinations - both activities and public transportation nodes. We look for congruence in analyzed layouts. The goal is to define recommendations for the redevelopment of the estates and improve their functioning and sustainability.

Keywords: Modernism, walkability, liveability

The 2022 urban regeneration plan of Wuhan Hankou (China). Some notes towards an urban design based on transitional morphologies

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ABSTRACT

Urban regeneration processes involving contemporary Chinese cities can today work adopting the paradigm of transitional urban morphologies: studying the forms of urban spaces and places in their dynamics and their evolution can support decision making and urban design practices.

The aim of the paper is describing the plan for the urban regeneration of Hankou (the old concessions' area of Wuhan in Hubei Province), developed by the local authorities in 2022 with the main goal of making Hankou historical area a business card for post-epidemic revitalization.

If the fundamental problem of Hankou is the fragmentation and inefficient utilization of historic urban space along the Yangzi River, mapping and discovering the different phases of urban settlement development in time (from the old Chinese core to the European and Russian/Japanese concessions) can allow urban designers in texting an innovative approach to analyze the form of the city while deciding new assets, orders, configurations. Based on a solid retrospective point of view, grounded on the knowledge of old maps and on an academic experiment established between China and Italy, the paper will describe a possible horizon for the interpretation of traditional themes of urban design.

Keywords: transitional morphologies, contemporary urban settlements, Chinese city

Walkability in self-organized deregulated settlements: Potential, contradictions, empirical evidence in two Mediterranean cities

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ABSTRACT

Self-organised peripheral settlements result from informal deregulated urban expansion, where inhabitants self-build neighbourhoods to meet their needs outside of top-down urban planning prescriptions. As the self-organised system is generated bottom-up and piecemeal, it could reflect the human scale, with a high presence of widespread retail activities and services for pedestrians, both favouring walkability. However, due to the scarce provision of public space, developers' land greed, and unconnected street networks, the conflict between cars and pedestrians increases at the expense of walkability. Therefore, the paper focuses on the description of self-organised settlements in terms of walkability, the key factor for their liveability, social interaction, and inhabitants' satisfaction. The research counts on two case studies from Rome (Italy) and Jerusalem (Palestine) to confront theory with empirical evidence. It uses configurational analysis of the street network to assess permeability, integration, and connectivity. It also considers streets and public spaces as experienced by pedestrians and cars. Finally, it categorises interfaces between built-up plots and public space, calculating their accessibility within the pedestrian shed, and identifying their human usage. Consequently, the paper proposes new understandings of the self-organised deregulated settlements and identifies the walkability potentials and contradictions for better low-cost development. Preliminary results show the unexpected potential of walkability in deregulated settlements of Rome and Jerusalem, and the diverse outcomes of autonomous responses of urban dwellers in shaping their interfaces with the public realm. Differences also arise when popular self-built urbanisation is replaced by plot-by-plot market-driven deregulated urbanisation.

Keywords: Self-Organized Settlements, Walkability, Street Network, Private-Public Interfaces

Quantitative indicators of urban spatial morphological characteristics related to ventilation performance

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ABSTRACT

The evidence for the impact of urban spatial form on the urban wind environment has been conclusive. The spatial morphological indicator has been attempted to assess urban ventilation performance by environmental scholars. While the frontal area density (FAD), height-to-width ratio (H/W), and the sky view factor (SVF) are proved to be three important morphological indicators closely related to ventilation performance, which characterize different urban ventilation performances respectively. From the perspective of urban morphology, these three indicators respond to each of the three different factors in the spatial characteristics of urban morphology respectively. But whether those indicators can express the urban spatial characteristics needs to be verified. This study attempts to investigate the coincidence between these three indicators and urban spatial morphological characteristics from the perspective of urban morphology. First, based on the research of the simplified urban form model, this study sorts out the different calculation methods of these three indicators. A more reasonable calculation method for each indicator is determined by a comparative study. Then, two representative areas of urban morphology are selected as study cases, which are the urban center area and the urban residential area in Nanjing. The three indicators are calculated separately in these two cases on the grasshopper. The degree of agreement between the three indicators and the spatial characteristics of urban morphology is verified separately. Thus, the more reasonable algorithms and adaptive spatial form objects of these three indicators are proposed in this study.

Keywords: urban form, urban space, urban spatial form, morphological indicators, calculation optimization

Integrated urban morphological method as input for artificial morphogenesis

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ABSTRACT

The contemporary urban design methods are prescriptive and normative, with little or no emphasis on the urban development of the past. In contrast, a new method established by Bereczki and Lovra – the artificial morphogenesis – is a two-step method: after understanding the underlying generative processes of cities, they become reproducible using generative algorithms. The first step of the method is the description of an existing urban fabric to provide input for the algorithms of the second step. The aim of the study is to present the first step of the method: how existing urban tissues can be analysed and described to be able to use the results as input for the artificial morphogenesis. During the analysis the working area is distilled to its base fabric, considering the most important forming elements: street networks, plot series, green spaces, and so on. Based on those and on their relationship the main dominant urban tissue types are identified; then described, defined, and quantified on diagrams and numeric definitions. Using the artificial morphogenesis method, infinite variability can be achieved with a limited number of elements, similarly to the morphology of the organic cities.

Keywords: artificial morphogenesis, integrated urban morphology method, procedural design

Settlement patten and living culture: an across scale morphological analysis of traditional villages in Guangdong Province, China

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ABSTRACT

Traditional village is a complex system that shows the entire process of social-cultural development in a region. Understanding the spatial characteristics of the settlement pattern of traditional villages contributes to explore the underlaying mechanism of space creation and the dynamic interaction between space and society. It is also beneficial to summarize the adaptive strategies for rural renewal.

Guangdong Province, located in the south-eastern coastal region of China, is one of the core developed areas in China. The traditional villages in Guangdong province face the dual problems of preservation and development in the rapid process of urbanization. The whole Guangdong province can be divided into four major cultural areas: Guangfu (□□), Hakka □□□□, Leizhou □□□□ and Chaoshan □□□□. Due to different living customs and social culture, the settlement pattern of the traditional village in the four areas are different.

This study takes the national-level traditional villages in Guangdong province as the research object. A cross scale analytical framework is processed to map geographical structure, settlement pattern, and building fabric of the traditional villages in the four cultural areas respectively. Their form and formation are discussed with the maps. The research shows the spatial characteristics of the traditional settlement in Guangdong province, and reveals the dependence and interrelation between space and living culture.

Keywords: Settlement pattern; living culture; cross scale; mapping; Guangdong province

The complexities of urban landscape evolution: from academic cognition to planning practice

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ABSTRACT

Urban landscape evolution is influenced by natural situation and social, economic and cultural factors synthetically, which have manifested themselves differently in periods. These factors are summarized by M.R.G. Conzen as two formative modes of landscape evolution which is endogenous formative forces and extraneous formative forces. From the perspective of urban system, the higher the hierarchy and complexity of urban functions, the more complex the formative mode of urban landscape evolution tends to be, involving the interrelationship of different spatial hierarchy. Urban morphology provides the theoretical concepts and methodologies for the cognition of the evolutionary mechanisms, but there are difficulties in analysis and judgement when faced with complex factors. As a result, the planning practices are also complex for that use urban landscape as objects of regulation. Correspondingly, for settlements with a lower functional hierarchy, a change in one factor can often bring about significant changes to the landscape, and therefore a morphological analysis of these settlements can provide a clearer picture of the factors influencing urban landscape evolution.

Accordingly, the article adopts Conzenian approach to conduct case studies of these settlements with a simple spatial hierarchy and low functional complexity, rethinking the cognitive process of urban landscape evolution in academic and demonstrating the complexity of planning practice in urban landscape management. The case sites include a traditional village under the tourism industry and small towns with special locations or functions, whose morphological processes under significant stages of landscape evolution are interpreted.

Keywords: urban landscape, formative force, planning practice

Urban and Rural Spatial Evolution under Game Theory: A Case Study of Urban Villages in Guangzhou, China

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ABSTRACT

Socialist China has experienced the transformation from a planned system to a market economy, and South China is at the forefront of this modernization process. In the process of urban expansion and industrialization, how the original rural settlement form evolves and produces adaptive changes is of great significance to the understanding of China's urban-rural relationship and the protection of urban and rural heritage.

This study takes more than 100 villages in Guangzhou, the central city of South China as the research objects, reveals the diachronic change process of the original rural morphology in the suburbs of Guangzhou, analyzes the social driving factors behind, and thus explores the characteristics and laws of the evolution of rural morphology in South China in the process of urbanization.

Using the methods of literature research, archives research, map and image analysis, field research and interview, It is concluded that the dynamic of the form change of urban fringe villages in South China is the change of production and living organization form caused by the difference of urbanization level, which is essentially a process of game and interaction between urban and rural areas, and has the characteristics of gradualness, complexity, and diffusion from the center to the edge.

It shows that China's "city" and "township" are not two independent spatial evolution logics, and the two interact and infiltrate each other. The village in the city is the test field for China's transformation from agricultural civilization to industrial civilization.

Keywords: Urbanization; Guangzhou; Villages in cities; Morphological changes; Urban-rural relations

Evolution Study of Ancient City Form from the Perspective of Industrial Structure Development: A case study of Changsha Ancient City in China

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ABSTRACT

The ancient city has an overlapping space formed by urban development in different historical periods. Changsha is the only city in Chinese history whose location has remained unchanged for three thousand years. This study considers Changsha Ancient City to discuss the relationship between industrial structure and urban form. This study combines the industrial development research model with the history of urban construction. It identifies the spatial forms and dynamic characteristics of different historical stages by reviewing ancient Changsha's industrial agglomeration and evolution process. This study reviews the evolution of the industry and urban structure of Changsha Ancient City and divides it into four stages: germination, development, prosperity, and transformation. We obtain the spatial form types and characteristics of different stages by analyzing natural environment and urban pattern, road network, architectural form, employment center attraction, and radiation range. Moreover, we will verify the influence of industrial change and urban form. The result indicates that the industrial structure plays an essential role for promoting the evolution of urban spatial form via production factors. The spatial evolution of the Changsha Ancient City to the industrial structure shows a U-shaped evolution pattern, with an inadequate response in the germination and transformation stages and a highly correlated response in the development and prosperity stages. The research shows that the development of an historical place like Changsha can be sustainable by coordinating the structure of industries and guiding the evolution of the urban form.

Keywords: industrial structure, urban form, Changsha Ancient City

The Morphogenesis of the Dutch Landscape: The Narrative of Dutch Cities' Spatial Growth

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ABSTRACT

Although the initial inception, or genesis, of a city's urban grid is an important marker of its evolution over time, the process of urban transformation, or morphogenesis, can substantially alter its original townscape. This study sheds light on the morphogenetic impacts of pre-industrialisation, industrialisation, and post-industrialisation processes, as systematisation of urban planning decisions, on shaping the spatial configuration of three Dutch cities, Amsterdam, the Hague, and Delft and their region, the Randstad Region. While some cities have undergone processes of expansion as physical growth of different grid types, others followed the historical patterns of genesis. This study aims to analyse the spatial mechanisms and morphological logics that lay out the growth of Dutch cities to create an adaptive approach for evolving in harmony with water. Therefore, the study: i) analyses the Dutch urban planning paradigms and strategies through various time periods; ii) proposes a new spatio-temporal description of these cities and their infrastructure, including streets, railways and water networks; and iii) analyses the patterns of their growth over time. Space syntax methods and tools are applied to critically understand urban morphologies, as it provides quantitative diachronic analysis on multiple scales. The study shows how the relationship with water can constitute a path dependency for urban growth, highlighting the role of water in urban planning. Those different types of grid structures, such as accumulative, discontinuous, infinitive, cellular and overlay etc., produce different spatial growth mechanisms as a powerful instrument in controlling and defining the functions of a region dominated by water.

Keywords: space syntax, spatio-configurational analysis, Dutch city, urban morphology

Morphological cognition and renewal planning decision of traditional settlements from the perspective of spatial configuration

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ABSTRACT

China ‘s urban renewal has entered a new era of small-scale gradualness. The renewal of residential communities in traditional historical areas is representative because it is influenced by residents ‘ willingness, commercial development, protection and utilization of historical resources. However, the organizational relationship of streets, plots and buildings in traditional residential areas presents an extremely complex state because of the long-term morphological accumulation (Song et al., 2022). It brings cognitive obstacles to the decision of renewal planning and design. Firstly, the three measures of continuity, connectivity and depth in the Route Structure (Marshall, 2014, Ge and Han, 2020) are used to describe the relationship between streets. Secondly, the relationship between the plot and the street is described by four types of Interlocking structure, Basic structure, End structure and Embeddedness structure (Song et al., 2021), and the final classification of the plot level is obtained by comprehensive classification with the street level. Finally, this method is applied to the renewal practice project of Nanjing Hehuatang historic district. From the perspective of spatial configuration, the upper planning, business system, community system and historical resources system are studied and judged, and implementation suggestions are provided. The research results will prove that combined application of spatial configuration methods is effective for revealing the topological relationship between various types of morphological elements in built environment, and has the potential to provide reference and guidance for renewal planning and design.

Keywords: China, urban renewal, traditional settlement, spatial configuration, complexity

The multi-layered correlation between architectural fabric and urban landscape-A case study of DIAOYUTAI historic area in Nanjing, China

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ABSTRACT

Chinese historic buildings are often of timber structure, which are much younger than the historic cities they are located in. Therefore, the conservation of the city's history cannot focus only on historic buildings, but also on the relationship between architectural fabric and urban landscape on different layers. In the urban design research of DIAOYUTAI historic area: Firstly, the historical evidence of architectural fabric and urban landscape are collected through literature review and field investigation, in the absence of sufficient cartographical sources. Secondly, the relationship between architectural fabric and layered urban landscape (such as rivers, walls, streets, plots, etc.) is analysed to cognize the "Architectural Fabric Type". Finally, according to the "Architectural Fabric Type", recommendations in terms of building texture and form are proposed as part of the urban design guidelines. This study confirms the multi-layered correlation between architectural fabric and urban landscape, which can be directly applied to urban design practice through the concept of "Architectural Fabric Type".

Keywords: multi-layered correlation, architectural fabric, urban landscape, historic building, historic area

The Porticoes of Bologna: unfolding parthood relations in urban fabric

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ABSTRACT

The Porticoes of Bologna amount to a network of more than 60 km of covered pathways, blurring the demarcation of public-private and open-built space shaping images of urban form. Their nomination as UNESCO World Heritage challenged the Municipality of Bologna to establish the definition of their value, and the demarcation of the property to be inscribed. These challenges point to the question of how to conceptualize the relation between parts and wholes in urban form, to acknowledge the systemic complexity of urban fabrics as dynamic wholes, evolving by emergence and unfolding. This inquiry aims to substantiate a non-dualistic approach to the debate on preservation and transformation, by strengthening the explanatory potential of systemic conceptions of the built environment within scholarship on urban complexity. The inquiry problematizes the observations gathered by direct participation of the researcher within Municipal reporting and outreach activities, within an exercise of conceptual modelling based on formal ontology. The study engages with this discipline from the field of information engineering as a method to formulate a taxonomy generalizable to comparable morphotypes. The exercise, currently in progress, looks at the dual condition of parthood characterizing the porticoes in municipal reporting at different scales: the portico as part of the building-parcel-block triad, and the portico as part of an urban network of pathways. Defining the ontological parthood of porticoes in the city's form suggests how their demarcation as self-contained objects may overlook their actual significance for the qualities of the urban fabric as a whole.

Keywords: portico, urban complexity, formal ontology, parthood.

An operational and conceptual model of evidence-based design and planning (EBDP). Reviewing the state of the art, emerging concepts, capacity gaps and future potential of EBDP.

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ABSTRACT

Addressing complex urban challenges requires different kinds of analytical approaches supported by multidisciplinary expertise. Evidence-based approaches aim at assisting planning and design with rigorous analytical methods to reduce the risk of failure, providing a process and a toolset for basing decisions on sound knowledge and understanding of the impact of design and planning to ensure that urban challenges are addressed effectively and sustainably. Evidence-based design (EBD) was brought to the fore by a seminal study by Roger Ulrich as a tool to improve the performance of design solutions. It is defined by the Centre for Health Design as 'the process of basing decisions about the built environment on credible research to achieve the best possible outcomes'. Therefore, it can be extended to urban design and planning as a practice of formulating solutions through researched and documented knowledge. EBD research models do exist but are so far only focused on architectural interventions, despite the growing demand for evidence-based urban practices.

This paper brings together various strands of EBD theory and practice through a literature review, a reflection on the state-of-the-art of EBD, an assessment of the capacity gaps and future potential of EBD, and an exploration of emerging concepts in the field, which can serve as the basis to create new methodological tools to achieve maximum interdisciplinary interaction among different morphological and spatial planning approaches. The paper concludes with a proposed conceptual and operational model, applicable to both design and planning, embedding urban morphology as the key component of evidence-based practice.

Keywords: evidence-based design, planning and design theory, spatial planning, conceptual models

Analysis and Planning in Prague: Analysing the City to Serve and Evaluate Urban and Strategic Planning

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ABSTRACT

The claim that a thorough analysis and knowledge of a city is an indispensable first step in any urban or strategic plan preparation seems to be finally widely accepted in practice. Is it truly a synergic part of the process or just a checkbox-style formality? In the Czech legislature, the relationship between urban planning documents and urban planning materials is hierarchical. However, strategic planning is established a lot more vaguely. This paper introduces how the city of Prague is analysed and described and how that connects to the prescriptive documents, such as the current land use plan or the strategic plan. Two primary relationships are found: analysis as a base for decision-making and analysis as a tool to evaluate the decisions made. Prague Institute of Planning and Development, a municipal organisation tasked with urban planning and analysis for the city, prepares Prague Planning Analytical Materials, which include a periodically updated database of data and analysis of the city, as well as the evaluation of the planning documents. The institute strives not only to conduct advanced analysis using methods of urban morphology but also to find new and innovative ways to disseminate the results to the users through the development of an online data and analysis portal, practical workshops, brochures or videos. The case of Prague shows that the more intertwined the analysis and planning are and the better the knowledge of the city is communicated, the higher the potential is for an indeed evidence- and knowledge-based planning.

Keywords: urban analysis, urban planning, evaluation, description, communication of results

Morphology-led practices in Europe: from typo-morphological plans to code-based designs

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ABSTRACT

The paper investigates the influence of urban morphology theories in urban planning and urban design practices in Europe. Specifically, it explores the degree of application of morphology-led techniques deriving from two school of thoughts, the process-typological school, and the historic-geographical school, and their applied theories in the description and prescription of urban forms in Italy, France, and the UK.

The work aims at analyzing the rise of practices including typology-based planning, morphological zoning, and code-based designing, contextualizing them in the experimental shift, from land-use based practices to morphology-based ones, started in the 1980s and brought on in the current decade. To do so, the analysis looks at the documental outputs (policies, plans, projects) of such techniques, their objects of transformation, and the use of typo-morphological categories through the planning process; all aiming to evaluate the flexibility that such approaches can provide, a major character of useful city plans as agreed by many theorists, and the ability of urban morphology to produce delivery mechanisms for the sustainable city.

As a topic faced in the late 1990s and the mid 2000s ISUF contexts, this study aims at enriching the comprehension of morphology-led techniques to urban prescriptions, reasoning on past and recent experiences, to evaluate the circulation of ideas and practices in Europe, and to observe the level of support that urban morphology has been able to provide to plans and projects development.

Keywords: morphology-led planning, code-based design, typo-morphological planning, urban planning practice

Urban morphology on the Southern African periphery

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ABSTRACT

Urban form in African cities is dynamic, unpredictable and in constant flux. Urban morphology remains mostly undocumented in Southern Africa as an emerging region. Current processes of informal land occupation, changing suburbia and incremental settlement transformation patterns present fragile, yet interesting morphological characteristics that are worthy of interpretation. How are we understanding, representing, and anticipating changing southern urban form and what is the value-add of understanding urban morphology in Southern Africa? In the absence of any formalised network of ISUF in Southern Africa, there is the potential to make a meaningful contribution to urban morphology and its associated processes and agents. Three case study perspectives from practice, research and teaching are explained to understand urban form in Cape Town, as follows: 1). community-led data collection on urban form and social practice based on evidence from experiences; 2). area-based partnerships based on examples from informal settlement upgrading; and 3). deliberate and engaged teaching and learning currently taking place in the urban design programme at the University of Cape Town. Urban morphological approaches in the global south must be multi-scalar, relevant, valuable, and most importantly, affordable. This requires stripping out of irrelevant principles and techniques and focusing on low-cost, low maintenance and sustainable labour-intensive ways of understanding the changing city. The future development of African cities needs to take a significant stand on the role of socio-economic realities, political action, local agency, and their relationships with urban form.

Keywords: urban transformation, Southern Africa, emerging network

Urban Form Diagnostics in the Context of Informal Settlements in Maputo, Mozambique: Describing Deficiencies and Prescribing Interventions

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ABSTRACT

Although informal settlements provide access to affordable housing for a considerable part of the urban population in sub-Saharan Africa, unregulated urban development can lead to undesirable characteristics, such as inadequate access conditions, haphazard densification, and inadequate infrastructure. On this background, description of such urban deficiencies as well as prescription of appropriate interventions have been the subject of scholarly discussions. In line with these works, we analyse the urban morphology of 10 randomly selected peri-urban informal settlements in Dar es Salaam, Tanzania, to identify urban deficiencies and discuss appropriate modes of intervention. The study relies on surveys conducted with drones to create high-resolution orthophotos and 3D models. These were manually delineated to label key features of the urban environment and compute quantitative indicators of urban form used to identify urban deficiencies. In addition, the analysis is supported by qualitative assessments based on visual inspection of the maps along with field observations documented with photographs. The study found certain types of urban form deficiencies, such as inadequate access conditions, limited public space, and haphazard densification, were most prevalent in centrally located dense settlements, whereas more peripheral settlements were characterized by other types of deficiencies not directly linked to urban form such as inadequate infrastructure. On the basis of the findings, we discuss appropriate modes of intervention, such as street expansions, structural readjustment, and investments in infrastructure. Finally, we discuss the potential of urban morphology analysis to describe urban deficiencies and prescribe interventions in informal settlements.

Keywords: informal settlements, Dar es Salaam, unregulated urban development, interventions

Research on the relationship between urban morphology and land use function in urban center based on knowledge graph and digital quantitative model: A case study of Nanjing, China

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ABSTRACT

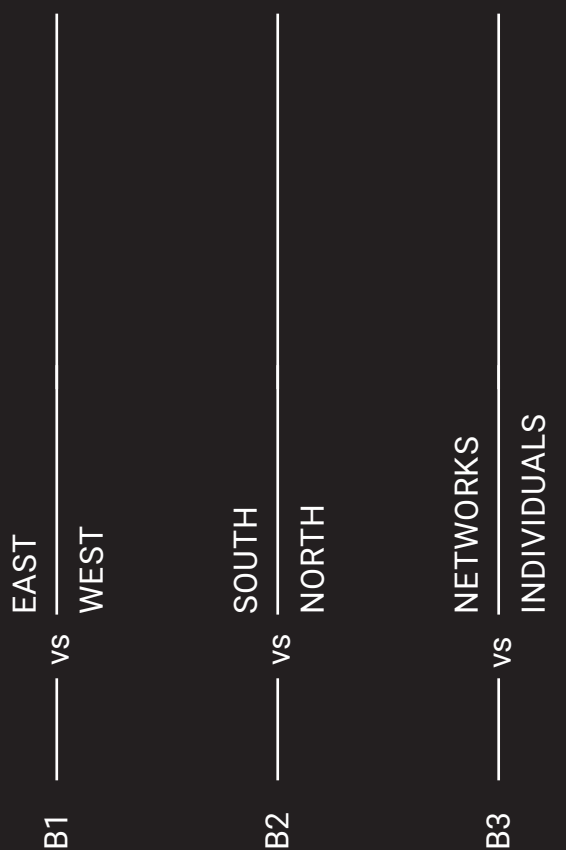
As the core of urban development, the morphology of urban central zone is affected by many factors, among which the land use function plays an important control role as the basic part of urban planning. However, in the process of rapid urban development, there has been a mismatch between urban morphology and land use function, resulting in urban function imbalance and morphology fracture. Relevant studies have ignored the relevance of morphology elements, and it is difficult to distinguish urban morphology types with similar indicators but different internal mechanisms. So how to quantify the morphology type of urban central zone with high precision? What is the spatial correlation between urban morphology and land use function? This paper takes Nanjing, a megacity in China, as an example, and uses the knowledge atlas related technology to build an association network model of urban morphology based on the data of 2023. Then the typical morphological types are extracted by clustering algorithm, and the correlation between them and land use function is analyzed by Pearson analysis method. The study found that the morphology type of the central area is significantly related to residential and commercial land. In addition, the overall correlation shows the spatial characteristics of gradually decreasing from the inner to outer layers of the core structure in the central region, and there are also some fracture areas with extremely low matching degree. On this basis, this paper screens the blocks with low matching degree and puts forward corresponding urban morphology optimization strategies.

Keywords: urban morphology, land use function, urban center, correlation, knowledge graph

TRACK B.

CULTURE SPACE, COMMON SPACE AND PERSONALITIES

Different spatial levels of manifestation and interpretation of cultural identity from the level of neighbourhood to the region, as well as individual contributions in their understanding through urban morphology



A Comparison of Consumer Services Clusters Between West and East International Consumer Centers: London vs Beijing

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ABSTRACT

Clusters of consumer services, including retail, catering & accommodation, arts & recreation, etc., are an important type of urban common space. By serving local and global residents, workers and tourists, they shape the identity, culture, and lifestyle of a city. While western metropolises like London and New York have already developed into international consumer centers, China's main mega-cities are cultivating diversified and characteristic consumer service clusters. This study aims to explore the differences and similarities between the consumer service clusters in China and western cities in terms of spatial distribution and cluster characteristics, as well as the industrial and spatial mechanisms behind this. Taking inner London and Beijing as the object of comparison, this study first acquired the POI data in the two cities according to the classification of consumer services, then identified consumer service clusters with DBSCAN, and finally analyzed their spatial distribution and industry characteristics to find the clustering mechanism. The main findings are as follows: 1) Compared with Beijing, clusters in London are more concentrated in the core area. 2) Most clusters in London take a linear or polygon shape with lower intensity while Beijing's consumer services aggregate into blobs with higher intensity. 3) The clusters' type in London are more diverse and feature arts & recreation while most clusters in Beijing are retail and catering oriented. These differences mainly result from different sizes of urban blocks, levels of creative industry development, and granularity of consumer services guidance.

Keywords: consumer services clusters, international consumer center, spatial distribution, cluster characteristics

Political and administrative conditions of suburbanization processes in the largest Polish cities in the long-term perspective

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ABSTRACT

The development of suburbanization processes around the largest cities in Poland since the mid-19th century was subject to changing political and administrative conditions. It was influenced both, by the different political affiliation during the studied time scope, as well as by changes in the ideological, administrative, planning, and economic regime. The main purpose of the presentation is to identify the political and administrative factors that conditioned the development of suburbanization in Polish largest cities over a long time horizon. The research is based mostly on morphological study of archival cartographic material, literature, and source material analysis of the largest Polish urban agglomerations: Warszawa, Kraków, Wrocław, Łódź, Poznań, Gdańsk, Szczecin, and Katowice. The research has confirmed the great spatial and time variability of factors affecting the described suburbanization processes which made it possible to create a classification of the determinants and directions of spatial and functional change in the agglomerations under study. The political and economic transitions, first after the WWII and then after the 1989, triggered conditions, dynamics, and directions of suburbanization processes. The scale of spatial and functional transformation in suburban zones nowadays raises a number of questions about the costs of maintaining the development and keeping the urban infrastructure, the costs of spatial chaos and the social costs. Due to the authors, the identification of past determinants and directions of the suburbanization process of can significantly help to develop effective planning policies for the sustainable future.

Keywords: suburbanization, political and administrative conditions, urban morphology, Poland

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Using building footprint as a substitute for the plot in Conzenian town-plan analysis: the case of post-socialist Tirana

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ABSTRACT

Conzenian town plan analysis proposes a morphological understanding of the urban built environment on the basis of the evolution of its physical form. Town plan analysis consists of three fundamental elements: streets, plots and buildings. The singular urban plot, regardless of size or shape, represents the smallest, indivisible unit of decision-making and serves as the fundamental unit of analysis in the morphogenetic study of urban change in the Conzenian tradition. Yet in some parts of the world the plot barely exists as a morphological entity and therefore has limited relevance as a unit of town plan analysis. The consequence is that Conzenian methods of representing urban morphology cannot be readily applied in these cases. An example of this is in Albania where the post-socialist era has witnessed ongoing disputes over land organisation and distribution, including ownership right and boundaries, that highlight the relative absence of the plot as a legal, as well as a morphological, entity. In the light of this situation this paper offers an alternative mode of urban-morphological analysis at the smallest scale of study. Morphological Evolution Analysis (MEA) was developed in response to the particular problems encountered in representing urban-morphological structure in Albania, a task that necessitated the use of building footprints rather than plot boundaries. This method of visualisation has been applied to a longitudinal study of Tirana's post-socialist urban growth in a detailed analysis of micro-morphogenetic changes from 1989 to 2016. This paper presents an account of Tirana's transformation through successive phases from the socialist to the post-socialist eras, with a focus changes in building morphology. It concludes by suggesting how the rationale for MEA used in the Tirana case may have wider relevance to all built environments where classic plot-based town plan analysis is not a possibility.

Keywords: post-socialist urban morphology, Tirana, Albania, building footprints

Theoretical and practical perspectives on cultural heritage interpretation: Insights to the historic urban form of Antakya

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ABSTRACT

Cultural heritage interpretation is a lyric expression in theory and is a language in practice. Heritage interpretation has various dialogues between various aspects of the urban form. Understanding and appreciating the urban form is a crucial important to create and define the heritage interpretation strategies of historic urban forms. Therefore, urban morphology studies have important role for interpreting the physical and non-physical aspects of urban forms. For this purpose, this research focuses primarily on the theoretical and practical contents of the interpretation of cultural heritage sites. In the light of theoretical and practical knowledge, the research then concentrates on an urban morphology research carried on the multi-layered historic urban form of Antakya which deals with identifying holistic heritage interpretation strategies as a cognitive way of understanding the urban form.

Keywords: Urban morphology, Interpretation theory and practice, cognitive research, Antakya

Forming the Modern Ningbo: Public Places and their transformation in Walled City, Jiangbei and Jiangdong areas

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ABSTRACT

The traditional cities in ancient China are distinguished from modern cities in their territorial and administrative integrity, as well as the urban spatial structure. Those cities which have succeeded in retaining their status as regional centres have mostly completed structural remodeling during the modern era. This paper chooses the most critical urban public space as the starting point for observing the remodeling process in Ningbo, and tries to establish an adaptive method for interpreting the spatial form of traditional Chinese cities.

By comparing the historical archives and maps of the three periods of the late Qing Dynasty, the opening of the port, and the establishment of the municipal administration, it is proved that the modern urban form of Ningbo as a 'Y-town' was formed in the process of modernization. In this process, the transformation of public places is the critical factor, which started with the implantation of modern public spaces guided by Western consuls and missionaries, then the scattered construction acts of the local gentry and commerce groups based on the renewal of the traditional public places, and lastly, the comprehensive reconstruction of urban form guided by municipal planning.

This paper does not only find out the spatial types that are the key to changes in each period through analysis, but also clarifies the changing characteristics and functions of each spatial type through further comparative analysis.

Keywords: Chinese city; Ningbo; urban modernization; public places; municipal planning; port

The Secularization and Cultural Understanding of Sacred Space: An Analysis of Historical Urban Form and Culture Characteristics in China

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ABSTRACT

Sacred space is a special type of cultural space and is an important aspect of historical urban form in both Eastern and Western cultures. These spaces often have a dual interpretation of space and social structure, which includes the evolution of town planning and the changes in social structure that convey a steadfast and non-reducible cultural significance. There are interesting differences between the East and West, and this paper aims to reveal these differences.

The paper uses historical towns within the Five Sacred Mountains of China, represented by Dengfeng City, as a case study. These towns are closely linked to the birth and development of Chinese civilization. The paper employs M.R.G. Conzen's urban morphology research method and cultural memory theories to examine the characteristics of cultural dissemination in two dimensions of urban form and social culture throughout different historical periods. The paper also explains the transformation from the supreme political spaces of ancient dynasties to the secularized urban landscape of today's socialist system.

Finally, the paper compares the evolution of sacred space in the East and West, interprets the relationship between urban morphology and cultural value judgement and summarizes the general role of sacred space in shaping urban form and transmitting local cultural identity.

Keywords: Cultural space, sacred space, urban morphology, cultural identity, townscape evolution

Spatial and Cultural Reproduction of Locality in the Context of Globalization: The Case of Sanlitun

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ABSTRACT

Previous studies of urban morphology have focused more on the morphological evolution of physical dimensions, but the spatial connotations radiated by urban morphology indicate and rely on memories. Just as cultural memory theories focus on the subjective construction within a specific social framework, the collective or individual interpretation of space is important for the formation of cultural identity. Therefore, integrating a humanistic perspective in the process of spatial evolution can help us understand the formation of urban cultural landscapes more comprehensively. Given this background, this study uses Sanlitun as a case study, which is unique due to the influence of foreign cultures during its development, specifically the foreign embassy district and the bar street. The collision of various cultures, institutions, and social activities creates a diverse cultural landscape, and the reproduction of international and local cultures. Based on Conzen's urban morphology researching method and cultural memory theories, this study will explore the link between the evolution of the town plan and media or individual memory, and sort out the evolution of Sanlitun's cultural landscape. Finally, by placing the case in the context of socialist policies, systems, and other social contexts, we re-conceptualize the creation of urban culture in the evolution of Sanlitun's cultural landscape.

Keywords: Sanlitun, urban morphology, culture memory, socialism system, cultural landscape

A morphological investigation of marginalization and territorial segregation of brothels: the case of Turkey

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ABSTRACT

In modern cities, the urban fabric is reproduced through standardized and sanitized spatial orders and programmatic distributions under the control of the state through local governments. Marginal areas within the city (i.e. slums, refugee camps, brothels), are seen as deviations manipulating the "legitimate" spatial syntax. Parallelly, brothels, as early forms of marginal urban use, have long been deemed as immoral areas that threaten the city image and provoked moral concerns. In many cities around the globe, they have been systematically subjected to purification strategies to maintain public order. In this context, this study focuses on spatial exclusion and marginalization characteristics through the territorialization processes of the legal brothels in Turkey. In order to reveal the morphological characteristics of brothels, a multi-scalar analysis has been performed. Initially, a general framework was established through examples across the country and the globe have been presented. The locations of active brothels (i.e. centre, inner fringe, and outer periphery) within the cities in Turkey, and their morphological features have been investigated. Subsequently, a focused study has been conducted in the cases of Istanbul, Izmir, and Adana brothels. The sampling areas were examined in terms of location choice processes, spatial structure, spatial syntax, land use pattern, visibility levels, typo-morphological characteristics, and boundary conditions on various levels of scale. Eventually, the commonalities of socio-cultural and political exclusionary discourses and operations that brothels are exposed to are comparatively unveiled in a global context; and the spatial censorship and stigmatization practices towards them are revealed.

Keywords: brothels, marginal space, spatial exclusion, urban morphology

Temporal and spatial patterns of education-driven return emigration and county urbanization: A case study of Shou County, Anhui Province, China

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ABSTRACT

Based on the principle of maximizing the comprehensive benefits of the family, rural families move to developed cities in pursuit of high economic income while providing their children with higher quality education, but facing barriers such as registered residence control, college entrance examination policies, and education fees, which often necessitate a return to their hometowns. Based on surveys of hundreds of local families, this study examines educational-driven return migration behavior and county urbanization patterns in Shou County, China. The study found that nearly 30% of students have experienced education-driven return migration. Despite facing increasing educational restrictions as students progress to higher grades in destination cities, migrant families tend to return during the high school stage to provide their children with more education. Better educational resources become the main driving force for attracting return migrants to urbanization areas. In the context of low-income levels and limited employment support, high-quality educational resources in county urbanization areas are a main draw for return migrants, leading to a phenomenon of family separation urbanization where one parent (often the mother) returns to provide education to their children while the other parent remains working outside the town. Nevertheless, family reunification remains the ultimate goal for returnees, and they plan to emigrate again or return to rural hometowns after their children complete local education. This phenomenon highlights the short-term and unstable characteristic of education-driven return migration and has become a distinctive feature of China's county-level urbanization.

Keywords: Education-driven emigration, county urbanization, family separation urbanization, China

Public Space in Japan and Europe: Searching for Commonalities in Seemingly Incomparable

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ABSTRACT

The theoretical and practical approach to public space in the East differs from that of the West, and many would say it is incomparable. Cultures and phenomenons that developed far away from each other, in different contexts and geographical locations. Can they learn from each other? Can we improve our shared knowledge of public space by comparing them? How are recent trends and situations like globalisation and pandemics changing this clear East vs West demarcation? Taking Japan and Europe as representatives, this paper discusses the established commonalities and differences in public space discourse from spatial, social and political perspectives and challenges existing narratives, including the Nihonjinron Japanese uniqueness discourse. Methods include a review of existing literature and a questionnaire on the meaning of public space with European and Japanese respondents. Some suggest the non-existence of public space in Japan, claiming that the Western understanding of public space as a pivotal aspect of democratic societies and a space accessible to all does not exist in Japan. Instead, there are small, private and intimate places catering to communities rather than entire societies. This paper, however, establishes that when we look at the most basic roots and concepts, it is possible to find numerous shared aspects, especially commonness, accessibility and symbolic meaning. By changing our approach from focusing on uniqueness as an assurance of identity, we can improve our understanding of the contemporary transformation of public space and help cities prepare for the current and future challenges they face.

Keywords: public space, Japan, Europe, nihonjinron, East vs West

Evaluating accessibility to public space by urban morphology in a context of extreme inequality and fragmentation. Case study: Guayaquil, Ecuador

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ABSTRACT

For the last 50 decades, the city of Guayaquil has experienced a bad quality of formal and informal urban growth. The main outcome is a social and spatial fragmented city composed by a mosaic of neighbourhoods and communities that coexist despite the high levels of inequality. Gated communities and slums grow together with extreme differences between their qualities of their habitats and lives. The accessibility to public space is not only an indicator of urban development, it is also a right of the citizens that traditionally has not been considered important by local governments and even by communities. The last global crisis related to the COVID-19 showed the relevance of the relation between public spaces and health. Nowadays, cities of the Global South like Guayaquil need to measure inequality to improve actions to fight against poverty, vulnerability and inequality.

The study evaluates and compare the accessibility to public space in 5 neighbourhoods of inhabitants with different economic incomes and its relation with their urban grain. Formally planned neighbourhoods like gated communities and *ciudadelas* are compared with informally planned slums and *cooperativas* by the study of their urban form and network analysis using GIS technologies. The main outcome is scientific cartography and data that shows the real numbers and consequences of inequality in low-income and vulnerable communities.

Keywords: Accessibility to public space, socio spatial fragmentation, urban forms of inequality.

Whose agency? Multiplying voices in the post-competition design process of a Madrilenian plaza

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ABSTRACT

Urban design competitions are often processes that produce excellent results, but they can also deliver static projects that reward well-established firms whose name is valued beyond the proposal. After winning, who intervenes in the decision-making which determines the final materialization? Is it possible to discuss individual authorship when it comes to urban regeneration interventions? Disrupting conventional notions of agency, this paper aims to unveil the complex network of actors influencing urban design. For this purpose, a project awarded in Europan competition, for architects and urban planners under the age of forty, is taken as a case study. High-quality outcomes are ensured by a scientific committee, multidisciplinary and international. In the chosen case, six deteriorated plazas located in the historic center of Madrid were the object of the call. The implementation process went through a negotiation with both City Council and the association of the Mostenses public market, relying on urban strategies and tactics proposed in the competition phase. Through surveys and consecutive meetings, the real needs of the users were translated into design options. Key anonymous personalities functioned as mutual support between designers and city council technicians. The workers themselves took action, carrying out small suggestions based on the architects' drawings, communicating them in local newspapers and encouraging changes to the original project. Identifying potentials and flaws, the study shows a resilient post-contest network, fundamental to incorporate new voices in the production of public space and to dissolve the notion of individual authorship.

Keywords: competition, authorship, urban regeneration, public plaza, decision making

Research on craft street form over the past and at present: Taking Zhoucheng Tie-dye Street as an example

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ABSTRACT

Since ancient times, the shape and change of urban form is closely related to street space and its mode of transportation. Today, many craft streets featuring the production, display and sale of handicrafts are popping up all around us. Most of these craft streets have a long history and have gradually changed their spatial form with the development of the city, which in turn has influenced the morphology of the city. In order to reveal the morphological evolution of such craft streets, this study takes the example of a tie-dye street in Zhoucheng, Xizhou Town, Dali, and combines documentary research with historical maps and corroboration through field surveys to obtain the street morphology of the craft street in Zhoucheng, Dali, in both historical and contemporary periods. The study found that 1) the tie-dye street was formed due to the transportation of goods by horse gangs, and its morphology was deeply influenced by the historical tea and horse routes; 2) the tie-dye street is a self-organised spatial morphology with the Sifang Street as its spatial core; and 3) the tie-dye street has emerged as a new spatial morphology due to the tourism behaviour. The exploration of the relationship between the morphological evolution of Zhoucheng Craft Street and urban development helps architects and urban designers to understand how to design urban street spaces with tie-dye crafts as the highlight, while suggesting new possibilities for the modern renewal of the original historical street.

Keywords: craft street, spatial form, historical map, urban design, tie-dye

Business model for real estate production: Brazilian experience for affordable housing]

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ABSTRACT

Appropriations by urban studies of business perspectives collaborate to understand more about mechanisms for real estate production mobilization that builds and transforms cities all around the world. Based on Brazilian experience of Minha Casa Minha Vida Program (MCMV), this article intends to describe some examples of business models to produce affordable housing by private sector in developing countries, identifying values, motivations, goals (margin and profit), stakeholders, bankability, products, incomes, costs, constraints, and risks. With more than 6 million housing units produced between 2009 and 2020, the MCMV program impacted the entire Brazilian territory, from small towns to the biggest metropolises and, therefore, provides a relevant case in quantitative and territorial coverage terms for studies about massive affordable housing production in Latin America. Two different models are described in a business model canvas: subsidized sale at market price and subsidized sale at cost price. First model represents almost 1.75 million housing units across 854 Brazilian cities (or 28% of program output), while second model reach 1.5 million housing units (or 25% of program output) across 936 cities. Model analysis results point to the preference for peripherical locations, to the relevance of access to credit, to the inefficiency of local urban regulation, to the repetition of known building patterns and to densification as strategy to maximize financial returns.

Keywords: affordable housing, massive housing production, real estate market, Minha Casa Minha Vida

Evaluation of Residential Communities and Public Service Allocation in Mountainous Cities in the Context of Urban Shrinkage - An Example of Resource-based Cities in Northeast China

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ABSTRACT

1)Background: Continued urban contraction has a huge impact on the supply structure of public services, and the rationalization of public service provision plays an important role in urban construction and improving citizens' quality of life. 2)Aims: The study uses the framework of "population - public resources" to carry out an empirical analysis to explore the coupling between residential communities and the spatial allocation of public service facilities in a shrinking mountain city. 3)Methods: Macroscopic distribution characteristics were analysed using nuclear density and spatial auto-correlation methods in conjunction with China's public service facility planning and evaluation provisions. Then, a quota sampling method was used to divide into 27 sample squares, and 81 communities were finally selected for field research. Finally, the analysis was carried out by SPSS and ArcGIS software. 4) Findings: (1) The coverage of public service facilities differs significantly by the type of service facilities. The variability is correlated with the mountainous characteristics of the communities. (2) The differences in the types of public service facilities make the compliance rate of residential communities have more significant regional differences. Among them, the central urban area has the highest attainment rate, followed by the new urban area, and the degree of attainment in mining areas is generally lower. 5) Conclusion and implications: The configuration of public service facilities in resource-shrinking cities varies depending on the city's mountainous form and development form.

Keywords: Shrinking cities, Public service facilities, Mountainous cities, NE China

Measuring the Mutual Influence of Spatial Morphology and Place Identity: Production of Space in Prefabricated Built Environments of Moscow

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ABSTRACT

This research explores mutual influence between the processes of place representation and production of space in the prefabricated built environment of several districts in Moscow. The urban environment of such spaces is described using the term «placelessness» from the studies of cultural geography. The «placeless» spaces are lacking unique features that allow us to tell them apart and attach any meanings to them. However, the residents of prefabricated districts internalise their habitat and form a unique place identity, which is constructed from various representations of place. Due to historic specificities of such districts, they form a delimited planning units for which both the analysis of urban morphological measures and the analysis of discourse of place are possible. During the research computational methods of urban morphological measurements are applied. The place identity is then explored using both qualitative and quantitative analysis of discourse of place. The latter consists of natural language processing algorithms that utilise machine learning to extract information on place identity from social media texts and neighbourhood reviews from online resources. The data on discourse of place collected through machine learning algorithms is then supported with the results of qualitative analysis. The research attempts to measure the involvement of both conceived and lived experiences and images of place in the process of production of space in post-soviet urban environments. The insights are then provided on how spaces produced by authoritarian governance are being reimagined by their inhabitants.

Keywords: production of space, place identity, natural language processing, computational morphology

Type in Urban Morphology and Phenomenology: the Case of Situational Typification

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ABSTRACT

Urban form is both a record of our socio-cultural lifeworlds in past and present, and a means of shaping a new future. Urban typomorphology (Caniggia) takes into account this socio-cultural dimension on methodological level, but usually indirectly, through an imprint in urban forms. Here, the notion of type provides the basis for architectural reasoning and design processes. Recent research proves that the intermediate or relational scale is the key for sustaining local identities and their associated values but remains difficult to grasp: not everything, which is important for the respective communities, is imprinted in type. To meet the specific requirements of the intermediate level, the phenomenological notion of type in the sense of 'situational typification' (Husserl) seems tailor-made. The phenomenological tradition offers detailed analyses of the structure of lived human experience, which are highly comprehensive for architectural thought, like on perception, orientation or movement. Situated typification is where materiality meets human practices in our lifeworlds (Dzwiza-Ohlsen). The high potential of phenomenology, as one of the most influential strands in philosophy of the 20th and 21th century, for architectural reasoning was already emphasized by Norberg -Schulz, or Zumthor; nonetheless this general trend needs to be concretized further by specific means to be implemented into architectural practice. With the notion of situational typification our study offers a concretization of this interdisciplinary endeavour, illustrating its typomorphological impact by a practical case study.

Keywords: phenomenology, typomorphology, situational typification, lifeworld, heritage

The development of the Shanshui community: from internalised spiritual needs to a sharing social medium

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ABSTRACT

The vision of Shanshui has been rooted in Chinese culture and spiritual pursuits since ancient times. Some of the elite have been translated the spiritual ideal of living with the natural landscape into Chinese Gardens as physical object. Under the influence of functionalism and a market-oriented system, natural landscape was only an appendage to meet planning targets in most existing residential communities in China, but the rise of the 'Shanshui city' concept at the end of the 20th century led to a number of examples of design practices that took the initiative to introduce natural landscape into communities. In the 21st century, the rapid development of information technology has given landscape, architecture and urban space a new value as a medium for information dissemination and sharing.

In this study, one representative case in each of the three main stages is selected for in-depth research and morphological analysis. It tries to explore the trend of the transformation of natural landscape from an intrinsic spiritual need of the niche to a sharing social medium for the masses at three levels: individual and networks, community and city, as well as seeing and to-be-seen, and compares the cultural and morphological development of landscape communities. This will enrich the connotation of Shanshui communities and provide a reference for their future design.

Keywords: Garden, Shanshui community, sharing, media, development

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Urban form and household daily activities implications on sustainability

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ABSTRACT

The urban form makes part of humanity's technological inherence, revealing changes in social-natural relationships over the built environment, throughout time, and multiple scales. Society's values (economic or of environmental order), impact on the dynamic arrangements of urban form or society's needs or individuals' activities. Sustainable Development is thoroughly requested by society, therefore, acknowledging the implications of such dynamism between urban form and individual needs deserves greater attention by urban morphologists. This presentation looks into the dynamic relationship between urban form and individuals' practices in everyday life, wherein attesting the sustainability implications. To do that, it proposes a method to address the relationship between urban form and individuals' daily life practices, focused on water and food uses of households. The method results from an ongoing investigation that has focused on the analysis of urban form at the Lisbon Metropolitan Area, following a comparative and historical-evolutive perspective. So far, this study has revealed how, on a specific territory, do coexist different urban form arrangements, built in different periods of time, while following different urban form systems of values, today inhabited by individuals that follow similar daily life needs and practices regarding water and food, and yet enabling diverse sustainability implications. Finally, we aim to disclose possibilities for urban morphology to engage in revising dominant land use planning systems while widening the focus of urban form analysis as a potential to revise urban planning policies according to the way individuals make use of their space and time.

Keywords: urban form, daily activities, households, water-food

Relative variability in streetscape skeletons and its spatial association: application for spatially clustering harmonious and inharmonious streetscape skeletons in Tokyo

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ABSTRACT

Whether streetscape skeleton is harmonious or not depends on the degree of the difference between building heights and setbacks adjacent to one another, called the relative variability in streetscape skeletons. Nevertheless, it has been overlooked in considering harmonious streetscape skeletons. Since measuring building setbacks and streetscape widths along roads and computing the variability in streetscape skeleton remains challenging, the degree of the relative variability in streetscape skeletons and their spatial association have yet to be quantitatively unveiled. The aim of this paper is to unveil the relative variability in streetscape skeletons and their spatial association and to answer the following question in a bottom-up way: where are harmonious or inharmonious streetscape skeletons locally clustered? To this end, the relative variability in streetscape skeletons in the districts of the Tokyo metropolitan region is computed where building height and setback are directly controlled thorough the streetscape promotion district planning stipulated in the City Planning Act and the Building Standards Act. Then, spatial association of the relative variability in streetscape skeletons is visualised and where streetscape skeletons are harmonious and inharmonious is identified. Developing a series of the methods for computation and visualisation is also the main objective. The results show that although harmonious streetscape skeletons are spatially clustered inside the domain bounded by wide width streets, its cluster size is small and spatially scattered. We therefore concluded that the effectiveness of direct controls through the streetscape promoting district planning to maintain and create harmonious streetscape skeletons is spatially limited and thus insufficient.

Keywords: streetscape, setback, height, variability, spatial association, harmony

Urban Morphological Investigation of Traditional Streets and Residences in Nanhuaxi, Guangzhou

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ABSTRACT

With the impact of globalization on the economy, culture, politics, and other aspects, the evolution of housing in Lingnan District shows a trend of diversification and mixture. At the same time, the urban spatial form is also advancing with the times. Nanhuaxi, Guangzhou, has not been affected by significant war disasters since the foundation construction of the village, and it is still mainly residential. It retains the traditional street pattern of the Thirteen Hongs period in Guangzhou and some well-preserved historical buildings from the late Qing Dynasty and the early Republic of China, interspersed with houses constantly being renovated by future generations. Through fieldwork and typification of the urban architectural transformation process, it explores the evolution of traditional architecture in the present. From a single building, you can see the changes in streets, lanes, and regions, and from the silhouette of a person's life, you can see the combined force of terrain, water system, and environment in the city. It is concluded that different types of streets and alleys are derived from the different types of modern architectural structures in Nanhuaxi, Guangzhou, so that we can see the changes in the urban form. As time goes by, old buildings will disappear, but this historical heritage will not fade easily. Instead, this fundamental layer still defines today's urban neighbourhoods and influences the way residents live.

Keywords: traditional street space, traditional houses, fieldwork, typo-morphological analysis, urban form

Spatial dimensions of urban tourism in the city: Case study of Slovenian cities Ljubljana and Maribor

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ABSTRACT

Urban tourism has experienced great growth in last decade and has become a ubiquitous factor of development in contemporary cities. On one side, development of urban tourism represents one of the major developmental goals of many cities, on the other it causes increasing pressures changing physical structure and its use. In this contribution, the spatial dimension of tourism is examined through case studies of Ljubljana and Maribor, both among the cities with the highest tourism growths in last decade. The spatial distribution of tourism infrastructure and promotion is enhanced with movement patterns of tourists, to determine the tourism concentration and potential appearance of overtourism. Firstly, the spatial distribution of tourist attractions and services is analysed using geospatial data. Secondly, the online and printed tourism promotional materials are analysed to collect information about where tourists are guided to. Thirdly, the movements of tourists are analysed using data gathered by a survey conducted in the case study cities. Results show a high concentration of tourism infrastructure in the city centres, and even higher concentration of attractions the two selected promotion channels guide the tourists to. Furthermore, also the survey confirmed concentration of tourist movements to the promoted areas, namely to the historic and/or city centre. This confirms that the narrow focus of promotion can be considered as one of the major factors of touristification and shows a need to increase the consideration of the spatial dimensions and tourist flow management impacts into tourism management and territorial governance of urban destinations.

Keywords: urban tourism, overtourism, tourist movement, touristification, spatial analysis

Finding the Ties Between Creative Industries' Locations and Urban Form

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ABSTRACT

This study aims to describe the relationship between the creative industries' site selections and urban form. The creative industries refer to a range of economic activities concerned with the generation or usage of knowledge as well as information and have a crucial role as a strategic factor in urban development for creating productive cities. The study reveals the effects of changes in urban layout and the potential lay behind current features of urban form on the locations of creative industry sectors in Kuzguncuk. Kuzguncuk is one of the most multicultural neighbourhoods in Istanbul. The presence of creative industries in this area is examined in two dimensions which are physical and social. Firstly, the area is considered a whole system and the changes in urban elements (such as streets, parcels, building stock and utilities etc.) on the layout between the early 20th century and today are presented with a historico-geographical approach. Secondly, the spatial configuration of the area is analysed to explain a set of relationships among parts by space syntax theory and tool that makes it possible to interpret social antecedents and results of spatial form in the physical city. The inferences evaluated offer a distinctive perspective for grasping the smartness of a city by identifying physical and social networks.

Keywords: Creative city, historico-geographical approach, space syntax, Istanbul

Development of urban block fragmentation from the view of Space production

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ABSTRACT

In the past few decades, China has experienced rapid urbanization process starting with a Low level , which has brought many serious urban problems. One of these problems is the spatial fragmentation of urban blocks caused by real estate development led by market principles.This paper aims to review and reflect on the logic of production and operation on fragmented space at the city block level from the perspective of spatial production. This paper establishes the coupling relationship between urban form evolution and spatial production with the method of visualization, and finally presents the producing vein of fragmented space. To conclude, spatial fragmentation of urban blocks is closely related to spatial isolation, social exclusion and other problems. At present, China's urban development has entered the transition period, and the problems of urbanization and urban renewal are intertwined and superimposed. Better urban space practices are urgently needed to promote social integration and equity and justice.

Keywords: space production, spatial fragmentation, urban form

Beyond Markets: Envision for Transforming the Markets Network in Barcelona

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ABSTRACT

Barcelona's network of municipal markets is unique in Europe. It is made up of 39 fresh-product markets. They have a long history and are special public space maintained by the municipality. From the open-air markets of the 11th and early 19th centuries, to the modern plaza of the 19th and 20th centuries, which were independent of the streets, to the centralised market system in the 20th centuries, Barcelona's market system has now entered its fourth historical phase, and the traditional markets it represents are facing the challenges of a new era. Today, less residents go to the markets for the promotion of supermarkets and shopping online. Moreover, the limited open time of markets also have influence.

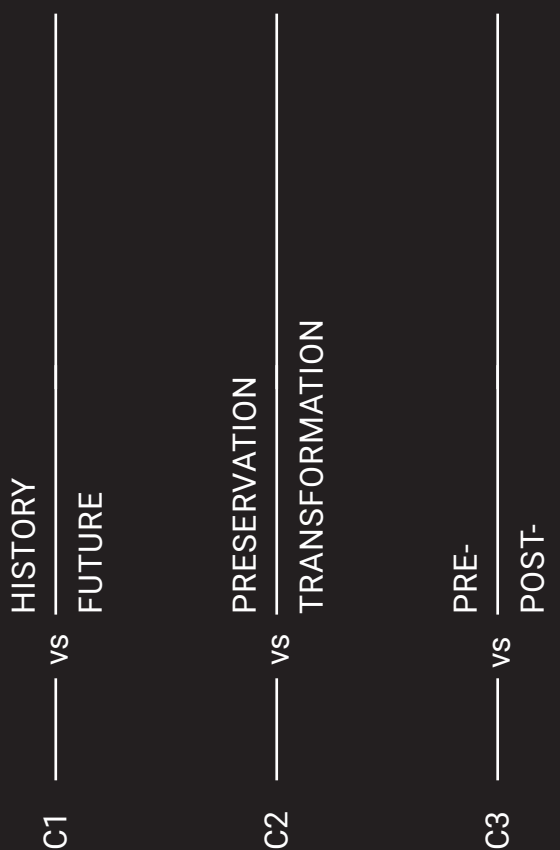
The article tries to explore more possibilities of the old municipal markets network in Barcelona. For the specific function of these buildings, they are arranged to be accessible for most of the residence in the city. This is valuable and a key factor for being public space. Therefore, if they are not efficiently used for trading, what else can they be used for? Can the municipal markets network become another kind of public space network? A proposal for renovating the old markets is also presented, which tries to mix more function for public use with the markets and make it the center of community again.

Keywords: municipal market, market network, Barcelona, community center

TRACK C.

HISTORY OF IDEAS AND CHALLENGES

Looking at different ideas, concepts, approaches, notions that have influenced theory and practice that are challenged today and exposed to criticism + addressing challenges of the urban morphology



Orthogonality as Organic Process

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ABSTRACT

Orthogonal planning is often taken as an innovation of the ancient Greek Hippodamos of Miletos and correlated with principles of Greek democracy, but orthogonal plans predate Hippodamos by many centuries and are to be found among ancient societies around the world. Why, then, do grid plans emerge? and how do they do so in disparate cultural contexts?

This paper surveys orthogonal plans in premodern societies from around the globe to show the conditions under which these arise. The common factor is that orthogonal plans appear when space for development is constrained – either by topographical features, or by built demarcations of urban space, such as circuit walls. Within such areas, there is a need to maximize usable space and to allot plots as efficiently as possible.

The natural world provides an illuminating analogue. As certain materials are subjected to extreme pressures, their molecules must arrange themselves in ordered manners so as to achieve higher densities, thus forming crystal lattices. Here, buildings and plots are the molecules, city walls or topographic barriers provide the external pressure, and orthogonal plans are the lattice structures that organize the delimited space efficiently.

In this sense, we might think of orthogonality as an organic process – an innate human response to fitting a high density built-environment into a constrained space. Societies that used orthogonal plans were not inherently more advanced or innovative than those that did not; they were simply arranging their settlements in response to different circumstances.

Keywords: orthogonality, grid planning, pre-modern societies, urban development, organic processes

Developing the narrative: Urban renewal based on morphological research of the urban form.

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ABSTRACT

Background: The small towns of North-Eastern Germany suffered great losses of historic buildings and economic dynamic during WWII and the following decades of communist rule. Since 1990 these communities suffered a major decrease in the number of inhabitants resulting in a large number of buildings being empty. To adjust the urban structure to 21st century standards and regain economic dynamic the local government is supporting urban renewal projects. Sites inside medieval town-centers in Mecklenburg are under pressure to amalgamize and being recreated as large scale developer-architecture or to fall into ultimate decay. Aims and objective: As part of RUHMM-study (Research on the Urban Heritage of Medieval Mecklenburg) on the urban morphology of medieval urban structures in Mecklenburg, a study of the Holy Spirit Hospice (Heiligengeist-Quarter) of Woldegk was conducted as a student project at NMBU, Norway. The study showed, how contextualization and a re-definition of the site based on historic narratives inspired local authorities to initiate small scale development of the site. The site is now under development according to a narrative developed based on the morphological study.

Method: The study is based on qualitative methods, such as contextualized morphological analyses, historical records and expert interviews.

Findings: Urban renewal based on historic narratives create wider public support for contemporary redevelopment in small urban communities. Concepts based on small scale architecture and functional continuity show very good effect in the case.

Conclusion and implications: The urban renewal of small scale urban communities require specific methods of how historical context, morphological analysis and architectural narrative can be applied to create sustainable development in medieval town centers.

Keywords: urban renewal, medieval narrative, sustainability

A comparative study of public space forms inside and outside Beijing's Old City: taking the area around Deshengmen as an example

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ABSTRACT

From "organic growth" following traditional planning ideas to "order reconstruction" influenced by modern urban planning, public space has different connotations and morphological representations in different stages of urban development. This paper takes the area around Deshengmen, which connects the traditional district inside Beijing's Old City and the modern district outside Beijing's Old City, as an example, and conducts a comparative study of the public space forms formed in different periods with different social contexts. Based on the meaning of public space, this paper draws a figure-ground map of the Deshengmen area and analyzes morphological indexes at three scales: 1) shape index analysis of the basic units of public space based on the principle of "convex space" of space syntax; 2) analysis of the Perimeter Area Fractal Dimension and Landscape Division Index of continuous public space and non-public space forms; 3) analysis of the global and local integration of public space in the whole area around Deshengmen. The results show that the proportion of public space to urban space remains consistent in two districts, but the traditional district have smaller and more numerous basic units of public space, and more continuous and winding public space patterns, showing better levels of global integration, while the modern district have more concentrated and complete patterns of non-public space. In summary, present paper investigates the similarities and differences of public space morphology between traditional and modern urban space, revealing the morphological influence of different urban development concepts.

Keywords: public space, space syntax, urban morphological

Rural linear settlement structures as a typological response to distinct settlement factors: climate, topography, landform, social structure and demography. A discussion based on the analysis of the Pannonian region

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ABSTRACT

ACT

Linear settlements are present in many rural regions in Europe: from England in the North to Italy in the South, from France in the West to Ukraine in the East. Although the villages vary widely in form and age, as well as in circumstances of their development from historically grown to planned settlements the distribution of linear settlements in their general propagation area suggests that there are specific conditions that facilitate their occurrence.

While there are linear settlements alongside canals or streams, and also villages arranged along elements like village greens (Dorfanger), the most elementary and most widespread form of linear settlement is the street village (Straßendorf). The urban parterre (the holistic system of street, adjacent buildings and courtyard) of street villages is structurally uniform and includes all necessary settlement functions: living, working, supply, leisure, worship and traffic.

To date, there is a lack of comprehensive research regarding the preconditions for the development and spread of linear settlements along roads. Through a morphological analysis of relevant factors, including climate, topography, landforms, societal structure and demography, the paper will fill this knowledge gap. The street villages in the northern Pannonian Basin (Austria, Hungary, Slovakia) form a first selection. Their investigation will be the basis for further discussion and subsequently for comparison of further linear settlements in the international context. The aim is to gain a deep understanding of the configuration of linear settlements and to assess their internal organisation and main functional processes with a special focus on form and functions of public spaces.

Keywords: Linear settlement, street, Pannonian basin, attached building development, public space

Analysis of traditional village landscape wisdom and its humanistic connotation in the perspective of "Three Realms"—A Case Study in Dangcheng village in northern Fujian Province

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ABSTRACT

Influenced by traditional Chinese philosophy, ancient China has accumulated the "Three Realms Theory" which integrates natural landscape and artificial landscape into a high degree of "picturesque conception", "life conception" and "artistic conception" in the construction of settlement landscape. How to inherit and carry forward this tradition and solve the current problems of ecological degradation and loss of landscape features faced by traditional Chinese villages has become the focus of research in the discipline. This paper firstly renders the concept of "three realms" and clarifies the cultural connotation and spatial rationale of traditional Chinese village landscape through humanistic ideals and aesthetic pursuits; secondly, taking Dangcheng village in northern Fujian Province of China as a typical case, it analyses the wisdom of village landscape construction and its humanistic connotation through three levels: picturesque conception, life conception and artistic conception, and summarizes the inner connection between humanism and landscape in the construction process of Dangcheng village; finally, it proposes contemporary inspiration for the sustainable development of village landscape in view of the current problems in the construction of rural landscape in China. The intent of the study is to continue the traditional landscape qualities of traditional Chinese villages and provide valuable references for future traditional village development.

Keywords: "three realms" space; village landscape; Dangcheng village

Measuring the unmeasurable: An evaluation method addressing urban texture harmony intelligently

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ABSTRACT

The fast development of generative urban design in recent years have well addressed the difficulties in design generation. Nevertheless, urban designers still lack an efficient tool measuring urban texture harmony intelligently, which obstacles the further development of generative urban design. As a response, this study attempts to develop an evaluation method capable of measuring this subjective perception. Specifically, four key dimensions of urban morphological harmony were selected based on classical urban design theory, including orderliness, richness, imaginability, and building density. With the help of urban texture data from OpenStreetMap and experts scored by questionnaire, a training dataset containing paired images and scores had been built. The evaluation method was then constructed via deep convolutional neural network (DCNN), which had been verified with similar accuracy compared with experts' evaluation. Moreover, the interacted relationships between key dimensions and the overall result of perceived evaluation were calculated based on multiple regression analysis. In short, this study contributes to quantitative urban morphology by providing a measurement of urban texture harmony based on classical urban design theory and deep learning algorithms.

Keywords: Urban texture harmony, Generative urban design, Quantitative morphometrics, Deep Learning.

Urban morphology and space colonisation – Morphological structure of visions for off-world settlements

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ABSTRACT

Interest in space exploration has skyrocketed driven by enthusiastic super rich space entrepreneurs. Even though space inspires new debates in media and business, there is very little research on space exploration and colonisation from a perspective of urban morphology and urban design. Morphological analysis is defined by a hierarchy of three fundamental elements: streets and their layout, plots and their aggregation in blocks, buildings and land uses as building utilization. Urban designers have the unique background to deal with the experiential qualities of cities in three dimensions and tackle conflicts between private and public realm. Thinking about space colonisation inspires creative reflections on morphology in three dimensions and distorted morphological structure of off-world settlements.

This paper reviews the popular science and science fiction literature on visions of exploring and colonising space, analysing the morphological structure of envisioned spaceships and space stations, proposed outposts and colonies on other planets. The paper also compares the morphological structure of cities on Earth and the conflict between private and public with visions of space colonisation. Space is explored by public administrations with spacecrafts that are semiprivate space and despite private initiatives to explore space, there are no visions of spacecrafts and space colonies that apply the morphological structure and interactions between public spaces (e.g., corridors in spaceships) to private quarters (in space ships). Reaching out to urban morphology and urban design for new space colonisation visions can enrich the space debate and broaden the scope of urban morphology.

Keywords: urban morphology, space colonisation, morphological structure

Toponyms and urban morphology, the imbued meaning of street names within circumstances of urban change: The case of Turn Again Lane, London

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ABSTRACT

Cities are in perpetual modification as a continuum over large expanses of time, with urban growth proceeding according to the measures and laws of a historical evolutionary process. Within the broad research field of urban morphology the fine grain attention to the details of historicity can be extended to the less tangible aspects of associated place and street names, the legacy and/or redundancy of their imbued meaning set within the transforming specific urban condition. Street names are predominantly assigned to people or important events and as such can often be rewritten as socio- political contexts change; conversely, as the urban fabric evolves, street names depicting specific geographical features may be prone to redundancy in meaning. This paper explores the potential at the intersection of urban morphology and toponymic research through the case study analysis of diachronic evidence from archives to assess a particular street configuration. The study reveals how an original denotation of place is an evolving layer within the palimpsest of urban transformational processes. The implications are that toponyms contribute evidence in morphological research as elements that label urban places particularly when they carry description of a past urban arrangement.

Keywords: Toponyms, street names, urban morphology, Turn Again Lane.

Research on the Spontaneous Community Business Layout and Elements Based on Clustering Analysis: A Study of Quyang New Village

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ABSTRACT

This research is taking workers' new village in Shanghai as the background. The majority of these communities were built between the 1950s and 1990s. Due to the limitation of social development and economic conditions at the time, most of these communities are short of some modern service facilities, such as commercial facilities, nursing facilities and day-care facilities. As China's economy rises, people's living standard changes. Therefore, residents living in workers' new villages are in great need of community service improvement. However, the built environment cannot catch such vast demand in a short period of time. That is where spontaneous community businesses started to develop by residents to fulfil their needs. Quyang New Village was once the largest residential community in Shanghai. By taking it as an example, this article is going to use clustering analysis to find out the quantity, layout, format, and areas of local spontaneous business. At the same time, discovering other external factors of this type of business, such as signage format. Thus, concluding the characteristics of existing spontaneous community businesses, and inferring the factors that can influence the formation of this kind of business. Until today, spontaneous community business is still living in the grey zone, and there's rarely any systematic research and analysis on this form of service facility. This article is aiming to provide some basic information about spontaneous community business in Shanghai, as well as figure out the pattern for future planning.

Keywords: spontaneous community business, clustering analysis, community development

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The formation of the network of open public spaces in downtown Vitória, Brazil: from the colonial morphogenesis to the 19th and 20th centuries modernist interventions.

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ABSTRACT

The Hygienist Movement ideology in Brazil between the 19th and 20th centuries culminated in a great repercussion in sociability relations, changing the usage of open spaces with typically colonial characteristics. In the state of Espírito Santo capital, southeastern Brazil, such a scenario was led by a series of interventions that affected squares, wharves, and swampy free spaces which, reformulated and sanitized, were transformed into squares, parks or gardens, whose urban form began to dialogue very well with the new modernizing ideals established with the Republic. The objective of this article is to understand, from the colonial morphogenesis on, the principal transformations that occurred in public open spaces in the transition of the 19th and 20th centuries in downtown Vitória, drawing on the changes in its toponymies in direct correspondence with the established new cultural and landscape vocations. The research was based on a bibliographic review linked to concepts of urban form and public open spaces, in addition to the place the historical evolution. Added to this, the iconographic and cartographic analysis for the composition of a summary table illustrates in a panoramic way the correlation between toponyms, vocations, and urban form from the spatial analyzes carried out. The study points out that the interventions carried out produced a network of cohesive public open spaces that tended to reconfigure Espírito Santo's urban life, shaping urban dynamics strongly driven by new ideals, but which are sustained from an embryonic colonial idealization of evidently public and morphological significance.

Keywords: open spaces, urban form, modernization

Study on the Preservation of Post-war Public Mass Housing: taking the No.1 Road Project of Minhang Satellite Town as an example.

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ABSTRACT

Since the 1950s, standardized public housing had been produced mass and repeatedly in urban areas in many countries, including China, which not only met the urgent needs of the growing working class and promoted building industrialization but also reshaped the urban landscapes of many post-war cities. Some of the projects are considered to be iconic and might represent the zeitgeist of the post-war construction, while most of them are criticized to be transitional, dilapidated, and ugly, and should be demolished, which poses great challenges to sustainable development today and forcing us to re-examine the situations of such built heritage: are these non-unique and mass-built houses worthy to be preserved? If so, what is and how should we study the value of such heritage and prolong their lives? If not, what could be learned from the life circle of such heritage? The paper takes the No. 1 Road Project of Minhang Satellite Town (1959-1961, Shanghai, China) as a case study, and applies the methods of archival research, architectural mapping, sociology research, and oral history study, examines the significance (in planning, standardization/diversified design, construction, and allocation) and the life-cycle (the relations among the State-factory-residents-living space) of this community, as well as the challenges (changes of ownership, identities, age structure, lifestyle, etc.) facing by the residents today, and proposes a research method (the documentation) towards the study of such built heritage and some suggestions on the possible protection of the buildings in such communities.

Keywords: public mass housing, standardization design, space production, value, protection

Investigating the modification of Jansen's industrial zone in Ankara, Turkey, through fringe-belt analyses

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ABSTRACT

The manufacturing and infrastructural areas that emerged during the industrial period and became part of the urban landscape have directly influenced planning criteria regarding their location, magnitude, and relations with transportation. Due to their negative effects on the city, such as pollution and noise, these areas, which are generally planned on the urban fringe, are sometimes surrounded by green spaces in order to isolate them physically.

Due to changing social conditions and urban developments, industrial areas are now emerging as problem areas in the urban landscape. They cannot retain their original function, but have remained part of the city and turned into abandoned areas or urban voids.

In light of these, this paper focuses on the former industrial zone of Ankara, which was planned by Herman Jansen (1932) in line with the Garden City principles. The industrial zone was located along the railway line and in the western part of the city, where it was thought that it would not negatively affect the city, and it was isolated by green spaces.

This paper utilizes the fringe-belt theory to show the evolution and modification of the industrial zone by using aerial photos, orthophotos, and maps at ten-year intervals. So, it investigates the changes in the identity of this zone. Briefly, this paper tries to reveal the approaches for the abandoned industrial sites and green spaces that surround them. In addition, this paper will contribute to the limited studies on the fringe-belt analysis in Turkish cities.

Keywords: industrial sites, green spaces, fringe-belt analysis.

Interpretative Design Approach Based on the Cognition of the Morphology and Narrativity of Chinese Historical Urban Space: Taking Nanjing Mendong Area as an Example

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ABSTRACT

After the approaches to urban conservation in the Washington and Nairobi Charters, the Valletta Principles (2011) have redefined objectives, attitudes and tools for the evolution of definitions and methodologies of preservation in historic towns and urban areas. A higher awareness of intangible values contributing to the character and identity of historic areas as well as the multifaceted challenges of modification were introduced in the coherence of all tangible and intangible heritage values. Because of physical absence, in the Chinese traditional contexts historic space is always associated with cultural meaning, regarded as the intangible value of urban heritage. As the physical existence of artefacts is impermanent, appended cultural meanings are essential for experiencing Chinese space. Beyond the restoration approach, this paper explores urban form in its tangible and intangible elements related to both absence and presence (Pezzetti, 2019, 2020) and the role of *interpretative architecture* (Pezzetti, 2022). Taking the Mendong area as an example, it frames physical impermanence issues and analyses the potential narrativity of historic space. Through the case study, this paper analyses site conditions and categorizes interpretative approaches while exploring potential methods for the Mendong area. Unfolding the investigation from the perspective of spatial narrativity, it provides a full understanding of physical space and historical knowledge integrating morphological analysis and literary sources. Besides, it examines the potential of narrativity associated with interpretative architectural designs and explores its application in the Chinese situation. This mutualism provides the theoretical basis and tools to interpret historical knowledge hidden in Chinese urban space.

Keywords: Interpretative Design, Historical Space, Narrativity, Mendong Nanjing

Continuity and Discontinuity in Historic Urban Landscape: Reading and Rewriting Procedures for Enhancing Nanshijie District, Ganzhou

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ABSTRACT

Considering historic sites in their co-evolutionary reality, their integration in the living city cannot be limited to "presentation", as stated by the ICOMOS Charter (2008), but rather entails a complex dialectic between continuity and discontinuity. Rewriting on an already-built text implies the synthesis of a knowledge developed through two interrelated moments, the analytical and the interpretative one.

Conceiving analysis as a reading procedure, revealing the site's morphological structures and cultural values in their diachronic and synchronic relationships, the design's rewriting activity becomes a matter of interpretation, where analytical findings define the boundary of operational choices.

Within this framework, the paper explores the dialectic between continuity and discontinuity, and the interpretative activity of design as a vital balance between preservation and transformation.

The design synthesis is explored within the range of latent structures (Pezzetti) and principles imbued in the site, straddling the concepts of "space of possibilities" by assemblage thinking and the limits of interpretation.

Taking Nanshijie historic district in Ganzhou City (China) as case study, the paper explores urban form's continuity and discontinuity through historic and typomorphological analysis and design proposals, highlighting the space of possibilities disclosed by latent structures and existing fragments.

Through the combined operations of reading and design interpretation, the research produced a series of interpretative mapping and design proposals, demonstrating that any interpretation should come from the site understanding and that both conservation and transformation entail a delicate balance between continuity and discontinuity, that is remembering and forgetting techniques.

Keywords: Continuity, Discontinuity, Design Interpretation, Assemblage, Ganzhou Nanshijie

Planning Codes against typological values: simulating a transformation process

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ABSTRACT

Planning documents in Tehran, have changed from land use maps with few regulations to a detailed zoning maps with building codes. The older regulations and the newer building codes do not follow the typological process of the urban form. The result of the development based on these codes can eliminate typological values. This article estimates the practical outcomes of using the codes on historical parts of the city with evidence of the typological process of the city. The research focuses on a neighbourhood in the historical core of Tehran, representing diverse formal values accumulated through the transformation process. the investigated area is covered with different zones and, therefore, is ruled by different planning codes. This research is an explorative effort to simulate urban tissue transformation based on a design research approach and estimates the outcomes of applying the planning codes. A random function is used to choose the plots and buildings that would be changed in each step of the transformation process. This random function act on weighted values defined by the age of the buildings and the properties price. In each step of the transformation, the chosen plot is redesigned according to the planning codes, and the final result is demonstrated in a 3d model comparable to the current tissue. A critique of the planning codes has done due to the typological process of the city and concludes with substantive-procedural solutions within the framework of the current zoning system.

Keywords: Tehran, Planning Codes, Urban Transformation, typological process, urban form

50 years of Antakya transformation: "shapers" and urban form

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ABSTRACT

The importance of "agents and agency" in defining urban form has been rising in urban morphology, particularly after the early 1980s. With more research concentrating on the shifting historical eras of various cities around the world, this subfield is growing, reducing the dominance of European-centric studies, and providing more sophisticated methodological approaches. Antakya is a distinctive case with a unique administrative history in Turkey. This research focuses on how rapid change in governance affects institutional structure and public spaces. The aim is to reveal how the categories of agents of different periods of administration change within/in relation to each other, their level of influence on urban form through public spaces. The paper addresses the transformation and permanence of forms and functions of Antakya's public spaces between 1910-1960, based on an historical-geographical approach. Then, the actors who had an impact on the transformation of urban space are identified, determining their level of impact on the physical space. Finally, the connections between the transformation of urban form and the change of agents are established in a systematic framework. The study shows that while decision-making actors and institutions change more rapidly with the change of administration, the change of investors and builders has different dynamics. As administration changes, both the city's physical space and shapers making this space are also transformed. Analysing, formulating, and explaining the retrospective relationship between these two is an important tool for taking decisions and preparing the future of cities.

Keywords: urban form, public space, agents and agency, administration, Antakya

Planning tools for Transit Oriented Development (TOD)

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ABSTRACT

Copenhagen is extending its public transport network, adding a string of light rail stations to the urban realm of the Danish capital. It is a one billion euro investment running through nine municipalities in Copenhagen's suburban area. The light rail tracks follow the 3rd ring road from the late 1960s, and the majority of urban space surrounding this public transport investment is car-oriented. The regional strategy is to stimulate transit-oriented development (TOD) around the 29 stations in the light rail corridor, in order to break free from this car-oriented urban structure. As part of this project, NIRAS has analysed the urban typologies within 600m radius of in the new light rail stations, with the purpose of creating a handbook for changing the typologies into pedestrian-friendly urban space. The handbook describes the qualities, challenges and design suggestions for the various urban typologies. This study and subsequent workshops with planners from the relevant municipalities revealed a range of problems in the typomorphological strategy. Danish planners are not accustomed to use the concepts of types or typomorphology, which therefore requires a new approach to their working method. Changing the urban environment requires new neighbourhood plans and zoning, and in many local areas the current ownerships and zoning regulations leaves the planners with little or no influence on the urban tissue and streetscapes. Finally, the planners focus mostly on the design of the light rail stations and much less on the access to the stations and the surrounding urban structure.

Keywords: TOD, planning practices, light rail infrastructure, typomorphology guide, Copenhagen,

Architectural and Ground Rewriting: Design for Corso Matteotti and Palazzo Mascheroni at Meda

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ABSTRACT

The historic cores of some Italian small towns of rural formation, although morphologically qualified and belonging to dynamic economic realities, suffer from abandonment and decay which, over time, provoke the decline of economic activities, loss of vitality and, finally, urban blight. Taking Meda historic centre (Lombardy) as a case study, the research investigated the urban form potential to define a multi-scale design-led strategy to recover and reshape public space, historic buildings and courtyards as a system and driver for attracting commercial and cultural activities, supporting pedestrianisation and shaping places of social interaction.

The design strategy in historic urban and architectural space entailed reordering and coexistence of multiple meanings and temporalities, in which enhancement of the spatialised time intertwined with narrative simultaneity introduced by the design.

The reading of overlapping urban structures and tissues questioned the boundary of the historic centre and its supposed homogeneity while revealing a Morphologic Semantic Unit defined by the persistence of settlement principles and the Iconism of Urban Form.

To reactivate this unit, the strategy defined the heads of the *regenerative structure*, a "*staccato sequence*" of *space-places* of encounters and the extension of public space as a dynamic and fluid element into semi-public courtyards, rewriting respectively dilapidated buildings and urban ground. By appropriating and aggregating spatial segments of different temporalities into novel *spatial figures* and uses, rewriting procedures disclosed latent orders and typological variations which enhanced both the historic and new writing, generating depth, narration and meaning.

Keywords: Historic centre, Semantic unit, Rewriting, Public space, Spatialised narrativity

Comparative environmental assessment of the historic centre of Barcelona. From Miquel Garriga i Roca's plan of the city (1856-1862) to the present day

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ABSTRACT

The research presents an environmental assessment of Barcelona in the mid-19th century based on a detailed look at the plan that the architect Miquel Garriga i Roca laid between 1856 and 1862. The plan was to determine the size and measurements of the existing city at a time when the extension towards the contiguous agricultural plain was being prepared on the basis of the Eixample plan drawn up by Cerdà (1859). The main objective of this research is to evaluate the environmental quality of the city at that time and compare it with the conditions of the same urban fragment today, based on the analysis of (1) streets and pavements; (2) squares, gardens and ventilation courtyards; and (3) squares on the border between the old town and the new modern city. By means of high-resolution raster plan and the application of GIS systems for the measurements, the graphic and quantitative analysis carried out shows in detail the different stages of modernisation of the urban structure in a consolidated and heritage-protected fabric. This morphological comparison is accompanied by a review of the theories and projects related to the improvement of the environmental quality of the historic city that have emerged during those 160 years.

Keywords: environmental assessment, courtyards, gardens, sidewalks, Garriga i Roca, Barcelona

Reconstructing the Image of Towns on the Basis of 18th Century Topographic Maps. Case Study from the Silesia Region

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ABSTRACT

Topographic maps provide a wealth of information useful to many academic fields, including details on towns' history and spatial development. This study is based on the atlas *Krieges Carte von Schlesien* (1747-1753). Currently in possession of the State Library in Berlin, it contains plans of as many as 67 Silesian towns, all of medieval origins, mapped at the scale of 1:14000. The purpose of this study is an attempt to reconstruct the image of Silesian towns in the middle of 18th century on the basis of this document. This image is planned to be reconstructed on the basis of physiographic, morphological, urban and functional analysis. The research methodology involves: classical method of examination of urban layouts and spatial structures; logical argumentation based on analysis and synthesis; elements of qualitative research. The atlas is of fundamental importance to the studies conducted. The research is composed of several stages. Firstly, the characteristics of individual towns *intra et extra muros* were elaborated. Secondly, the synthesized results of the analysis indicated both the repeatable features and unique elements of Silesian towns. Thirdly, the outcome of the project is the reconstructed image of Silesian towns in the 18th century classified in certain typologies selected. The research is based on the grant awarded by the Prussian Cultural Heritage Foundation. The study contributes to the expansion of the knowledge of the cultural landscape of Silesian towns. The study reveals prospective areas of further research such as comparative studies based on space and time as key factors.

Keywords: topographic maps, image of town, reconstruction, Silesia region

Technological innovation in urban agriculture towards the ecological transition: a critical assessment of European best practices

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ABSTRACT

Crop cultivation and animal husbandry allowed the global population to grow rapidly and today it grow up until eight billion. Today large metropolises stand, using 75% of the Earth's resources. If on one hand urban population density is increasing faster than the city's area itself, that permits not to consume soil, on the other hand the high question of food is putting on risk their availability for the next years and soil's fertility. The compact city consists of a right answer to the ever-growing of urban areas, but today agriculture needs to find new strategies to face contemporaneity requests.

In this context the idea to produce food inside the city, the latter that hosts more than a half of the global population, can be an interesting research and study field to optimize the production and solve land consumption problem. Since last century different visions of self-sufficient cities were pushed forward, such as the Garden City of Howard or the Le Corbusier's unrealized project "Immeubles- Villas" [1992]. Based on the assumption that the number of communities in cities is steadily increasing, the visionary ideas of the 19th century are becoming an increasingly viable solution to society needs.

The paper aims to analyze 3 international case studies, selected in terms of self-sufficiency, ecology, sustainability, and innovative solutions of urban farming in order to find strategies of food production inside the city.

Keywords: urban farming, challenges, agriculture 4.0, sustainability, food

Design Beyond Sites. Investigating architectural and urban design non-local effects

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ABSTRACT

The effects of architectural and urban projects extend beyond their localization. The anthropic modification of the spatial environment produces echoes in terms of urban rules, technical requirements, cultural shifts, and behaviours that travel beyond the place in which the modification occurs. The effects of the Equitable Building on the 1916 New York City Zoning Resolution or the role of the Seagram Building in shaping the rules of the next Zoning Resolution (1961) are just some examples. This article aims at exploring the relationship between projects and rules as a way of better understanding the effects of architectural and urban design on urban form, not only related to the project site. The article investigates four case studies of contemporary urban transformation that provide insights on the relationship between the local dimension and the wider effects of design. Findings show how, while projects are generally considered the result of a defined system of rules, juridical and design dimensions influence each other in a circular relationship. Moreover, while the effects of built and unbuilt projects are part of the outcomes of design, they are hardly considered part of the design process. The article discusses how, and through which tools, could these non-local effects of design be recognized. More generally, the article shows that is possible to consider localized design as a means of representing and addressing general and comprehensive issues with effects in the field of urban morphology.

Keywords: urban rules, urban design, architectural design, urban morphology

Dispersed settlement and the regional scale: how to position urban morphology?

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ABSTRACT

Fragmented, sparse and pervasive are adjectives describing a settlement type, synonymous with the contemporary era. A spreading phenomenon, seen globally and referred to as urban sprawl, suburbanisation, peri-urban, zwischenstadt, desakota, and urban fringe, among others, has always been part of the city. However, its recent growth has been spurred by the rise of middle-class affluence, the mass production of vehicles and building of roads. Pervasive as it is, with hard-to-determine character, it can only be understood at a larger, regional scale, where elements such as buildings, streets and blocks gave way to concepts such as infrastructure, road networks and planning zones. With the change in vocabulary, the interpretation of urban form lost its meaning, calling into question the tenets of urban morphology. Many authors in urban morphology voiced the need to adapt to the newfound questions the dispersed urban form brings. The regional scale is addressed by multiple professions, with different vocabularies, methods and approaches, hence addressing the urban dispersion in different ways. Which unique insights can urban morphology offer to the contested regional domain? This paper will situate the urban morphology knowledge within the regional scale by presenting a cross-disciplinary literature review focusing on the ways different disciplines deal with urban dispersion. In conclusion, it will suggest a way forward for urban morphology based on its emphasis on the forms' morphological pattern, a core and distinctive perspective that gives urban morphology a unique position to describe this elusive spatial form.

Keywords: dispersed, settlement, regional, pattern, method

Bratislava ring road: new life for the 100 years old idea. Contribution of morphological research to contemporary urban planning of the Slovak capital

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ABSTRACT

The ring boulevard is a characteristic element of the urban structure that strongly determines the parameter of movements or flows. The growth in the intensity of movements formed in the 18th century the impulse to remove city fortifications and hence the first creation of a spatial framing of an outer boulevard of many European cities. However, despite many series of concepts, such a ring has never been realized in Bratislava. The question of a ring road was first discussed at the turn of the 19th century. Its spatial form was clearly defined in the regulation plan designed by architect Antal Palóczi (1917), but his proposal was never officially approved and forgotten after the disintegration of the Habsburg monarchy. After the WWII, the idea of a boulevard was replaced by a concept of inner highway, which led to the demolition of many historical buildings. Therefore, the significant part of the criticism after 1989 was directed towards the impact of the transport and the original idea of the ring remained completely abandoned. The presented research is therefore focused on the identification of spatial, formal and operational features of the planned ring, as well as on the mechanism of the persistence of key ideas – the phenomenon of 'unintentional continuity'. These findings were recently also responded by the city's management. In 2019, an international architectural-urban competition to redesign part of the ring was launched and the city representatives are currently working on the examination of specific urban solutions of its western and northern sections.

Keywords: ring road, boulevard, urban history, urban planning, Bratislava

Research of the effects of old residential plots' morphology on residents' sense of place

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ABSTRACT

The development of healthy communities has become the general trend under the increasingly serious urban health problems. Compared with the previous concepts such as green communities, healthy communities pay more attention to the psychosocial wellness and community cohesion. However, the revitalization of existing old residential areas is mainly a one-way considerations concerning the material environment, ignoring the close relationship between people and land. This paper takes a typical old residential area in Nanjing as an example and further subdivide the area. On the one hand, it has analyzed each plot with the approach of traditional morphological methods. On the other hand, it obtained residents' place attachment through field research,which could be used to judge the community identity of residents in a plot. Finally, through the correlation analysis and the comparative study to obtain the mechanism of action between the old residential area morphology and the residents' sense of place. The practical significance of this study lies in breaking through the existing "stylized" phenomenon in community revitalization, and looking at our living space from a humanistic perspective, which was lacking before; and provides the basis for replacing the updated cooperation mode of "government-architect" with "residents-architect-government". In addition, this paper supplements the research perspective of urban morphology and provides a more convincing basis for the humanistic development of healthy communities.

Keywords: healthy community; urban morphology; residential physical environment; sense of place

Past, present and future of Urban Morphology Research in Cyprus

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ABSTRACT

The Cyprus Network of Urban Morphology was established in 2016 as a bicommunal initiative led by scholars residing both in the north and the south of Cyprus, following a meeting at the ISUF2015 conference in Rome and encouraged by Prof. Jeremy Whitehand. The aim of the network is to promote research on the urban form of Cypriot cities and to support its dissemination both throughout the island of Cyprus and abroad. It also acts as a platform for knowledge exchange and networking among researchers in the field of urban morphology who have a specific interest in Cyprus and the wider Eastern Mediterranean region. Because of the relative youth of universities in Cyprus, all leading urban morphology scholars in Cyprus trained in other countries and have brought to Cyprus the approaches linked to their alma mater. In the country, there is a strong focus on two approaches: the historico-geographical and the configurational, although typological studies also exist. Since its inception, the network has made strong efforts to exchange knowledge, access expertise from other countries and develop various research strands through individual research, funded projects, and dissemination and networking events, including a seminar series, regional conferences and hosting the 2019 ISUF Conference. This paper briefly reviews the background to the network, its activity and research outputs of local researchers since its inception, to then critically discuss avenues for future development of the network and Cypriot morphological research based on the direction of current and proposed future projects.

Keywords: Mediterranean cities, multidisciplinarity, history of urban morphology

Redevelopment of abandoned areas. The case of the Agricultural Consortium in Peraga, Italy

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ABSTRACT

This contribution regards the town of Peraga, in the province of Padova, not far from Venice. Specifically, it refers to the redevelopment of the disused and abandoned buildings and courts of the Agricultural Consortium, which has been given consideration by the local administration. Peraga has been studied by our research group in the Department of Civil, Construction and Environmental Engineering of the University of Padua.

The Agricultural Consortium consists of volumes of important size, some smaller buildings and two wide paved areas, one inside and the other in front of the street. Important involved components in the territory are the cubic mole of Villa Bettanini, compact volume deriving from the transformation of the castle of Peraga, the presence of the eighteenth-century Villa Pavanello, the proximity to the remains of the ancient mill on the Tergola River. Furthermore, it should to be considered that close to the castle arise several structures of the Municipality relating to cultural policies, among them the strategic spaces of the Municipal Library are included.

The objective of the study of the former Agricultural Consortium area is part of a more general belief that the redevelopment of the abandoned territory constitutes a strategic tool to reduce the soil consumption.

This subject has been recently investigated by our students at the Architectural and Urban Composition 2 course taught on the master's degree in Architectural Engineering at the Department of Civil, Environmental and Architectural Engineering of the University of Padua.

Keywords: Peraga, Urban Form, Space, Memory, Identity

Altered planning as a mean for urban complexity. The case of Eixample Master Plan in Barcelona

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ABSTRACT

Regarding global trends towards urbanization, Barcelona (Spain) stands as an example of compact and complex city worldwide. In this regard, Cerdà's Master Plan is deemed the basis of this idealized reality. The grid mesh, the open block, the extended chamfer, or the hierarchy of streets have historically been considered its most relevant contributions to the urban realm and urbanism. However, and as this work assesses, it is its capacity to be altered, in terms of openness of possible states (entropic diversity), that has made possible the compact and complex configuration of today's city. Although the planned grid acts as the main formal support organizing the Eixample district, there is a number of non-planned layers to be considered relevant in the resilient process of cities in terms of adaptive regeneration. The analysis is based on data from the cadastre and the comparison of different blocks within Eixample grid (e.g. XIX Century fabric, XX Century fabric, XX Century reconfiguration, superblock case) and their temporary evolution since mid XIX century. As a result, we identify and characterize the variations of the original urban plan in relation to urban compactness and complexity, taking to account the original plot distribution as the bases for a diverse fabric. As a result, we differentiate and characterize real estate (top-down) and individual (bottom-up) initiatives according to their capacity to generate and foster complexity.

Keywords: urban complexity, non-planned city, adaptive regeneration, Cerdà Plan, urban planning

Morphology and Urban Identity of Contemporary Metropolises: the case of Perth, WA

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ABSTRACT

Fordist cities emerged in the first half of the 20th century as a product of a consumerist ideology that privileged the convenience of private car transport at the expense of a balanced relationship between the distribution of urban form and land exploitation. The promise of "emancipating" its inhabitants from the necessities of living near congested urban centres appealed to many. Gradually, the extensive use of the car, coupled with the emergence of the internet, progressively redefined the urban realm as post-Fordist-cities, offering seamless access to transport and communication networks.

These conveniences were presented as an alleged improvement of everyone's personal freedom providing people with opportunities to define their own private and shared everyday lifestyles. The adoption of the digitization of economic and interpersonal realms expanded globally, proposing purely economic-technological solutions to any new urban milieu's development which ultimately led to the fragmentation of the urban form and its social value.

Many city planners and urban designers today face the challenge of reversing the damage caused by the adoption of what is now widely recognised as a flawed planning strategy. Using urban morphology theories developed by Saverio Muratori and Michael G. Conzen, and summarized by Anne Moudon, in this paper we argue that the principles of tradition investigated by urban morphology are still valid and can be used in planning and urban design to improve the future urban form of colonial settings which evolved, in the post-colonial period, into Fordist and post-Fordist cities such as Perth, Western Australia.

Keywords: Density, Perth, Urban form, Fordist city, Sprawling

Environmental Characteristics and Spatial Representation: Transformation Path of Traditional Chinese Centrality Spatial Pattern in Contemporary Cities

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ABSTRACT

The concept of centrality spatial schema has been recognized in Western spatial philosophy as Schultz's "place theory," and in traditional Chinese culture as the "heaven-human homology" environmental concept, which is reflected in the traditional maps of Chinese ancient cities. Based on these maps, the authors divides environmental characteristics of cities into landmark types and space structures, both of which determine the spatial representation of space users from the perspectives of environmental knowledge and route knowledge. Then the landmark types and space structures of eight contemporary cities with centrality features are examined to explore the similarities and differences between the traditional centrality spatial scheme in ancient and modern cities. The findings indicate that although the specific function of a certain type of landmark has been transformed, its role as a landmark in the spatial representation process of the centrality spatial schema has remained unchanged. However, at the level of spatial structure, the transformation of landmark types does cause changes in the form and topological features of the centrality spatial schema. The aim of the study is to reveal traditional Chinese spatial concepts and urban construction rules, provide a reference for the protection of contemporary historical blocks, and explore the transformation methods of traditional Chinese centrality spatial schema in modern cities.

Keywords: Landmark, Traditional Chinese City, Centrality Spatial Scheme, Contemporary City

Measuring the evolution of urban texture in historical districts: a quantitative urban morphological approach

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ABSTRACT

As a response to the fragmentation of urban texture in many historical districts, this study proposes a workable approach for quantitatively measuring the evolution of urban texture to objectively reveal problems that often relied on subjective impressions. Based on the review of classical urban morphology and the sorting of status quo issues, 22 indicators from 3 key dimensions of urban texture, i.e., block form, building form, and block capacity, have been selected and measured. Specifically, 32 blocks whose historic urban texture are representative in Shanghai Historic District are chosen as the base for the study. Indicators mentioned above are defined and explained in terms of their significance. Secondly, the study calculates the values of each indicator for current urban texture and corresponding historical urban texture. Finally, the typical intervals of each indicator of historical texture and current texture are obtained and compared. As a result, this study quantitatively reveals the evolution of urban texture in historical districts with this approach. In short, this study contributes to the development of quantitative urban morphology by providing a comprehensive measurement of an 'unmeasurable' quality. It not only sheds light on the evolution of the urban texture in historical areas, but also provides guidance for urban design interventions. The study aims to stimulate methodological innovations in the era of quantitative urban morphology and morphometrics.

Keywords: urban texture evolution, quantitative urban morphology, historic district

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Wiener Straßendorf - a historical consideration of Vienna's pristine linear settlements

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ABSTRACT

The Straßendorf represents the archetype of an enclosed street space, and can thus be described as the nucleus of urbanity and arguably also as the original form of a settlement of short distances.

Its linear growth is limited: when a certain length is reached and further longitudinal expansion is no longer convenient, parallel or orthogonal streets are introduced to the system. Many (former) street villages in rural areas are now what can be considered the main street of an otherwise often scattered settlement. In other cases such as in Vienna growing cities have incorporated the former villages into their metropolitan street network, where they now usually represent a urban sub-centre, or a development axis for the city. Over 150 medieval and early modern Straßendörfer are documented in today's municipal area of the city, quite a few of which are also recognisable in today's townscape.

To date, those patterns their historical development and their current urban and functional structure have not been studied in their entirety. This is what our paper aims for: A comprehensive research of historic literature and maps will allow the detailed description and localization of the special linear settlements in and around Vienna. The comparison of the form and functions of historical street villages with their contemporary counterparts serves as a basis for understanding the inner configuration of a Straßendorf and the overarching macro-structural incorporation into the urban body.

Keywords: Straßendorf, Vienna, linear settlement, street, public space, attached building development

Industrial heritage reuse and gentrification in China: Investigating an art district in Xi'an, China

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ABSTRACT

China's economic transition from socialist to market is coupled with deindustrialisation that leads to the emergence of industrial heritage. While the spontaneous rehabilitation of abandoned industrial buildings by artists has been well-documented in the existing literature, little is known about how the socialist legacy of work-units has to do with the reuse of industrial heritage. Based on the case of Dahua 1935 in Xi'an, this research questions the traditional understanding of art-led redevelopment and gentrification and offers new insights into the interplay among the government, state-owned enterprises, and local work-unit communities in post-socialist China. The research finds that "art district without artists" is a distinct mode of urban redevelopment in China, where art commodity replaces artists. Industrial heritage has maintained a special socio-spatial relationship with work-unit compounds due to the legacy of the work-unit system, which leads to chain-gentrification following redevelopment. The research suggests that the tension between the socialist legacy and the capitalist mode of urban redevelopment can impede sustainable industrial heritage-led redevelopment in China.

Keywords: industrial heritage; art districts; gentrification; work-unit

The reconstruction of French bombed cities and the open block

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ABSTRACT

Following the end of World War II, many French cities faced heavy destruction following the bombardments which sometimes erased large parts or entire city centres. The question for the actors of the reconstruction is how to rebuild these centres and what to retain from the past urban form. From the point of view of building configurations, one of the main changes between pre-and post-war urbanism is the evolution from closed and compact blocks inherited from the historic fabric towards more open blocks under the influence of modernism.

This study focuses on the impact of the choice of building configuration, such as pavilion or court types, on the intelligibility and navigability of these cities. Using figure and ground cadastral maps of both urban blocks and building footprints, the comparison looks at the impact of the openness of the configurations on the speed of tracing a route between two points as well as the choice of routes in a goal-oriented navigational task.

Using spatial cognition and morphology indicators, this research approach provides a means to better understand how the positioning of building footprints on the urban block affects its degree of perceived openness. It shows that the fragmentation of the public space by less compact and more open building configurations greatly lessens both the overall syntactic intelligibility and the ease of navigating these urban layouts.

Keywords: bombed cities; intelligibility; open block; spatial cognition

Study on the morphological transformations of one historic area in Shenzhen, China

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ABSTRACT

The current conservation and redevelopment practices of historic urban areas in China tend to focus on the inner area within the conservation boundary, which greatly ignore the relationship with their surrounding environments both spatially and functionally. Urban planners are lacking the awareness of the historico-geographical structure of urban landscape, especially on how historic areas relate to one another and are part of a process of change (Whitehand et al., 2007). There needs more attention to urban landscapes as ensembles. Morphological approaches on the one hand have been widely applied and demonstrated effective in the conservation of historic urban areas (Gu et al., 2008; Karimi, 2000; Whitehand & Gu, 2007). On the other hand, combining and coordinating different morphological approaches to enhance the understanding, analysis and prescription of urban form has been increasingly discussed in recent years (Kropf, 2009; Kropf, 2013; Oliveira et al., 2014, Li & Zhang, 2020).

This study explores the combined use of the historico-geographical and spatial configurational approaches to investigate the historical transformation process of one historic urban area in Shenzhen. It aims to provide reference for urban planners in delimiting conservation area and suggestions for small-scale urban conservation and redevelopment by articulating the area structure. To achieve this objective, this paper firstly identifies hierarchical plan units in different morphological periods and explores the spatial relationship between them by the combined approach. Secondly, a detailed examination of the persistence and transformation of urban elements within the plan units is carried out by the configurational approach. Shajing village, a typical historic urban area in Shenzhen, China is selected in this study to elaborate how this combined framework is applied in the analysis.

Keywords: historico-geographical approach, spatial configuration approach, morphological transformation, historic urban area, Shenzhen

Conservation-transformation dichotomy in the historical evolution of city walls: Reflections on urban morphology

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ABSTRACT

City walls with their physical, social, symbolic, political meanings have influenced spatial formation and progress of urban morphology as they have been affected by different morphological approaches and practices as well. Since their first formation, city walls have had a role of demarcation of boundaries limiting the urban growth and controlling the expansion, and separation of the cities into districts. However, this deterministic feature of city walls has evolved through different approaches mainly focusing on transformation and conservation in time. In order to understand how those approaches come into existence in the urban fabric and how urban morphology responds the compelling situations emerged, this study aims to examine the historical evolution of city walls over seven different morphological cases, Paris, Amersfoort, Vienna, Istanbul, Dubrovnik, Xi'an and Carcassonne. As main results of this comparative assessment pointing out the challenges and potentials, transformation approaches accelerating the expansion of the city is emerged through creation of different uses at the exact location of the former walls in Paris, Amersfoort and Vienna while conservation approaches in Istanbul address the walls solely as architectural structures, and cause fragmented urban fabric in the surrounding today. Based on the findings, it is considered that the disconnection between approaches and their ways of practice regarding the city walls and urban form should be solved through integration with the relevant disciplines to the urban morphology and multi-dimensional perspective.

Keywords: city walls, conservation, transformation, urban form, morphology

Urban Transformation of Tenjin, Fukuoka through Urban Big Bang

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ABSTRACT

Tenjin Big Bang will lead to the safety and peace of many citizens, workers and visitors by rebuilding aged and deteriorated building with a highly advanced earthquake-resistant building is a project to further enhance the functions of the city center and create new spaces, employment, and tax revenue. Along with the reconstruction, Fukuoka City Government is working to further refine the appeal of greenery, culture, history, etc., and are working to create a town that will be chosen by many citizens and companies where they can feel the richness and fulfillment.

Fukuoka City announced the Tenjin Big Bang Project, a project aimed at making Fukuoka an Asian Business hub by increasing the number of people working in Tenjin by 2.4 times. Taking advantage of easing regulations under the Strategic Special Zone initiative, the plan calls for the redevelopment of 30 old buildings in the Tenjin area over the next 10 years. The area covered by the Big Bang is a 500m radius extending out from the Tenjin intersection. One restriction the City is thinking about easing is the requirement for buildings of a certain size to have ample parking on site. The City estimates that the redevelopment work alone will have an economic impact of JPY 290 billion and anticipates an additional annual economic knock-on effect of JPY 850 billion by the time all the new buildings are complete.

This research will clarify the development and urban transformation of the City center during the Tenjin Big Bang.

Keywords: Urban Catalyst, Urban Transform, Tenjin, Fukuoka,
Big Bang,

The Challenge of the Conservation of China's Historic Areas in Practice, take Xizhou Old Town as an Example

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ABSTRACT

Under the influence of international charters such as the *Nairobi Recommendation*, the *Washington Charter*, China's conservation system took shape in the 1980s, and then the climax of the delineation of state-list famous historical and culture cities, towns, villages and blocks raised. So far, a considerable number of historic areas appeared. However, either historic area or historic town is a "combination concept", which is derived from the superposition of past values and current geographic space. It is bound to face the impact of changing values. In China's practice, the conservation of historic areas is often simplified to the maintenance of a unified *style*, and for the monuments, their value is kept only by solidifying the material forms. Consequently, for conservation, large-scale demolition and construction must be done inside the historic area. It not only caused the loss of historical information, the opposition between the conservation and the current demand, but also destroyed the continuity and integrity of the urban space and. Taking Xizhou Town, one of the state-list famous historical towns in Dali, China, as an example, using the research methods of oral history and urban morphology, this paper graphically summarizes the important construction activities of Xizhou Town in the past 30 years and tries to restore its "erased history", and take a glimpse of values held in the conservation practice of historic areas and the problems arising therefrom. Then from the perspective of the international charters, explore the profound causes of the phenomena and propose suggestions.

Keywords: Historic areas, conservation, Xizhou Town.

Investigation of the Accessibility of Parks that Have the Potential to Become an Emergency Assembly Point in the Norman Creek Catchment

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ABSTRACT

Urban areas are prone to emergencies, considering their density, dynamism, complex zoning structures and high population rates. In order to minimize the loss of life and property in possible disasters that may occur in the city, emergency incidents should be managed strategically. One of the issues at the beginning of strategic planning is determining emergency assembly points. In urban areas, parks can be used as ideal emergency assembly points as long as they meet specific criteria. The aim of this study is to identify the parks in the Norman Creek Catchment that have the potential to be an emergency assembly point and to compare their accessibility. Norman Creek Catchment is a region where flooding disasters are frequent. In this study, parks in the Norman Creek Catchment were selected as the study area and analysed using GIS technologies. At the first stage of the method, 3 analyses were used, and thus possible emergency assembly points were determined among the parks. In the second stage, buffer analysis was performed on the selected parks. The accessibility of the park areas was compared taking into account the proportion of housing that can reach the parks, it was determined which parks are more accessible and in which regions these areas are concentrated. This research will reveal whether the parking areas to be used as potential emergency assembly points function as safe evacuation areas and raise awareness about this issue.

Keywords: Accessibility, flood, park, GIS, Norman Creek Catchment

Transformation of Morphological Regions in Guzelyurt (Morphou) at the Urban Preservation Context

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ABSTRACT

Many years ago, M.R.G Conzen laid out a theoretical basis for urban preservation based on the functional development of the urban landscape and the recognition of morphological zones. These regions plan units, building type, land and building usage areas are taken as basis and this put forward to established a hierarchy that prioritized the basic plan units. Later, Whitehand developed his ideas not only in the field of urban preservation in traditional and historic town but also the socio economic development of the industrial and postindustrial towns in order to understand the transformation of urban form by considering political and economic changes. Additionally, building identity and building character on street level has been formed the morphology of the towns on street level.

In line with discussion on morphological regions, the aim of this study is to explore Conzen and Whitehand morphological region approach in urban preservation in order to find a comprehensive solution after the post-conflict period for one of the unique town called Güzelyurt (Morphou). This entails to see the finding within the concepts of urban land utilization, genetic plan units and historic building types are still applicable in current situation of towns in planning level. Secondly it tried to discover the morphological transformation at modern town preservation especially how the delimitation of morphological regions have hanged through time. The findings give a systematic methodology for assessing the urban form transformation upon the scope of urban preservation concept in morphological studies.

Keywords: Morphological Regions, Urban Transformation, Urban Preservation,

Preservation and Transformation of Modern Socialist Residential Building Heritage of China: Exemplified by Beijing Baiwanzhuang Neighborhood and Shanghai Caoyang New Estates for Workers

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ABSTRACT

This study focuses on the modern residential heritage born under the practice of socialism in China. However, for these kinds of heritage which are also urban residential function component, how to understand their value and making conservational strategy can merely be discovered an efficient way for lack of methodology. With the development of the economy and the expansion of the city, the economic location of residential heritage has changed dramatically. The low-density development is in contradiction with high land price, thus facing strong pressure of transformation. In summary, compared with other types of heritage, modern residential heritage faces a unique contradiction between “preservation” and “transformation”.

This study selects *Baiwanzhuang* Neighbourhood in Beijing and *Caoyang* New Estates for Workers in Shanghai to carry out a comparison study. *Baiwanzhuang* and *Caoyang* New Estates are typical Chinese modern residential heritage and epitome of China’s socialist practice. However, *Baiwanzhuang* and *Caoyang* New Estates were born under different planning concepts and practical needs, and have undergone different morphological processes, therefore having different heritage values, and also facing different preservation and transformation measures. This study will first take the approach of Urban Morphology to interpret the modern residential architectural heritage of *Baiwanzhuang* and *Caoyang* New Estates. Second, the paper will focus on the comparison of the preservation and transformation measures in both cases, and analyse the underlying mechanism, so as to reflect on the relationship between “preservation” and “transformation”, and further consider the guidance role of Urban Morphology in concrete practice.

Keywords: Modern Residential Heritage, Socialism, Preservation, Transformation, Urban Morphology

The physical and economic transformation of historical towns on the waterfront – case studies from Zhejiang Province, China

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ABSTRACT

Recently, Zhejiang Province in China prioritizes "thousand-year towns" in its strategical regional plan. These towns have two attributes: 1. a long history; and 2. a low administrative rank at present. The Thousand-year Towns' Revival Program has triple objectives - besides the conservation for historical elements, it also emphasis on the utilization of culture heritage, and enhancement for the well-being of local people and local economy in the meantime.

As large proportion of these towns are on the waterfront, this study aims at describing the physical and economic transformation of these towns which are near rivers. The time spam is from 1950's to today. The economic dimension refers to whether its main revenue derives from industry or tourism. Preliminary observations imply that these are patterns need to be articulated among their morphological growth, land use distribution, and street networks.

Eight cases were selected. The morphological growth will be visualized by maps based on historical satellite images. Three questions will be explored: 1. How do the industrial urban tissue and the historical parts assembled; 2. how did the road construction help the town astride the river at different stages; 3. What is the transformation of spatial structure, especially the status of the historical highstreets, are they still lively centre at present and why? Space syntax modelling will be applied to answer the last two questions. This study suggests physical form makes a difference for the function of a town. Both the spatial structure and scale are important. It provides insights for the Revival Program to regenerative these towns.

Keywords: historical towns, riverside, street network structure, space syntax, Zhejiang Province

Hypertopia. Challenging cemeteries idea: historical urban outposts between preservation and transformation

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ABSTRACT

A rethinking of burial spaces and their relationship with the city is the aim of "Rethinking lastscapes Perspectives (R.l.P.)", the multidisciplinary research project financed at the University of Naples "Federico II" in the framework of which the research proposed here is conducted. This paper seeks to examine cemeteries primarily in terms of their positional value. They are considered and proposed as potentially strategic in the context of the contemporary transformation of the city. The paper will propose a background in which the cemetery is examined in terms of its typological configuration and in relation to the urban context in which it is generally embedded, in order to understand its elements, reasons, developments and even entanglements that we inherit today. Next, the demonstrative case proposed by RlP research - the cemetery system of the Poggioreale hill in Naples – will be examined to show an exemplary morphological process related to the proposition of cemeteries as historical urban outposts. Then, international case studies will be used to briefly review the three types of issues highlighted in the research: ecological technological innovations, digital extensions of monuments, new open and complex morphologies. The methodology will conclude with the identification of three structuring design strategies within the dichotomy preservation and transformation: "designing margins", "designing layers", "designing rooms". These are experimented, through research by design, in the project proposal "T'era Park". The latter represents a first design experiment within the theoretical proposal of the research: the transition from cemetery as heterotopia to cemetery as hypertopia.

Keywords: heterotopia, memorial site, public space, research by design, innovation

Perceptive landscape from memories and individuals identities

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ABSTRACT

The perceptive reading of the landscape identifies characteristics of the territory that transcend the description of its physical elements. When associated with environmental perception, it addresses aspects related to history, human relationships, and the way of life materialized in the landscape by memories of events in a given location, or it is shaped by the interaction between observer and landscape. In this sense, establishing objective and subjective information on the landscape of the Armação do Pântano do Sul neighborhood, in Florianópolis/SC, through a deductive and exploratory study approach, the general objective of the study was to understand the consolidation of places from the reading of the neighborhood's residents' environmental perception. The process recorded thirty-four visual strips of the neighborhood at two different times of the year: in February 2021, during the high season, and in August 2021, in the low season. The analyzes revealed that the neighborhood of Armação do Pântano do Sul grew towards its edge, suppressing socio-spatial characteristics that dated from its foundation. The temporal mosaic generated by the speed of expansion of the urban fabric contemplates landscape components that resist time, and promotes the identity and collective memory of the local community, transposing the historical connection with the sea and the foundation of the neighborhood. The memory preserved through changes in the landscape is manifested through affection: the return to the place where we were. In the case of Armação: feeling the air, perceiving the sky, looking at the sea.

Keywords: urban planning, land use, neighborhood.

Biking nodes. Shaping public space and urban fabrics for cycling infrastructure in European metropolitan landscapes.

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ABSTRACT

European transport sector's 40% of CO2 and around 70% other polluting particle emissions are caused by urban mobility. Due to the climate crisis, cycling is considered as the most sustainable solution in urban tissues where density and intermodality are the most important factors in territorial development. This research studies the implementation of cycling infrastructure in the metropolitan landscape, regarding both the public space and urban form. Its main objective is to test the relationship between the urban layout of cycling infrastructure and the degree of complexity of uses. A comparative method is proposed between different European metropolises, considering multiple urban cycling landscapes. Focusing on same-scale urban contexts in which cycling infrastructure (lanes and segregation, parking and sharing options, etc.) interacts with urban activity (commerce, intermodal options, public spaces, etc.) on different intensities, the morphology of the territory is studied and mapped from a cycling perspective. The results show the different urban logics of implementing cycling infrastructure and its impact on both the territorial network and the public space. In this way, it has been possible to describe more precisely the needs of cycling mobility for its correct implementation in the urban space. The adaptation of the urban morphology to urban cycling does not depend exclusively on factors related to the design of cycling infrastructure. However, its final arrangement in public space affects the uses and inclusivity of cycling infrastructure. These complementary views seek to shape the constellation of elements that interact between urban cycling and urban form.

Keywords: Urban cycling, sustainable urbanism, public space

Preservation along with Transformation in Esfahan Urban Development

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ABSTRACT

As one of the world's most famous Islamic cities, Esfahan is well known for its rich cultural and architectural heritage. The city has been the focus of previous architectural and urban studies discussing its medieval forms and structures and highlighting distinctive traditional and modern features in its construction. The 20th Century underwent significant changes, when the modern movement imported global urban planning models that were over-imposed on the pre-existing city. Significant changes in the urban landscape represented a point of rupture with the previous traditionally capillary city whereas there was a disappearance of its collective meaning.

Based on an in-depth case studies analysis as the investigation's primary methodological approach, the paper analyses the urban transformation of the city looking at the historical urban changes produced during the 20th Century, when new mobility schemes and radical street transformation reshape the pre-existing city and set the logics of the city extension up to its metropolitan stage.

The extensive exploration of diverse sources allows reconstructing and understanding of a very important episode in one of the old capitals of Iran. At the same time, the narrative provides some reflection for the current debate on how cultural heritage can be preserved while the contemporary city and society evolve positively.

Keywords: Esfahan, Islamic cities, urban transformation, cooperation and synergy

Does the street network matter for the vitality of historical districts – cases from Zhejiang, China

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ABSTRACT

How to redevelop historical districts has attracted increasing attention in China recently. The major challenges facing planning are not in the large cities, but in small-sized towns. Without the support of urban life and management, the traditional neighborhoods and building structures are likely to be in danger. The role of street networks is not well understood by urban regeneration actions. A good spatial network can create good connection between old and new urban districts, therefore generating movements towards the older parts, helps achieve the reuse of old buildings. However, the spatial assembling of the old and new urban districts was made without scrutiny in the recent rapid urbanization. The accessibility of old urban districts is most likely to be disadvantaged. This hypothesis is examined by using comparative urban research. Twelve study areas in small-sized towns in Zhejiang are selected, which cover varied combinations of spatial and functional types. sDNA on GIS platform is used to provide both the visual analysis of configurational centres and statistic calculations. It reveals that the position of the configurational centre of a street network plays a crucial role for the current use of historical districts. More difficult the old urban areas is perceived by visitors, the higher likelihood the old urban districts decline. This study shows the importance of spatial structure for the vitality of historical districts. It is suggested that urban regeneration should take this morphological law into account, optimizing the spatial network for historical areas both inside and within its surrounding areas.

Keywords: historical towns, street network structure, sDNA, accessibility, revitalization

Study of Transformation of Urban Morphological Features of Heritage Towns of Tamil Nadu, India

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ABSTRACT

A study on the transformation of urban morphology and architecture, mainly the urban density, road layouts, built forms, the heritage setting and the modern interventions of two heritage towns, Srirangam and Madurai of Tamil Nadu, India, was carried out. The settings of the historic temple gopurams of Srirangam and Madurai are similar in their urban morphology and design, with the temple in the centre and cities evolving around the temple. Srirangam, a temple-centred settlement pattern, comprises seven concentric rectangular enclosures that run around the sanctum sanctorum. While the inner five enclosures of the complex constitute the temple, the outer two enclosures function as the settlement. The historic core areas of Madurai are built around the historic temple, as four concentric squares named after Tamil months. These are examples of temple-centred settlements, wherein the temples were laid in concentric form, and the settlements also grew in concentric layers. These historic cities are getting transformed and losing their identity in the phase of urbanization. The transformation affects the heritage structures of the town, which affects the identity of the place. Land use change, i.e., from residential to commercial and augmentation of densities have taken place over a period of time, exerting pressure on the urban infrastructure. Place-specific guidelines need to be framed to control the developments to conserve the heritage value of the historic cores of these towns.

Keywords: Historic Core, Land Use, Built environment, Density, Street Pattern

Between Elbrus and Ararat: transformations in the urban form of the Caucasian cities

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ABSTRACT

The contribution deals with the transformations of the urban form in the countries of the Caucasus and the new directions undertaken by these in recent urban projects.. Both that the road taken by Armenia, Georgia, Azerbaijan turned out to be a continuation or a revolution of the architectural guidelines imposed by the Soviet planner, and that the urban choices involved tortuous paths - ranging from the removal of the memory to construction build a new mythology of urban form - the shaping role of architecture is, in most cases, still visible today in the recurring use of "topoi". These paradigmatic elements of the built landscape are characterized as generators of forms of collective memory and spatiality that can be traced back to great identity systems. The search for these "identities", between successes and failures, represents the boundary between the compositional chaos and the typological and morphological order of architecture. The transformations of the last twenty years of some of the Caucasian republics testify how, within the differences that exist between the approaches of the individual states, a common thread can be identified in the search for a "new identity" made up of linguistic etymes capable of giving life and shape to a coherent national narrative. However, there are some emblematic cases which demonstrate how the recent attempt to overcome the problem of urban identity through starchitecture also contains the risk of damaging the urban fabric and the building heritage to impose languages disconnected from the territory and from the rules of the formative process.

Keywords: typology, Caucasus, heritage, urban form

Guidelines for sustainable land use of New Belgrade from perspective of urban morphology

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ABSTRACT

Given the fact that the morphological patterns of land use within super-blocks of New Belgrade were created during the period of non-market economy in Socialism, now it is possible to review the effect that the sociopolitical transition into Capitalism (which started in the 1990s) has had on its land use. Findings of this paper are based on the previously done research within the urban morphology scope, specifically on „3 steps methodology" which was created as the combination of the typomorphology approach and the morphogenetic analysis in relation to land use of New Belgrade's residential super-blocks. Since the preliminary findings of the morphogenetic analysis of the area have revealed that dominant professional trend is no longer essential in shaping it but the impact of land policy driven by the transition of socioeconomic process in the country, and that nowadays there are negative trends of using the land in super-blocks in New Belgrade (almost 100% of the unbuilt soil in the newly developed super-blocks is covered /paved), focus will be on presentation of the final results of the research – specific „guidelines for the sustainable urban land use of importance for the morphological aspect of New Belgrade", which could be of help for management of its space nowadays.

Keywords: sustainable urban land use, urban morphology, typomorphology, morphogenesis, land policy, professional trend, modern residential communities, recommendations

The reconstruction of Homs. Principles, criticalities and contradictions

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ABSTRACT

The study concerns Homs, a Syrian city bombed during the civil war began in 2011. The urban fabric of the ancient nucleus remains, while the buildings are largely destroyed. Unlike other cities damaged by wars, Homs is different, because the destruction in the old city didn't concern stratified blocks of old buildings, but recent blocks within the ancient nucleus, due to the urban transformations began in 1985 which caused the demolition of older housing, replaced by new buildings. Therefore it is a case study in which several contradictions converge, because the structure of the blocks with the paths follows the ancient trace-palimpsest of the urban organism, while the buildings are replacements that are in critical relationship to the nearby Citadel, the oldest nucleus of the city.

This dissertation wants to analyze this contradiction with respect to the reconstruction hypotheses currently being defined, searching the most appropriate strategy. It is clear that the theories on urban restoration developed in the twentieth century (addressing topics such as: "how it was where it was" - "build elsewhere" - "thinning out and replacing") are today being challenged by cases such as that of Homs: what to rebuild? Rebuilding the ancient nucleus as it was? Recovering the architectural characteristics of the ancient nucleus demolished in the 80s? Deeply renew building types, having lost their testimonial value forty years ago?

The results of the study, through analyzes and drawings, intend to summarize the reflections with respect to the aforementioned issues, methodologically integrating the processual typology with the phenomenological-spatial reading.

Keywords: destruction, reconstruction, urban form, heritage, identity

Chinese Desakota, 40 years later: regional pattern through a morphological lense.

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ABSTRACT

After the coastal regions of China were opened as special economic zones in the 1980s, the Pearl River Delta has been the most heavily targeted area of foreign direct investment. The emerging rural-urban continuum mixes rice paddies, industrial production, housing, shopping malls, traditional vilalges and ad-hoc markets without any apparent order and with an intensity rarely seen elsewhere. The Dongguan prefecture is one such region and represents a perfect example of what has been termed the Chinese desakota (McGee in Gainsburg et al. 1991). The desakota model (being generic and systemic), lacks spatial qualities of a concrete urban pattern that only a language of urban morphology can describe. This research reviews the desakota regional model by describing the urbanization of Shipai municipality in Dongguan from the village scale onto the regional. Reinterpretation of the pattern is based upon a mixed urban morphology approach taking into account local typologies and historical morphogenesis following 10 years of Shipai township development from 2008 to 2018 in combination with the interviews with the local inhabitants. Starting from the morphological pattern of the village and typologies of industrial compounds, to reconstitute the regional scale, the analysis suggests a revision of the desakota model. The paper concludes with a redefinition of Chinese desakota based on the specific knowledge brought to the regional scale by the urban morphology, identifying three distinct regional typologies that transform the rural China to this day.

Keywords: desakota urbanisation, regional pattern, morphology, Dongguan, China

Hazards and urban systems: An operational taxonomy

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ABSTRACT

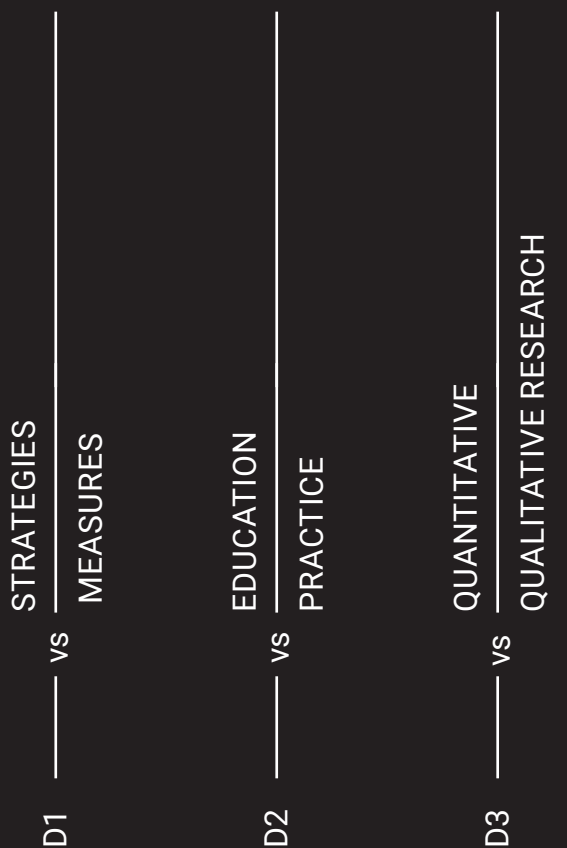
This piece of research is focused on crossing a selection of the most common hazards (high-uncertain events) and their degree of spatial effect in urban areas. This analysis derives from previous research that selected common disasters affecting urban areas and parallel research identifying major civil conflicts that took place in cities. Therefore, an operational taxonomy of event types is carried out according to their greater or lesser direct linkage with urban systems. As a basis, we use a first approach based on the EM-DAT, in which disaster types and frequency are combined. Disasters are grouped in the following typologies: drought, earthquake, epidemic, extreme temperatures, famine, flood, insect infestation, slides (avalanches and landslide), volcano, tsunami (tide, wave), fire and storm (hurricane, tornado, etc.). From those, the ones that are more frequent in urban areas are storm, flood, earthquake, epidemic and drought. To this first classification we add the group of social events that includes armed conflicts (violence, war, terrorism) and civil unrest – riot. The paper evaluates the impact of this sequence of hazards in urban areas, thanks to a selection of global historical cases. The paper deeps in building an operational taxonomy that allows to identify the most common high-uncertainty events that cities face. We select not only the most frequent events but also the ones that imply greater impact on urban form, urban structure, and land use/property distribution. Indeed, this taxonomy is adapted according to the impact on urban areas, thanks to the deeper identification of patterns of change.

Keywords: urban complexity, uncertainty, hazards, urban planning, conflicts

TRACK D.

PROGRAMMING AND RETHINKING CONCEPTS

Rethinking plans of actions / short and long term, Engaging “RE” approach – reconsidering definitions, reprograming research agenda, rethink the ways of knowing



A human-centered evaluation of street charm: a methodological innovation integrating multi-sourced urban data

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ABSTRACT

With recent development of analytical tools in the past decade, a series of approaches evaluating perceived street qualities have been developed. Nevertheless, street charm as an important concern of contemporary urban design is still lacking quantitative measurements. As a response, we are attempting to develop an evaluation of the perceptual-based charm of streets which usually depended on subjective experience. With multi-sourced urban data and machine learning algorithms, a human-centered evaluation has been developed to measure street charm from three dimensions: visual quality, network accessibility and functional diversity. Specifically, street view images and machine learning algorithms were applied to quantify visual quality intelligently. Spatial design network analysis (sDNA) was used to measure street network accessibility. The entropy of points of interest (POIs) was used to assess functional diversity on streets. Guangzhou, a megacity from southern China was selected for case study. Analytic hierarchy process (AHP) was applied to integrate these three key dimensions to evaluate street charm. Furthermore, the satisfactory accuracy of the approach has been verified by further validation. The analytical approach helps to quantify the degree of street charm comprehensively, owing to the application of multi-source urban data. In short, this study contributes to the development of a human-centered and systematic measurement of street charm across large-scale areas, which benefits planning practitioners to get information more efficiently and precisely. Findings achieved from this study would contribute to bring in a human-oriented perspective into morphometrics and newly developed analytical tools.

Keywords: Street Charm, visual quality, network accessibility, functional diversity, multi-sourced data

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Elastic tissues and the dynamics of centrality

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ABSTRACT

This paper revisits the transformative typology of urban tissues introduced by Brenda Scheer: static tissues, campus tissues and elastic tissues. This typology is found to be relevant beyond the analysis of suburban sprawl for which it was initially developed. It may contribute significantly to the understanding of urban transformations in various cultural contexts and historical periods. The crucial notion of elastic tissues is further investigated, focusing on the ways in which the emergence of these tissue patterns is related to shifts in centrality occurring during the evolution of urban spatial networks. Apart from quantitative processes such as growth, contraction, densification or thinning out, the evolution of the urban fabric also entails an ongoing rearrangement of the relative accessibility of every location within the city. These dynamics in turn feed back on local processes of formation and transformation of urban tissues through the modification of plots and buildings. These processes have been studied by investigating the parallel evolution of accessibility and plot patterns within the city of Zurich. Based on a fine-grained partitioning of the study area, the temporal evolution of the relative accessibility of each partition has been evaluated applying space syntax measures. Furthermore, the frequency of plot reconfigurations, fusions or subdivisions has been assessed for each partition. Correlations between the evolution of accessibility and the frequency of plot mutations have been examined, leading to a set of hypotheses on possible causal relations underlying the emergence of elastic tissue patterns.

Keywords: Elastic tissues, Process typology, Space Syntax, Plots, Centrality

Role of plot structures in guiding spatial change and persistence: Developing quantitative measures of plots and providing a diachronic method for empirical testing of prevalent hypotheses in urban form studies

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ABSTRACT

Quantitative analysis of urban form and its association with socio-spatial processes is an expanding field of interest in urban morphology. Nevertheless, development of diachronic approaches and reliable urban form descriptors focusing on the 'temporality' of urban form and dynamics of 'spatial change' is yet to be achieved. Although they have not been thoroughly validated via quantitative methods, a number of hypotheses have remained prevalent within the discipline. Amongst these arguments, those focusing on plot structures deserve to be investigated further, as plots play a vital role in structuring the urban form and guiding its (trans)formation processes. This research aims to develop a diachronic and quantitative method to measure plot structures and their effect on spatial change and persistence, by comparing long-term spatial evolution of the city centres of New York, Melbourne and Barcelona, between 1880s and 2000s, with the help of a longitudinal geospatial database generated from various historical and cartographic resources. To that end, the most common and conventional descriptors (plot size and shape) and more recent quantitative measures (accessibility based measures of plot density, heterogeneity, compactness and frontage) are empirically and statistically tested to investigate how plot configuration affect the patterns of spatial change and persistence. The findings demonstrate that while the widely accepted geometric descriptors are surprisingly off the mark, accessibility-based locational descriptors are more successfully associated with the patterns of change and persistence. The research not only implies the role of plots in guiding spatial change, but also reconstruct our theoretical understandings with novel data-driven insights.

Keywords: plot configuration, spatial change, persistence, accessibility, morphometrics

Public space as a catalyst for linear urban projects. Some Visions from Zaragoza (Spain)

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ABSTRACT

Public spaces have always been a faithful reflection of the complexity of urban processes and an expression of the social and cultural diversity of the city. Interventions in public spaces are now considered one of the fundamental strategies for improving the urban quality of our cities. Their role and potential to catalyse urban regeneration processes are increasingly recognised. This is why many cities are adapting their public spaces to the new uses demanded by a renewed urban life, understood as the right of citizens to enjoy 'the urban space', as Henri Lefebvre understood as the 'right to the city'. This paper explores the potential of public spaces to connect and articulate the urban fabric and to what extent they play an active role in urban regeneration processes. We focus on linear public space projects in different European cities, taking Zaragoza (Spain) as a case study. From a recapitulation of the importance that public spaces have had in urban culture since the emergence of urbanism as a discipline, we face the current conceptual renewal linked to the SDGs and Urban Agendas. From this perspective, we study local and international experiences of urban regeneration at different scales based on linear public space projects, analysing and diagnosing some urban situations under broad morphological perspectives. We identify problems and intervention opportunities through urban projects at different scales, highlighting the relevant role that public spaces can play in the commitment to responsible and quality urban planning is verified.

Keywords: urban regeneration, urban projects, public space, Zaragoza (Spain)

Evaluating and optimizing the functional composition of community centres: a data-informed approach assisting 15-minute community life circle

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ABSTRACT

Developing 15-min community life circle has been regarded as an important strategy in many global cities, which requires a quantitative evaluation and optimization of community centres providing public service and commercial facilities. As a response, this study integrates multi-sourced urban data and analytical tools to construct a data-informed decision-making approach. Specifically, this analytical approach informs functional composition from two dimensions: basic public services and commercial services. For basic service facilities, points of interest (POIs) and morphological data are used to calculate the coverage of various facilities. Urban network analysis (UNA) tools are used to measure service effectiveness. In terms of commercial development, LBS data is used to build user portraits of consumption levels. Crowd-sourced review data is used to judge the quality of commercial facilities. Social media check-in data is used to assess its attractiveness. A residential district that lacks various kinds of facilities in Shanghai, China has been selected as the case to illustrate the performance of this approach. Improvements in this direction contribute to improving the service quality of the 15-min community life circle. It also reveals new potentials in fine-scale urban management integrating multi-sourced urban data and quantitative morphological tools.

Keywords: functional composition, multi-sourced urban data, data-informed, community centre

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A critical approach to AI-based technological achievements in urban morphology; case of the urban block

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ABSTRACT

The research is framed based on the interest in new technological achievements such as software, tool and their implementation in urban morphology and contemporary treatment of urban form. Quantitative and data-driven approaches accelerated together with the accessibility of geographic data and mapping technologies. However, the evaluation of accessible information is yet to be developed. The aim of the study is to build a comprehensive approach to detect and analyze urban form in the specific case of the urban block. Variations of the urban block that emerged in history are treated as case studies. The research investigates urban block analysis based on shape and size by using AI technologies. The aim is to understand the level of information that can be retrieved from the geographical data produced using AI technologies. The applied methodology comprises detecting the urban block using the neural network and analyzing the quantitative components of retrieved results. The steps are defined as training the deep learning model to detect the urban blocks and synthesize results with urban morphometric indicators. The preliminary result of this study is the classification of the urban block based on shape and size. Additionally, urban blocks' quantitative elements are identified in categories and indicators. The study critically summarizes the limitations of new technologic achievements.

Keywords: Deep learning, urban block, urban morphometrics

Rethink the Ways of Behavioral Pattern Research by using Fine-Grained Subjective and Objective Assessment Data

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ABSTRACT

Spatial data acquisition technology is constantly evolved. However, there is a lack of collation of high-precision data applications and integration of subjective and objective spatial assessment data. The research question of this paper is how to improve the quality of built environment through the analysis of integrated spatial assessment data. A total of 987 related papers were searched and 121 articles were screened for deep review. Collated by Meta-analysis, the findings of literature review can be summarized as follows: 1) Time-space integration. In the spatial dimension, it evolves from two-dimensional to multi-dimensional. In the temporal dimension, the behavior sequence of users in the field is analyzed and upgraded from static to dynamic. 2) Object dimension expansion. By taking the individual as the unit of analysis to study the micro-scale perceptual characteristics and mechanisms to group trajectory movement analysis. 3) Multiple data information. The rapid development of personal smart devices, the Internet of Things and social media makes the types of spatial assessment data more abundant. 4) Multi-scale transition. Due to the improvement of spatial assessment data accuracy, the object of assessment gradually transitions from urban scale to near-human scale. Furthermore, this paper proposes a spatial assessment framework based on behavioral research and spatial assessment data fusion techniques.

Keywords: objective parameter measurement, subjective occupant survey, data fusion, temporal-spatial behavior, fine-grained data

Multiple land use assessment: An analytical framework for a common evaluation of accessibility, multifunctionality, density and diversity of land use in cities

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ABSTRACT

Originally theoretical concepts of walkability, multifunctionality, density and diversity in cities are nowadays widely applied in the practice of urban design and planning agenda. Within their scope, much attention is focused on land use, i.e., the location and level of spatial accumulation of various activities within the urban fabrics. However, we argue that there is a lack of connection between theory and practice. This paper presents an innovative framework for evaluating an element of urban morphology, land use, specifically suited for Prague's urban fabric and it further explores the possible application in urban design and planning. It aims to develop a descriptive assessment tool, grounded in the practice of urban morphology, based on scientific rigour, yet with easily interpretable results. Its objectives are (1) to spatially define land use by introducing a common spatial unit of analysis that is both contiguous and internally consistent – morphological tessellation; (2) to operationalize concepts of accessibility, multifunctionality, density and diversity; (3) to apply them on Prague urban fabric in order to evaluate its performance; (4) to synthesise these results by forming a taxonomy of complex land use patterns and their signatures. Quantitative methods stemming from urban design, social networks and biological systematics are hierarchically applied in form of cumulative opportunity measures along the street network. The results provide a valuable source for urban planners and designers looking to enhance their regulatory and design work thanks to an assessment tool of urban sustainability.

Keywords: land use, mixed-use, diversity, urban design, urban planning

The Policy Control Methods of Urban Plots and Blocks Integrating Local Architectural Form Characteristics: The Cases of Birmingham and Worcester

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ABSTRACT

Facing significant urban problems such as the loss of historical memory, high-density old blocks and the lack of attractive activity spaces, the renewal control policies for urban plots and blocks that inherit and contain local architectural forms and continue the local people's lifestyle are the key to creating dynamic blocks and places with a sense of belonging, which promotes human interaction, integrating tradition into modernity and serving the needs of local residents. Using the cases of the major regional centre of Birmingham and the small historic city of Worcester – both in the English Midlands - this paper focuses on the renewal control policies and urban design methods for plot and block renewal, based on the concept of the integration of the local architectural form such as street texture, architectural space, structure and regional construction techniques and materials, from the aspects of morphological types based on the local archetypal features of traditional architecture, classification of typical blocks and plot attributes where traditional buildings are located, the key control indicators related to form, correlation between the morphological characteristics of blocks and plots and main control indicators, and propose the morphological indicators of urban blocks and plots control that optimize local morphological characteristics. This study is of significance for the scientific understanding of urban space, the fine control of urban design based on relevant urban and architectural policies, the narration of urban historical stories, and the continuation of people's life memory and the experience of regional skills.

Keywords: policy control method, block and plots, traditional building forms, morphological indicators, Midland England

Exploring the relationship between interface types and street centrality in Nova Zabudova, Kyiv

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ABSTRACT

The configuration of buildings' facades and, in particular, of ground floors is fundamental for urban vibrancy and pedestrian activity at the street level. Even more important is the relationship between different types of public/private interfaces and street centrality. Wrong combinations (e.g. blank ground floors in a street with abundant pedestrian traffic) may seriously undermine urban vibrancy and attractiveness. While there exist studies on the relationship between street centrality and density of amenities/services and on the categorisation of different types of public/private interfaces, systematic assessments of the relationship between types of interfaces and levels of street centrality currently lack. In this work, we explore such a relationship in Nova Zabudova, a historical neighbourhood located in central Kyiv, Ukraine. More specifically, first, ground floors pertaining to each building were mapped according to interface types adapted from previous literature; second, three different centrality metrics (i.e. betweenness, local closeness and straightness) were computed for every street of the neighbourhood; third, correlation between the mapped interface types and centrality metrics was assessed both visually (through map comparison) and statistically (through correlation test). Results show positive correlations between fine grained, transparent/accessible interfaces and higher levels of street centrality. Outliers potentially indicate interfaces that can be improved to match their respective levels of street centrality. The paper ends with a discussion on the possible implications of this work in light of the dichotomy strategies versus measures.

Keywords: public/private interfaces, street centrality, Kyiv, correlation

Everyday Cognition on informal space in Vernacular Settlement

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ABSTRACT

Vernacular Settlement space is a kind of spatial aggregation that has evolved with the long-term development, combined with the terrain, technology and needs and local construction wisdom. Many seemingly irregular but meaningful Spaces have brought a lot of important inspirations to spatial cognition and design.

Based on the everyday life practice, this paper explores the potential meaning of the spatial morphology of vernacular dwellings settlement by absorbing the informal characteristics of the construction and usage in the life, and explores the meaning and interrelated attributes of space from different characteristics such as part and whole, unit and organization, subjectivity and object, consciousness and unconsciousness, etc.

Aiming at the cognitive analysis of informal space, this paper is divided into three aspects to articulate the perspective of space perception. First of all, starting from the observation of fragments of vernacular settlement, it expounds the order of elements that seem to be chaotic, and elaborates it in detail with the case of the spatial analysis of dwellings in Tunpu, Guizhou, China. Secondly, with the view of spacing regression, it emphasizes the interpretation of the new spatial meaning from the uncertainty of objective identification through human perception, and constructs the necessary ontological transcendence on the basis of certain structural definition, forming the outstanding everyday meaning with the case of Menxi project in Nanjing,China. Finally, on the basis of fragment order and spacing regression, information recombination is carried out in the way of collage, emphasizing the possibility of regularization extension of informal space, by the case of Linong study in Shanghai.

On the whole, this paper preliminarily explains the cognition of the informal space in vernacular settlement from three different perpectievs: fragment order, spacing regression and collage cognition.

Keywords: informal space , Vernacular Settlement, Everyday Cognition

Measuring the built environment in high-density city based on "comprehensive health"

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ABSTRACT

As the urban population continues to agglomerate in major cities, urban health issues have attracted increasing attention. The traffic, living, and environmental problems brought by high-density development threaten urban residents' health. At the same time, research shows that compact development and public transportation help to reduce urban pollution and increase residents' physical activity. Therefore, how to adjust the urban form, density intensity, functional layout, land use, transportation planning, and other factors through urban planning and design to affect residents' travel and lifestyle and promote residents' health has become an important issue. This paper takes four typical high-density cities, New York, Paris, Hong Kong, and Shanghai, as examples to sort out the built environment indicators related to urban health from 4 dimensions. Through the index evaluation, this paper attempt to identify the relationship between the density, strength, traffic, walking, public space, and other clues of the city under different high-density forms, as well as the impact on urban perception and behavior activities. The research result shows that moderately high-density development can benefit the convenience and efficiency of urban life. With well-developed public transportation and appropriate urban design, the environmental quality of high-density cities can be improved without compromising the health of residents, while overexploitation can be counterproductive. Therefore, seeking comprehensive health development and using urban design strategies to improve environmental quality is necessary.

Keywords: Comprehensive Health; High-density City; Urban Built Environment; Design Strategy

Morphology by Design: Contextualist Methods of 'Urban Fabrication' [An analytical review of Colin Rowe's Cornell Urban Design Studio (1964-1991)]

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ABSTRACT

Modernist planning, on the one hand, used to produce urban land via the total design approach that suppressed the complexity inherent in the traditional settlements. On the other hand, the contemporary planning practice mostly executes project-based development and transformation processes resulting in spatial fragmentation in city fabrics. The critical theory and praxis of urbanism, in this regard, aim to revisit the pluralistic nature of the city and regenerate the spatial diversity, integrity, and coherence as a morphological program -as opposed to 'big architecture'-. At this point, the contextualist question of reproducing the richness of the so-called 'collage city' model of Colin Rowe, American architect theorist (1920-1999) has got relevance than before. The design studio he led at Cornell University Urban Design Program between 1964-1991, basically, searched for a methodology for integrating the diverse parts of the fabric within a continuous urban field. The design studies conducted in the program, therefore, potentially suggest robust know-how for contemporary urban design. The current paper presents a comprehensive review of the design studies supervised by C. Rowe at Cornell comprising 118 projects. The review aims to reveal the underlying morphological operations involved in the fabrication of urban forms by design. In this way, design thinking could be utilized to formulate a new vocabulary that would also be used in the morphological research of existing urban fabrics. Consequently, six operations (*consolidation, assemblage, disassembly, constellation, reproduction,* and *typological transmission*) have been defined in the selected cases and (re)experimented algorithmically by parametric modelling in an actual context.

Keywords: urban design, fabric, urban field, contextualism, Colin Rowe, parametric modelling.

Research on the Impact of Urban Form on the Vitality of Urban Underground Space: Based on New Data and New Technology

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ABSTRACT

As the urban population continues to agglomerate in major cities, urban health issues have attracted increasing attention. The traffic, living, and environmental problems brought by high-density development threaten urban residents' health. At the same time, research shows that compact development and public transportation help to reduce urban pollution and increase residents' physical activity. Therefore, how to adjust the urban form, density intensity, functional layout, land use, transportation planning, and other factors through urban planning and design to affect residents' travel and lifestyle and promote residents' health has become an important issue. This paper takes four typical high-density cities, New York, Paris, Hong Kong, and Shanghai, as examples to sort out the built environment indicators related to urban health from 4 dimensions. Through the index evaluation, this paper attempt to identify the relationship between the density, strength, traffic, walking, public space, and other clues of the city under different high-density forms, as well as the impact on urban perception and behavior activities. The research result shows that moderately high-density development can benefit the convenience and efficiency of urban life. With well-developed public transportation and appropriate urban design, the environmental quality of high-density cities can be improved without compromising the health of residents, while overexploitation can be counterproductive. Therefore, seeking comprehensive health development and using urban design strategies to improve environmental quality is necessary.

Keywords: Comprehensive Health; High-density City; Urban Built Environment; Design Strategy

Material and Experiential Measures of the Giga Morphological Contexts. Linking Mega Compact settings to a Human Centred Design Framework.

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ABSTRACT

The introduction of 'giga' projects to the current urbanization paradigm challenges the praxis of the morphological discipline at large. First, quotative spatial features of the built environment deliver fully hybridized conditions that fuses both the city and mega buildings as a coherent condition. Second, the emphasis placed on volumetric compression to accommodate a 'gravity free settings' with numerous layers of usable public and private spatial types, amalgamates the use of conventional spatial typologies formally and functionality. Thirdly, giga projects additionally rely on numerus metrics to assess the measurability of such settings.

Missing within the mega approach is the qualitative qualities of space, exposing a knowledge gap in the measurability of human experiences in volumetric settings. This paper will explore the implications of linking complex form to experiential design frameworks. Not as a definitive outcome, but as an initial underscoring of conceptual linkages, the paper will trace the viability of HCD to environmental that are volumetrically derived. The paper will harness literature review over the last 10 years to question gaps in the conceptual framework of space to behavioral traits. The paper will dwell on viable methodological instruments and other practical tools open to HCD-morphological analysis.

Findings will assess the six performative indexes (walkability, light quality, representation of nature, volumetric proportions and visibility) to deconstruct volumetric qualities as human based experiences. Conclusions will draw on the possible synthesis of spatial and experiential frameworks, and future steps open to fully integrate HCD as part and parcel of the morphological design tool set.

Keywords: Giga morphologies, Human centric design, Spatial complexes, User behaviour.

Morphological 'Spatial' Clouds. Harnessing LIDAR Approaches as Measure in Volumetric and Spatial Complexity.

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ABSTRACT

The scientific dependency on typological classification has historically been a useful tool to assess the compositional character urban form. More than the promulgation of mere spatial division, each analytic practice (traditional morphological analysis, configurative analysis, big data, environmental performative indexes analysis) has set in place measurable indicators, allowing for the wide comparison of functional components of the city. Contemporary dilemmas further arise when standardized metrics encounter complex and intricate settings. The environmental qualities of compressed and volumetric settings (Bruyns, et al, 2021), as those specific to Asia, disarms formal features to assess space. In this framework, this paper aims to broaden the praxis of morphological analysis with the fusion of LIDAR technologies to assess layers levels of space and types.

First, the paper will deliver a concise outline of the LIDAR metrics and their specific protocols. Thereafter reference will be made to key features of LIDAR technologies, coding as well as decoding environmental characteristics through the point cloud spatial data. Finally, as proof of case, the paper will discuss three examples extracted from the Hong Kong setting, each with their unique features and human scales.

Main findings will expand on the challenges presented in capturing complex 3-dimensional digital geometries, and their interpretation, their contributions in furthering other morphological toolsets, with specific reference to block and type scale orders. Conclusions will centre on the advantages of point cloud data, as the 'invisible' layer to the morphological praxis, whilst reflecting on the deeper understanding of such digital assets in multi-level base analysis.

Keywords: Volumetric complexes, Layers morphologies, Lidar technologies, Spatial Decoding, Spatial 'clouds'

Beyond Visualisation of Dynamic City Data: Supporting Data-driven City Planning and Decision-making Processes

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ABSTRACT

Cities are complex systems shaped by numerous simultaneous dynamic processes. With the development in new technologies, we can now gather, use and analyse the dynamic urban data alongside the conventional static or semi-static data to better understand these processes and city's everyday functioning. Although recent studies have focused on analysing urban big data, the attempts often propose means for data visualising, but fall short in data interpretation and guidance. In response, this paper outlines part of the larger study done in Singapore to systematically approach the abundant urban big data and develop an alert system for the city officials and agencies on the underlying anomalies in the city functioning. We outline a comprehensive framework and real-time "DataCube-CityScan" platform that harnesses on dynamic economic, societal, environmental, health and attitudinal data available in Singapore, such as people movement and behaviour, use of public transport, driving behaviour, park use, shopping behaviour, healthcare centre visits, etc. The types of information gathered are of different temporal basis, thus representing the velocity of changes in the pulse of city areas of different granularities. We harness on GIS, AI and isolation forest analyses to identify specific trends and anomalies/outliers in real-time and alert city officials to respond, monitor changes, plan their actions and maximise their resources timely. While the platform depends on data accuracy and timely updating, by interlinking real-time analysis, trend visualisations and supporting spatial and non-spatial information, it shows great capacity of guiding planning authorities' decision-making processes, strategy- and policy-making.

Keywords: dynamic urban data, big data visualisation, city pulse, city planning and management, Singapore

Multi-scenario application of intelligent urban form generation technology in urban design at the regulatory planning stage

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ABSTRACT

Computer technologies such as artificial intelligence and big data have rapidly penetrated and evolved in several fields in recent years. The rise of technologies such as machine learning and cloud computing has provided architecture and urban planners with new analysis and design tools based on data and algorithms. However, at the urban scale, the complexity of space elements and the huge computational volume become the main difficulties of digital exploration. This paper tries to explore technological innovation in the field of urban design in the new era by exploring the multi-scenario application of urban design in the regulatory planning stage emphasizing index control based on algorithmic technologies such as machine learning and generative adversarial networks (GAN), relying on cloud computing platform and huge cloud database of urban block models. The paper tries to provide experience for exploring the possibility of the use of online urban design platform based on machine learning at the urban scale to perform computations of large volume and scale.

Keywords: artificial intelligence; artificial intelligence-aided urban design; urban design; regulatory planning

Can the Covid19 experience provide an advanced model of city operation to battle climate change?

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ABSTRACT

The recent pandemic temporarily shifted the way the cities operated worldwide. The economy had to adjust to a remote-working based model that promoted social distancing and limited commuting, while the city users had to cover their day-to-day needs in a short distance around their area of residence. The results of this adjustment were evident shortly after: The air quality improved notably, corporate activities were successfully executed remotely, the cities de-compressed and people regained urban space detaching its value from the commercial activities that were no longer available for a while. In several cases, the pandemic became an opportunity for central authorities to introduce permanent measurements towards the direction of a user friendly, more accessible city with multiple centers and mixed uses that can serve everyday needs within a short distance. This strategy became known as the 15-minutes city model and it aspires to be the answer to the climate change challenges and energy consumption limitation. As part of an ongoing research, the main objective of this paper is to evaluate this emerging model using a cost-efficiency analysis, and to quantify the possible benefits on the environmental, economic, and social level. The analysis applies simulation techniques and uses indicators to define the cost-effectiveness ratio, and also mental mapping activities that promote people inclusion in the decision-making process. It is an interdisciplinary method, that applies economic models on the city formation theory, aiming to assist contemporary urban planning strategies and practices towards urban environment sustainability, climate change and people activation and inclusion.

Keywords: post-pandemic city, urban environment sustainability, social inclusion

Quantitative walkability methods to understand the security on urban spaces

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ABSTRACT

The increase in traffic accident rates involving pedestrians promotes insecurity and fear of walking through urban space. The issue to apply a geostatistical method to identify the regions with the highest concentration of roadkill in Joinville-SC, considering the records between 2015 and 2019, using the Getis-Ord Gi* statistics and the toolset (Hot Spots Analysis/ Kernel Density) made available by the Esri Arcgis 10.3, pedestrian roadkill were grouped by regions in the city. The validation of the method was verified with a smaller frame of the central area and the surrounding neighborhoods, demonstrating that the Getis-Ord Gi* statistic is sensitive to the fixed distances adopted in the Integrate tool and the hot spot analysis, interfering in the location of higher concentration. The lower the incident value, the greater the probability that the tool will not be able to run correctly. In order to validate the method, the hot spot region from the Downtown neighborhood was selected to verify the variables, and the occurrence of pedestrians being run over, applying the Active Design walkability indicator in six sections. As a result, the influence of land use was verified, with emphasis on commercial use and health services; semaphoric time in pedestrian crossing behavior; the flow of vehicles, and the speeds applied on some sections are incompatible with pedestrian traffic. The combination of methods allowed it to identify and experience a place with a high probability of being run over, feeling the sensations and insecurities that a pedestrian has when passing through these places.

Keywords: pedestrians, morphology, land use, hot spots.

Residential Rehabilitation in the Context of Comprehensive Urban Renewal Programmes: A Comparison of Barcelona and Paris.

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ABSTRACT

In recent decades, inequalities are rapidly increasing in many European cities. Several European states and municipalities are working to address the growing issue through comprehensive urban renewal policies. One key challenge in implementing these policies is the need for a transversal approach, particularly when it comes to the rehabilitation of residential buildings. The aim of the research is to analyse measures to rehabilitate the buildings in greatest need, where the programmes must combine physical rehabilitation with socio-community intervention. The article compares the experiences of Barcelona and Paris, two important urban laboratories, in their efforts to revitalize housing in vulnerable areas within the framework of comprehensive urban renewal programmes. By contrasting a municipal-level program in Barcelona with a state-level program in Paris and examining the differences in intervention strategies for both privately-owned and public housing, the study sheds light on the challenges and successes of residential rehabilitation. Furthermore, it compares the approaches used to select the priority areas, organize the technical teams, evaluate the interventions, and control the effects of these programmes. The study focuses on the *Highly Complex Buildings Programme* in the *Pla de Barris* (Barcelona) and the *National Urban Renewal Programme* in the *Politique de la Ville* (Paris). The article concludes by considering the overall effectiveness of these programs and outlining future action plans to address the pressing need for housing rehabilitation in Vulnerable areas.

Keywords: Urban renewal, Housing rehabilitation, vulnerable areas, Barcelona, Paris

Taxonomy and Potential of the Underground Public Parking facilities in Barcelona

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ABSTRACT

Urban development and urban underground composition have been closely linked throughout history. In contemporary cities, underground networks and services have become critical in addressing humankind needs, not only with the underneath flows of water, energy and mobility systems, but also with some singular large underground containers that store thousands of cars in the inherited city of the 20th century city.

The recent health and environmental crises have brought about a shift in priorities, with many European cities, prioritizing new modes of mobility in favour of environmental health. In this context, the presence of the car in the central city is progressively limited, and therefore, the car parks as a heritage of the automobile era are progressively misused.

This research analyses first, the public underground parking facilities in Barcelona, describing the quantities and qualities of a hundred public buildings under the ground. These facilities are observed from different perspectives: their diverse size and depth, their substantial differences in regards their location, the constraints and potential linked to their diaphanous architecture with regular structures that allow a high degree of reuse, among others.

In the second part, the research provides insight into the criteria that should be considered in the gradual conversion of public underground parking facilities in Barcelona to accommodate new uses of general interest within these "buried urban gems". Between planning the whole and designing specific units, the research sets a dialogue between strategies and measures to make the most of these high-value urban assets.

Keywords: Barcelona, urban design, underground, parking, facilities

Ready-made architectural processes: re-signification of reality as a solution

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ABSTRACT

We are looking for the development of architecture, not based on exploiting resources, whether material, energetic, or even human. The possible alternative to the infinite development model won't be over-exploiting the territory and producing unnecessary elements. It is explored an architecture practice without resources exploiting, looking for processes that built the space using the already existing physical space and answering the different requests through a process of space re-signification. Based on a transdisciplinary methodology, it explored how the idea of *ready-made* from conceptual art could be one of the answers to future architecture. It is a reaction to the sustainable targets, since it is based on the no exploration of any material: the reality is in itself the resource. Antagonistically radical it is proposed that the architecture project rethink the space and attribute a new meaning to it, and in doing it, solves the requested new necessities. The project happens in the combination between reality and the look over it, emphasizing the potentiality of reality. Instead of the *design* as the base ground for architecture, in this methodology the *act of choice* is the architectural practice. This intellectual process with critical reflection is an architecture act since the discipline has the tools and the expertise to decide in a legitim way. This approach emphasizes the emergency for a fundamental change of attitude in our culture, in our society, and towards our built environment, by legitimizing the possibility of the proposal being the use of what is here and now.

Keywords: ready-made, reality, I would prefer not to, not building, discipline

Repairing the old as old or new — Qingguo Alley Historical and Cultural District Renewal

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ABSTRACT

The paper sorts out the legalization process of the “historical and cultural district” concept in China which has a close relationship with the development of urbanization? from the perspective of urban morphology. The renewal strategy of cultural heritage presents different value choices. The top-down renewal model often comes from upper-level socio-economic conditions and lacks bottom-up public participation. The materialized architectural heritage is preserved to the greatest extent while human factors are often overlooked. A series of problems exposed in the opening of the first phase of Qingguo Alley and the establishment of the second phase of the protection plan has triggered reflections on the renewal of the historical and cultural district. The conservative principle of repairing the old as old seems to be the most reasonable strategy. In fact, this is a helpless act in the current reality where the theory of historical district renewal is not yet perfect. The relatively radical renewal strategy and architectural principles of the second phase have exposed the new demands of contemporary consumption and cultural experience. On the premise of respecting the traditional neighbourhood style and spatial pattern texture, adapting to the old with the new is probably a positive attempt. The opening and sharing of cultural heritage require greater inclusiveness, ensuring multiple subjects simultaneously enhancing public participation, dispelling the depth of traditional cultural cognition and enhancing human emotional and physical experience, protecting materialized architectural heritage while actively promoting the innovative development and continuation of intangible cultural heritage.

Keywords: Urban Morphology, Repairing old as old, Renewal, Qingguo Alley, Bottom-up

The relationship between architectural structure and spatial form types in urban renewal from the perspective of"Remain-reform-demolish": A case study of the renewal of a plot to the south of the lantern factory in Nanjing Xiaoxihu District

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ABSTRACT

As China's urbanization process and policy-oriented changes, in the context of increasingly refined urban renewal, the priority of attention in the renewal project is changed from"Demolish-reform-remain" to"Remain-reform-demolish". This principle runs through all levels of cities, districts, buildings and so on. Among them, the relationship between building structure-space type and form in the renewal process of building grade from the perspective of"Remain-reform-demolish" is the research goal. The research will take the urban renewal project in the south of the lantern factory in Xiaoxihu District, Nanjing as an example, and comb through the relevant methods such as morphological typology to find the relationship between the architectural structure-space type and the form in the process of renewal: from the perspective of "Remain-reform-demolish", most of the building body to be reconstructed will be retained, and through the intervention of the light-weight steel structure projects, "Reform" and "Demolish" parts will be adopted, so as to form the new-old co-structure with the original building wooden structure system at the structural level, and at the spatial level, the combination of the new and old spaces will form new space forms such as "Corridor", "Courtyard", "Terrace", etc.

Keywords: Urban renewal,structure-space relationship, morphology typology, publicity

Urban form at ground floor: between design, regulation, management and ownership

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ABSTRACT

Urban life is the essence of Urbanism, and it takes places both in the public and private dimensions and, every day, urban residents transit through public and private spaces most of the times without noticing. This paper presents an integrated and reciprocal view of public-private interface. It examines the interrelation between the formal, spatial, and environmental configurations of the public-private interface on one hand, and the social, economic, and cultural dynamics on the other, and how they generate and affect each other. Specifically, the paper investigates the role of design, regulation, management and ownership over morphological changes over time.

To show that, this investigation studies the changing urban ground floor morphology in ten different urban tissue at São Paulo, Brazil. From the 16th century Portuguese colonial downtown to the 21st informal settlements in the outskirts, passing by 19th and 20th residential suburbs, these case studies demonstrate the reciprocal interrelation between built form and urban life and show the limits of top-down intervention to shape this interrelation. They also highlights the potentialities and limitations of design, regulation, management and ownership of the urban form at ground level and reinforce the urgency of studying and (re)thinking the public-private interface from the ground up towards a more resilient and sustainable urban environment for all.

Keywords: Urban ground floor; strategies; measures; São Paulo

Drosscapes and new urban metabolism. New strategies and tools for sustainable and resilient regeneration

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ABSTRACT

The contemporary city is the result of a generalized process of metropolization where the effects of global warming, physical and environmental degradation, socio-economic marginality, and the retreat of urbanism in the role of guarantor of public interests, require, today, a paradigm shift in the perspective of responding to the great changes and crises underway and enhancing resilience for future challenges. A condition that has produced an acceleration of the processes of fragmentation, which has generated new categories "urban voids" often linked to the absence of careful planning of social questions and functional needs. We therefore need an approach based on new policies, procedures and instruments, involving all the disciplines of the project with a view to promoting adaptation and mitigation actions to climate change, the enhancement of drosscapes, the twin transition, through the widespread use of innovative technologies for the environment, mobility, energy efficiency. In this framework the contribution, proposes a reflection on the need to implement environmental recovery strategies capable of counteracting dissipative dynamics and activate a new urban metabolism, with the aim of prefiguring new spatial configurations, economic and energy cycles, restoring biodiversity and the quality of environmental matrices, for a sustainable and resilient regeneration. The contribution adopts an integrated and interscalare approach, divided into iterative phases, corresponding to the recomposition of the themes investigated around three disciplinary needs: contextualization of the framework of the approaches, a need for operationality and interpretation constituted by the analysis of the case study, and a need for critical and proactive reflection.

Keywords: Drossscapes, regeneration, resilience, sustainability

Projects assemblages in affordable housing production in Brazil

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ABSTRACT

One way to succeed in real estate is to create an irreplaceable plot of land though infrastructure, facilities, amenities, and services concentration. This strategy can be seen in cities around the world, whether in urban renewal projects or in spatial configuration of more valued neighborhoods. A similar logic seems to drive the choice of locations for affordable housing developments in Brazil. This article intends to present evidence which confirm this statement, using data and location analysis (including density mapping) of affordable housing developments in Brazil within the Minha Casa Minha Vida Program between 2009 and 2020. Among 17,393 locations analyzed, 8,216 (or 47%) are less than 1,500 meters from at least two other developments financed by the same program. The national average is 4.25 similar developments (with an average of 190 housing units each) within the studied radius of 1,500 meters. Even in metropolises and cities with more than one million inhabitants, where distances and developments are greater (231 housing units each on average), the assemblages average remains above 4 (in 4.11). This preference for proximity to other developments seems to be related to the need for greater visibility to optimize sales, to the search for economic efficiency in the execution of construction and to the herd behavior of private agents.

Keywords: affordable housing; real estate production; Minha Casa Minha Vida

Smart City and its Urban Form- Possible Conections and Urban Patterns

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ABSTRACT

The paper intention is to further investigate the correlation between urban form and popular concept of Smart City that are currently disconnected. The basis for this research are the outcomes of the author's PhD Thesis titled: 'The idea of Smart City and the urban form on selected examples' in which the correlation of the urban form and Smart City was proven. Yet, further investigation into smart urban form is needed. The planned aim and objective of the study is to find possible components of the smart urban form which may add up to Smart City features. Furher goal is to reveal possible patterns of the smart urban form as well as to point out the good practices which may be implemented in future Smart Cities. The research methodology is based on a comparative and interpretive analysis of the selected case study cities, logical argumentation based on analysis and synthesis. The outcomes of the research may serve as good examples to follow while transforming existing cities as well as erecting new Smart Cities. What is more, the results should highlight the need of taking the issue of the urban form into consideration in the process of shaping Smart Cities. The study is planned to reveal the strong need to incorporate the urban form into Smart City idea as well as present possible practical ways of creating a smart urban form. One of the predicted outcomes is to define certain urban patterns which may consider as a smart urban form.

Keywords: smart cities, urban form, smart urban form, urban patterns

The Search for Common Spatiotemporal Patterns through Listening to Urban Form

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ABSTRACT

Urban morphological research, with its long-established systematic methods of analysis, seeks to understand the manifold layers of the urban context. Critically, the spatiotemporal dynamics of urban form and its multisensory experience are mainly approached from a vision-oriented perspective within urban research. There is a lack of integrated research on the sonic dimension of urban form and its auditory perception. To address this gap, this paper introduces the concept of soundscape and asserts that the built landscape and the soundscape are inescapably linked. The attributes of urban form affect the latent sonic order of urban space; that is, soundscape patterns, psychoacoustic experience of space, acoustic community, and sonic identity patterns. Accordingly, this paper aims to develop a comprehensive and sonically inclusive urban research methodology. To this end, a merged model is proposed that brings together the methods of urban morphological research and soundscape research, including field surveys, sound level measurements, sound source classifications, and soundwalk procedure. In addition, the *rhythmanalysis* method is used to build the methodology of this paper. The proposed sonically inclusive methodology is tested along the Çubuk Stream in Ankara, Turkey. The main finding is that certain morphological layouts generate certain soundscape configurations. Investigating the sonic-morphological interrelationship patterns in urban contexts could help decode common spatiotemporal patterns. To conclude, sound is a truly inseparable and associative urban entity that has a spatially vague and temporarily ephemeral character. Therefore, integrating the sonic dimension into urban research opens up alternative narratives about urban processes.

Keywords: Urban Research, Soundscape, Psychoacoustics, Rhythmanalyis

Roots of Urban morphology thought in Serbia: Divergency within approaches

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ABSTRACT

The Serbian network of Urban Morphology (SNUM) was established in 2016, within the framework of regional networks of the International Seminar on Urban Form (ISUF). The main points of interest of SNUM include the evolution of the urban form in Serbia, the relationship between research and practice, and the teaching of the urban form. Over the last five years, SNUM aimed at demystifying the origins of the teaching of urban form and urban morphology in Serbia (within the ISUF Italy conference), conducting review of academic and practical thought (ISUF 2022 Conference), and tracing changes in urban tissue, both on the specific case studies (research articles) and in comparison to other post-socialist countries (ISUF small grant and cooperation with Polish and UK scholars). These activities had immersive importance for the researchers, regarding networking, personal and professional development, and greater engagement within ISUF.

These activities have also initiated thinking and understanding of the position within the current research environment and in relation to different schools of urban morphology. The paper aims at approaching the study of knowledge on urban form from the standpoint of its evolutionary genesis in Serbia, directed toward understanding the roots of studying urban form, identifying both forefathers and role models, and detecting points, nodes, and networks/contacts where study began, arose, or it was derived. In a methodological sense, the paper involves a literature review on the premises, followed by data visualization regarding linkages, clusters and networks.

Keywords: urban morphology, SNUM, Serbia, urban form

Research, education and practice on the urban landscape

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ABSTRACT

Ever since the establishment of the International Seminar on Urban Form in the mid-1990s, the relationships between 'research and education' and 'research and practice' started to be discussed both in ISUF annual conferences and in the journal 'Urban Morphology' (UM). While in her first president report, Anne Vernez Moudon addresses both, in his initial UM editorial of the new millennium Jeremy Whitehand explicitly focuses on the challenge of moving 'from explanation to prescription', offering a different perspective on a concern that is central for one of the founding approaches of ISUF – the process-typological. This paper adds a new viewpoint to this debate, addressing the whole triangle 'research-education-practice'. The discussion draws on three experiences developed over the last year, at research, education and practice (in the European and Asian contexts), exploring the existence of some robust linkages and means for effective communication. In this exploration, the town-plan (street systems, plot patterns and building arrangements) seems to emerge as a unifying concept capable of bringing closer the vertices of this important triangle.

Keywords: Urban morphology; research, education and practice; town-plan; historico-geographical approach

An urban regeneration laboratory: the case of the 'Left Bank' of Zaragoza (Spain)

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ABSTRACT

Postgraduate professional degrees in architecture and urban planning and design must deal with both innovative educational experiences and the complexities of contemporary urban challenges. Among them, the regeneration of consolidated city allows to integrate several topics as spatial inequality and circular economy. This text presents the experience of two workshops of the Master in Architecture at the University of Zaragoza at the 'Left Bank' of Zaragoza (2021-2: Picarral-La Jota-Vadorrey neighborhoods and 2019-20: the industrial area of Cogullada). These cases have been involved in urban regeneration processes in last decades, from its former industrial condition to the present residential neighbourhood scene. It is facing now relevant challenges in terms of completing the urban fabric and integrating it into the surrounding landscape system. The text describes the initial condition of this stigmatized area, and the change in trend in the 'Left Bank' of Zaragoza, describing with intentional cartography the key-points of the experimented regeneration processes. As key questions to better understand the relative success of the experienced regeneration, the article refers to several ideas. Among them, the controlled size of the urban fragment as a guarantee for the generation of complexity and diversity, and the advantages of urban fabrics with morphological characteristics that allow great capacity for evolution. While progress has been made in revitalizing the 'Left Bank', there is still work to be done to fully regenerate the neighborhoods. The workshops show that the improvement of these neighbourhoods requires understanding the complexity of the historical processes of urban formation and regeneration.

Keywords: urban regeneration, industrial conditions, educational practice, urban design

Analytical Database of Urban Projects as Confrontation with Practice and Education Toward Sustainability

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ABSTRACT

Learning about the urban environment and ways to design and create it can often be a very abstract and challenging prospect for architecture and urban design students. Actual projects offer opportunities to educate about contemporary urban design tendencies. We have created a new study and research plan for last-year students at the Faculty of Architecture of CTU in Prague, which aims to tackle two contemporary educational challenges. The first challenge is the need for practical realness in design studio projects, which rarely deal with aspects such as finance, timescale, the developer, and the investor. Secondly, contemporary sustainability concepts are yet to become indispensable to urban design education and practice. Aiming to remedy that, we have designed a critical-analytical database of recent urban projects. Apart from basic information, such as authors and visual documentation, students provide additional details and confront the author's description of the project with their interpretation. They produce a critical review of the project and a multi-criterion evaluation. The focus is on sustainability, accessibility, and aesthetics, referencing The EU Green Deal 2020, The New European Bauhaus 2020, and Davos Declaration 2018. Students evaluate how successfully current urban design principles, such as mixing uses and forms, resilience, energy efficiency, creating places for people, managing the investment, and others, are applied. By confronting actual projects with these questions, students are encouraged to rethink their learned design approaches, setting them up for success in their future practice. Furthermore, the database serves as a knowledge base and reference for other faculty students.

Keywords: urban design, education, review and evaluation, sustainability, contemporary urban tendencies

Measuring the spatial characteristics of urban streets based on the ray-bounce method

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ABSTRACT

The pattern of street/block is one of the most important elements of urban morphology, while the street pattern provides the basis for the spatial characteristics of the streets where urban activities take place, that is why quantifying the spatial characteristics of streets has become a research hotspot. Many previous scholars have experimented with multiple perspectives and methods on how to accurately represent or measure the spatial characteristics of urban streets, making progress in fractal analysis, space syntax, and Isovist analysis respectively, and further exploration is suggested in depth. Using the ray-bounce method, this research has developed a tool to measure street spaces directly and describe them more effectively. Based on the urban morphological patterns, four urban area cases located in Nanjing, Paris, and Rome were selected for this study. According to the team's extensive previous studies, we built a standard theoretical model of urban street space for a corresponding computational tool that can measure the character of a street, including building setback distances, building heights at each level, and spaces between buildings. Using this tool, we measured the spatial morphological characteristics of the streets in the cases. The accuracy of the measured data and the validity of the tool were confirmed through a comparative analysis of the spatial morphological characteristics of the different streets in the cases. The results show that this quantitative approach can accurately describe the spatial form of urban streets and classify the different morphological types of street space.

Keywords: urban street, spatial characteristics, quantification, measuring method

Revisiting Morphological Regions: a methodology to classify urban form

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ABSTRACT

A consistent finding in urban morphological studies, is the capacity of cities to physically consolidate cyclical changes in urban space. Classic urban morphology, namely the historic-geographical approach, laid the foundation for the concept of Morphological Regions, which is based on the typomorphological classification of these unitary areas, delimited by their degree of internal morphological similarity. However, from a methodological point of view, the delimitation of these regions remains labour-intensive, grounded on qualitative visual analysis and on the personal expertise of the analyst. This hinders the application of the method of morphological regionalization in a scalable, reproducible, and systematic way. The aim of this paper is to identify fundamental quantitative variables of urban form, which could be used to describe spatial and geometric patterns of urban settlements, as an initial step to support the delimitation of typomorphological regions through quantitative and objective parameters in forthcoming studies. Firstly, it is presented the underlying premises of the method of morphological regionalisation, trying to produce an objective interpretation of such premises. Next, we introduce a systematic literature review on morphological measures, aiming at producing a rich characterisation of urban space from minimal data input of three elements of urban form (namely: street network, blocks and building footprints). We test these measures empirically in Birmingham-UK, Amsterdam-Netherlands, and Istanbul-Turkey, in order to derive homogeneous regions of urban tissue types. We attempt to contribute to the construction of a more robust method of urban form classification stemming from the revision of a classic concept in urban morphology.

Keywords: typomorphologies, morphological regions, classification, morphological variables.

Towards a quantitative approach to Morphological Regions: identifying urban typomorphologies

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ABSTRACT

The urban landscape is the result of a cumulative, historical stratification process, in which urban entities acquire formal and physical aspects that reflect the cultural and social functioning codes of the precedent periods in the city's formative process. Classic urban morphology, namely the historic-geographical approach, laid the foundation for the concept of Morphological Regions, which is based on the typomorphological classification of these unitary areas, delimited by their degree of internal morphological similarity. However, from a methodological point of view, the delimitation of these regions remains labour-intensive, grounded on qualitative visual analysis and on the personal expertise of the analyst. The subjectivity of this approach hinders the application of the method of morphological regionalization in a scalable, reproducible, and systematic way. The aim of this paper is to present the delimitation of typomorphological regions based on fundamental quantitative variables of urban form within objective parameters. This is fundamentally a descriptive exercise aiming at producing a rich characterisation of urban space from minimal data input of four elements of urban form, namely the street network, street-blocks, plot system and buildings. We propose to move from the identification and classification of types of individual elements, to their combination into homogeneous areas within the city, that is, of typomorphological regions. This combination of patterns within the four morphological elements was structured as a graph system in order to represent the spatial relations among all four elements. We empirically test the algorithm in Birmingham-UK to derive homogeneous regions of urban tissue types.

Keywords: typomorphologies, morphological regions, classification.

Research Procedure of Long-Term Morphological Analysis in Suburban Areas Using GIS Tools

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ABSTRACT

Poland and other countries in Central and Eastern Europe (CEE) have experienced spectacular suburban development, which has occurred in the surroundings of large cities since 1989; however, in fact, the initial phase of suburbanization should be sought even earlier. Nowadays, the advancement of digital tools and techniques has allowed far more detailed research approaches. Thus, using traditional research methods in a GIS environment, we can verify spatial development on a broader scale than ever before. The study aims to conceptualize a research procedure for morphological analysis in suburban areas using GIS tools. This investigation provides crucial insight into long-term spatial transformation that occurs in functional urban areas using quantitative methods explained in a Polish example. The investigated procedure consists of three main research stages, each related to the spatial scale of suburbanization: (1) identification of dynamics of spatial development in macroscale including retrospective analysis on the basis of historical maps and plans, in particular with hot and cold spot analysis, (2) quantification and assessment of the transformation magnitude in mesoscale with graph methods and other spatial statistics, and (3) spatial transformation of urban blocks based on the Conzenian approach in microscale. Our study provides a novel solution for the analysis of suburban development. The research design is expected to contribute to our understanding of (sub)urban development in different functional areas both in Poland and in other metropolitan regions of the CEE. Therefore, GIS tools allow us to develop quantitative morphological studies.

Keywords: Conzenian methods, GIS, spatial statistics, urban morphology tools

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Perceived density of multiple urban morphologies, as reflected by the Urban Spatial Openness Index (USOI): A comparative analysis

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ABSTRACT

Various urban morphologies create differing human visual experiences, which can be quantified, measured, and assessed. Many studies described the effects of urban morphological attributes on pedestrians' visual experience and their direct influence on pedestrian well-being.

The current study was aimed at measuring urban visual attributes reinforcing the perceived density. The measurements were conducted on continuous sections of designated urban fabrics by the USOI (Urban Spatial Openness Index). The USOI model quantifies the visible space from viewpoints based on 3D ray-casting in an urban digital twin. The higher the USOI value, the higher the perceived openness, and the lower the perceived density. Different urban fabrics across cities, containing various urban morphologies, built typologies and urban design traditions (such as Tel-Aviv, New York City, Zurich, etc) were measured, creating a library of urban morphologies and their respective USOI values. The analysis results are also expressed visually by a "heat map" for each urban morphology.

Insights on the influence of variant urban morphologies can be obtained for urban sections, reinforcing the human spatial experience, focusing on the perceived density, which is one of the most influencing attributes of wellness in dense cities. The library and the USOI model can be used by urban designers and planners while exploring the spatial experience generated by different morphologies and alternative proposals focusing on the perceived density of large-scale urban fabrics, highlighting areas that may require design adjustments that could contribute to the wellness of city dwellers.

Keywords: Pedestrian Visual Experience, Spatial analysis, Perceived Density, Spatial Openness Index

The impact of residential space form on the quality of life and behaviors of Hong Kong drifting students: A case study

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ABSTRACT

According to OECD, many young people are struggling with housing, with 20- to 29-year-olds among them more likely to rent than buy than the general population. In recent years, the number of Hong Kong drifting students has risen dramatically. As a group of non-locals, the majority of them have to find housing on their own due to the shortage of university accommodations. Some students have to move frequently because of the issues of living conditions, disagreements with their roommates, or other reasons. In the process, how did their perception of the residential space form affect their body and mind? How did these influences further lead to their behaviors? Based on the Stimulus Organism Response Model (SOR Model), the Mixed methods are adopted to examine some Hong Kong drifting students residing in 3 types with 5 cases of housing. Measurements and drawings of their living area are made. Then, their daily activities are observed while the causes for migrating or picking this location are investigated and studied. The quality of life before and after the move was measured using psychological scales. Statistical analysis and diagramming are utilized to analyze the scenarios in terms of space utilization efficiency, and living experience according to the results of various types of housing surveys. This study attempts to reveal the mechanism by which the residential space form affects the living quality and behavior of Hong Kong drifting students..

Keywords: Hong Kong drifting students, living situation, demands

Diversity of built form and housing tenure mix: What are their relations?

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ABSTRACT

Social diversity (or mixing) has been promoted as an instrument for nurturing integration, tolerance and equality. Built form diversity, which describes the mix of built form elements with various features, has been argued as a contribution to social diversity, but their relations remain ambiguous. Few studies have identified what elements, what features, and what extent of their diversities, are related to social diversity. Additionally, built form diversity itself has barely been measured comprehensively by integrating three key aspects of diversity, namely, variety, balance and disparity.

This paper aims to explore how built form diversity varies under different social diversity levels at the neighborhood scale. Income is the most powerful criteria in considering social diversity, an effective proxy of which is housing tenure income. Also, social diversity may not have an optimum. Therefore, we sample seven wards with different levels of tenure evenness and different constitutions of tenure types. We then measure key attributes (size, shape, interface, intensity, connectivity, etc.) for essential built form elements (plot, building and street). Ward-level diversity indices covering the three aforementioned aspects are computed and compared. Results show that diversity of plot size, plot built-up ratio, building size, built-front ratio, and street local integration are associated with tenure mix. They further indicate mixtures of dwelling types, functions, and fabric compactness, which facilitate social diversity. Moreover, we suggest that categorization is the key step of measuring built form diversity, and looking up constitutions of types is important for understanding implications for social diversity.

Keywords: Social Mixing, Urban Diversity, Urban Form, Diversity Measurement, Classification

Methodological approaches in Research on Urban form

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ABSTRACT

Previous studies in urban form have adopted different methodological approaches. There are different perspectives on how theories arise and may involve deductive or inductive reasoning. The research paradigm- the theoretical lens which determines the design of the empirical study- could be either positivism or interpretivism. Quantitative, qualitative, or mixed methods could be used for the analysis of the data collected. There is a need for a systematic understanding of the methodological approaches. This study attempted to address this gap in the existing literature. The objective was to review the research in urban form and analyse the methodological approaches used. The method involved a systematic review of relevant empirical studies published over the last few years and an analysis of the potential and issues of the methodological approaches used. Most studies were found to derive their theories from the study of physical, perceptible objects. While some focus on the observer and his/her subjective interpretations, others focus on the physical fabric of the city or solely on objective facts. The former mostly uses qualitative analysis, and the latter uses quantitative analysis. It could be concluded that these approaches place urban form in a spectrum. The observer and the city could be at the two ends of the spectrum, and studies could be plotted in relation to both. The potential, as well as issues near both ends of the spectrum, are detailed. The paper concludes with a way forward combining the approaches for future studies.

Keywords: Urban form, Methodological approaches, Combination of methods

Place: A morphological approach

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ABSTRACT

Place is a fundamental concept in many fields including human geography, sociology of space or environmental psychology. The notion of place includes not only spatial and physical dimensions of location and locale, but also a dimension of human perception and appropriation summarized as "sense of place": Place is a space or location endowed with meaning. To approach this concept from the perspective of urban morphology, this paper proposes the notion of environmental configuration: The human lifeworld can be described through overlapping sets of boundaries with various degrees of permeability, such as buildings and plots, or topographical limitations. By controlling flows of information, matter, energy, people and other organisms, these boundaries facilitate the formation of interior environments screened off from certain types of flows. Because boundaries usually operate as interfaces enabling and regulating exchange, the human lifeworld can further be characterized as a set of networks of interconnected environments. On a local level of observation, many of these environmental configurations may appear nearly identical, as in widespread building types. On a global level however, each instance of such a configuration is unique due to its position within larger networks. Based on the resulting notion of environmental configuration, the possible role of the concept of place for urban morphology is discussed. Consequently, morphological properties of the human lifeworld such as boundaries, interfaces and the networks formed by them are approached as affordances providing possibilities for use, appropriation, and modification and thus for the emergence of meaningful places.

Keywords: Place, Placemaking, Affordances, Boundaries, Networks

Developing basis for pattern-based urban modelling and simulation

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ABSTRACT

Recent years have seen advances in generative urban modelling, with technologies showcased by both private sector and research institutions aimed at generating matrices of urban solutions based on given input parameters, thus allowing further optimisation algorithms to select models best suited to meet certain needs. This way of „computational" thinking of urban phenomena has deep roots in early postmodern theory of authors such as Christopher Alexander. Simultaneously, in course of late XXth century, object-oriented (OO) paradigm has developed on similar basis. The aim of the research presented in this paper was to adapt structural aspects of Alexander's pattern language theory to OO programming in order to be able to simulate the morphology of urban structure based on not only the parameters, but also the underlying pattern languages that the program has been presented with. Such program would serve both as a design tool for urban planners as well as a educational and research model helping to uncover complex relationships taking place within urban environment. The research focused on a theoretical basis for such a program, including interpreting patterns directly as objects and classes, as opposed a higher-level organisational principles, which is how the term „pattern" is most commonly understood in programming.

Keywords: urban modelling, pattern language, Christopher Alexander, object-oriented programming, postmodernism

Borrow from Below and Above to achieve Sharing Landscape: Research on the urban design strategy of high-density Shanshui communities in Ningbo Yinfeng area

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ABSTRACT

Shanshui in traditional Chinese culture implies not only natural resources like mountains and water, but also the spiritual ideal of coexistence and co-habitation between people and nature. However, many of China's waterfront communities are not only disconnected from the waterfront landscape, but also lack a creative contribution to the urban space in terms of community space and architectural form.

How to realise the residential ideal of sharing people, city and landscape in waterfront residential neighbourhoods with floor area ratio above 2.5 and building height of 60-80m is the main issue this paper attempts to explore. This study takes two exemplary waterfront residential neighbourhoods in the Yinfeng district of Ningbo as its object of study. Firstly, based on field research, relevant case studies and existing urban planning conditions, a site-specific urban design scheme is proposed. From this scheme, specific urban planning conditions are then derived to guide the subsequent architectural design, and to guide the spatial and architectural appearance of the community on five levels: outline, layers, transitions, rhythm and streamline, providing a basis for the design of future high-density Shanshui communities.

Keywords: Shanshui, community, urban design, sharing landscape

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Urban Form and Place Perception: Exploring the Link Between Morphological Regions and Toponyms in Real Estate Ads.

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ABSTRACT

Quantifying qualitative elements like toponyms and urban forms allows new insight into their relationship. Toponyms, including their locations, appreciations, and boundaries, are key-factors in the social representations of urban spaces. Their consistent employment by a large community of users reveals emergent properties of social representation of space. UrbanMorphology also highlights how the form of the physical city contributes to shaping place perception. Morphological regions, i.e. districts characterised by specific urban forms, have long been recognised as a factor of place imageability. This paper proposes to measure the link between urban form and usage of toponyms derived from a large corpus of housing-ads on the FrenchRiviera. Despite being marketing objects, ads are instrumental in understanding urban space. The spatial components of their geolocated texts are meaningful: they are appreciated, carefully chosen, and promoted by various attributes. However, to communicate efficiently housing-ads must use toponyms in a way which is consistent with shared social perception of the places they represent. First, we delineate perimeters of usage of toponyms through appropriate spatial analysis procedures. Then, we study the urban forms within these perimeters, using the MultipleFabricAssessment protocol, which characterises urban fabric from a pedestrian perspective. Finally, we focus on the role of urban form on place perception including border effects and the fuzzy logics of toponyms and forms. The paper concludes by identifying the more or less pronounced capacity of different kinds of urban fabric to contribute to the emergence of clear-cut toponyms..

Keywords: Toponyms, Place Perception, Morphological Regions, Multiple Fabric Assessments, Housing Ads

Morphological Crossovers. Spatial Compression, Typologies and Artificial Intelligence in the Assessment of Vertical Settings.

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ABSTRACT

The scientific dependency on typological classification has historically been a useful tool to assess the characteristics of urban form. The configurations, the layout, and formal combinations of typologies in single layer cities, have always been effective in the functional determination of how cities operate, grow and direct human interaction. Moreover as problem, with the typological amalgamation characteristic of hyper-dense settings' three-dimensional conditions, individual typologies require reassessment. As contribution to the quantitative vs. qualitative debate, this paper aims to test the impact of implementing Artificial Intelligence (A.I) both as technological measure as well as new typological indicator to assesses of urban form.

Methodologically, this paper will outline the valance between A.I. as tool and configurative analysis, before explicating such applications in the analysis of two public settings in Hong Kong SAR. Specific emphasis herein will centre on the purpose made spatial quantification index.

Findings will focus on the outcomes of an A.I. driven quantitative descriptors, and the process open to redetermine typological indexes through user based programming, for example the A.I derived reclassification of spatial segments as 'interchanges, city vestibules, passageways or landmarks'. Two primary conclusions will emphasise; [a] why the need for complex configurative conditions to test spatial complexity through the A.I. framework and other possible data driven avenues in the discourse of urban morphology, and [b] how A.I. can offer operational opportunities for improved assessment of planning and design of the morphology and typology of the vertical and volumetric built urban fabric.

Keywords: Artificial Intelligence, Volumetric complexes, Vertical settings, Typologies.

Research on the correlation between urban land parcel size, building fabric type and plot ratio, based on the case of Nanjing, China

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ABSTRACT

Land parcels are the basic unit of urban form. The size of the plot, the type of building fabric on it, and plot tation(FAR) are the three morphological elements of the plot. There is some inner connection among the three, but we lack a clear understanding of it. As a result, in urban planning practice, the setting of plot ratio is mainly based on abstract planning regulations, and the possible impact of plot size and plot ratio on urban forms is based on empirical judgments without a rational basis.

Taking Nanjing, a big city of eastern China as a case study, this paper conducts research on the internal correlation between plot size, plot ratio, and modern building farics. First, through 274 sample cases, the common and typical urban fabic patterns of modern Chinese city are extracted and quantified. On this basis, carry out filling experiments of typical fabric patterns on different plot sizes, and use a data visualization tool similar to Spacemate to analyze the experimental results. It is concluded that with the same fabric pattern, the plot ratio varies with the size of the plots. After growing in a logarithmic curve, it tends to a fixed value. The interesting findout, on the one hand, are the scientific understanding of the urban morphology, and on the other hand, it suggests that the size of the plot is also a factor that needs to be considered when urban planners setting plot ratio with concerns about urban forms.

Keywords: urban fabirc, plot ratio, Quantitative Research

Impacts of Urban Morphology on Distribution of Quality Catering Function — A Quantitative Research on 99 Michelin-starred Restaurants in Beijing

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ABSTRACT

Under the background of the rapid development of the Internet, a large amount of open data can be used for the analysis of urban spatial form, reflecting the economic vitality of different urban spaces, and these economic activities are inseparable from the urban spatial form, so the internal relationship between the two is found become an interesting question. This paper takes 99 quality restaurants certified by the Michelin Guide in the downtown area of Beijing (160km^2) as the research object, taking the restaurant locations on the official website of the Michelin Guide as the standard, and obtaining data such as the number of reviews and ratings of the restaurants based on the Dianping website, as well as the 2020 mobile phone data(signalling data reflects the living conditions of the population) and urban traffic facility data, using the space syntax model to analyse the impact of urban spatial topology on the distribution and business status of high-end restaurants. The results show that the location of Michelin restaurants in the city has a significant dependence on spatial accessibility, which confirms that the urban foreground space is suitable for advanced consumption functions. And as the average price of restaurant dishes decreases, the dependence of restaurants on space accessibility tends to increase gradually. However, in terms of restaurant profitability, operating conditions are more closely related to the cost performance of restaurant dishes.

Keywords: distribution of quality restaurants, web open-source data, spatial form, space syntax, quantitative research

Types, density and morphogenesis

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ABSTRACT

Urban design, which historically moves between urban planning and architectural design, today tends to move away from any planning logic, by now clearly nonperforming, to get ever closer to the management of the morphogenesis processes of the city. In this sense, urban design fits into the vast field of complexity theory, posing the governance (or at least the project) of indeterminacy as a fundamental problem. We have gone from conceiving the city as a machine, and therefore from thinking of its transformations as plannable, mainly with a top-down approach, to considering the city rather as an organism that transforms itself through ever more often guided by bottom up mechanisms. The hypothesis of the presented research is that computational approach is be a strategic tool for managing the complexity that characterizes urban evolutions. Until now parametric tools have been used almost exclusively to design architectural artifacts on the base of quantitative parameters. More or less refined software have therefore simulated flows of people and goods, gradients of solar radiation, losing sight of the shape of the city. The challenge of the experimental research is being developed through evidence based design method, is to apply computational tools, the so-called parametric approach, to the city, working on qualitative parameters such as urban types connected to urban density to elaborate urban scenarios.

Keywords: Density, parametric approaches, qualitative parameters, morphogenesis, urban regeneration

POSTER
SESSION

Assemblage as the possible bridge between morphological approaches: the case of informal settlements in Sochi, Russia

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ABSTRACT

Are we lost in translation for various disciplinary concepts and praxises in urban studies? This research aims to bring into discussion the possibilities of assemblage thinking in bridging four urban morphological approaches: the historico-geographical, process typological, configurational and spatial analysis. Derived from philosophy and social theory the assemblage framework searches for the dynamic relationships between form and structure, parts and «whole». This idea is applied to informal settlements in Sochi, Southwest Russia. There are four main objectives connecting theory to practice and back. First is to develop a typology of informal settlements in Sochi based on the building morphology characteristics, functions added by incremental transformations through time, land use conflicts, size and visibility within the surroundings. Second objective is to conceptualise the assemblage of the embeddedness of these settlements according to the morphological approaches and available open data sources. Third is to make empirical conclusions about the place of various informal settlements in the spatial and socioeconomic city structure. Finally, to make theoretical conclusions about the possibilities of assemblage thinking linking morphological schools. Methods correspond to the objectives and include GIS analysis, space syntax, historical and document analysis, case study of more than 35 informal settlements. The assemblage is conceptualised as the five interconnected layers: location in the city spatial structure, socioeconomic characteristics of the area, space syntax, environmental and infrastructure conditions. The study reveals the possibilities and ways of reprogramming urban morphology research agenda.

Keywords: assemblage theory, morphological schools, informal settlements.

The perception quality of pedestrian public space in TOD areas: Two case studies in Nanjing

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ABSTRACT

Optimizing the structure and quality of pedestrian space in TOD areas can promote the use of public transport and reduce carbon emissions. At the macro level, the road structure, functional distribution and building density of the urban form influence the distribution of different groups of people and their choice of routes to public transport stations. At the micro level, the perception quality of the space influences the activities of pedestrians. To optimize the quality of pedestrian space in established urban environment, it is necessary to recognise the characteristics and quality of pedestrian space in different urban forms. However, such research is lacking in fast-developing Chinese cities. Therefore, this paper selects two TOD areas in the new and old city CBD centres of Nanjing to study the pedestrian space in depth. Firstly, the station entrances are linked to the entrances of office, residential and commercial buildings respectively to illustrate the walking paths of different groups of people. Secondly, the spatial plan of the main pedestrian routes is mapped, with details showing the shape, boundary type, entrance of the space. Thirdly, the perception quality of the pedestrian space, such as passing width, depth-width ratio, enclosed degree, interface transparency, and etc., is quantitatively described by combining the plan and streetscape. Finally, by comparing the characteristics and quality of the pedestrian space in the two cases, the pedestrian space patterns of the TOD areas in the new and old city are initially summarised, which will support the optimization of pedestrian space in the future.

Keywords: pedestrian space, perception quality, urban design, TOD areas

Repairing the Organic System of Urban Villages from a Morphological Perspective: A Case Study of Wang Village, Liyang

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ABSTRACT

The traditional village morphology embodies man's understanding of the environment, including the consistent mode of production, social life and traditional cultural concepts. Over the past 30 years, Chinese urbanization process has led to rapid changes in the traditional Man-land relationship. Urban villages that lag behind in urban expansion are considered intractable diseases in this process. Although China has begun to attach importance to the renewal of urban villages, to this day it often neglects the correspondence between spatial form and the environment. Addressing this gap, the author believes the urban villages, preserving the traditional spatial form, needs to be reconsidered. This research focuses on Wang Village, an urban village in Li-yang (county-level city) in Jiangsu Province, China. The author attempts to decode the settlement morphological characteristic of Wang village through morphological investigations combined with literature reading and field research, and then describes the combined effect of morphology and topography on the spatial form of villages. Findings suggest that the once plentiful river system and the field ridge grid expanded according to the trend of the river play an irreplaceable role in the progress of the traditional village morphology and influence the current public space location of Wang Village. The final result is hoped to provide new ideas for the development of protection and development of urban village.

Keywords: urban villages, rural landscape, morphology

Examining informal settlements' urban form through the lens of public spaces: Learning form case studies in Lahore, Pakistan

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ABSTRACT

While there has been a growing trend among academics to study urban morphology as a means of delving into an urban area's materiality, the application of these techniques to urban design studies has been limited. This study provides an in-depth examination of the morphology of public spaces in informal settlements. Public areas in informal settlements have grown spatially, much like the built-up structure itself, due to the self-build initiatives of the residents. More importantly, they encompass the diversity of activities played out by collective urban life, all of which have symbolic meaning in terms of individual expression, culture, and politics. Fieldwork and an in-depth quantitative and qualitative investigation within the context of two case studies in Lahore, Pakistan, provide the primary support for the research. Multiple strategies for gathering information in the field were used to investigate this subject. There are three main categories for these: interviews, observations, and visual and documentary forms. The findings reveal a degree of diversity in the urban form of the two study areas with respect to the functions of public spaces and the socio-cultural morphologies present therein. The analysis illustrates the sensitivity to context and diversity of these settlements, which contributes to a greater comprehension of how informal settlements function in relation to urban morphology. This perspective implies that informal settlement is not a problem that must be eradicated, but rather an asset that can be incrementally transformed. Consequently, this study establishes that the multi-layered use of public spaces can serve as a potential component of this urban sustainability process.

Keywords: Public spaces, informal urbanism, mapping, urban morphology, urban design

Study on the evolution of urban morphology and influencing factors of the Unit C2 in Pearl Bay start-up area ,Nansha, Guangzhou

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ABSTRACT

The development of contemporary urban areas requires a long period of time and adjustments of planning schemes.Studying the evolution of urban morphology is crucial for understanding the intention of urban design and changes in trends of development. This paper examines the process of urban morphology evolution of Unit C2 of Pearl Bay start-up area in Nansha, Guangzhou, and the factors that influenced this development. Contrastive research based on urban morphological analysis is used as the main method. Together with documentary readings of regional planning at each stage, this paper studies the changes in the urban planning schemes of Unit C2 since 2005. The results indicate that, compared to previous planning proposals, the implemented plan provides higher urban capacity, increase in compact arrangement of blocks and buildings, a distinctive urban skyline, and various multifunctional facilities. In the process of urban morphology evolution of unit C2, changes in government policies were the main cause of the increase in urban capacity and optimization of the city skyline. The improved understandings in existing context and climate adaptability among planners were important factor that led to a significant increase in street density and land use ratio. The refined control mechanism of the regional chief urban designer system plays an important role in the implementation of the urban form of unit C2.

Keywords: Guangzhou, Nansha, Urban design, Urban morphology

Identify · Protect · Develop —— Strategy Research Based on Urban Historical Space Pattern Under the Context of Rapid Urbanization

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ABSTRACT

At the beginning of construction, ancient cities and towns in China were often closely related to their surrounding landscapes. This relationship between mountains, waters and cities reflects the comprehensive consideration of ancient Chinese towns in military defense, power structure, residents' life, and creates a unique urban landscape. In recent decades, the rapid urbanization process has greatly expanded the horizontal and vertical boundaries of Chinese cities and towns. It also faded the spatial pattern of ancient cities and towns once clear and readable in the whole urban environment. Based on three practical cases of urban design ,this paper identifies and demonstrates the key features of fringe space, space structure, texture type of historical cities and towns through the interpretation of historical maps and documents, studies and constructs the urban physical space form that combines the old and the new which guided by the needs of historical protection and urban development and supported by digital technology .This paper proposes key technologies and strategies such as displaying the historical boundary with path optimization, protecting the landscape pattern with three-dimensional height analysis, optimizing the form of external space with thermal comfort analysis, and continuing the texture pattern with virtual block division and control in order to promote the integration of the new urban construction and the existing historical space pattern.

Keywords: rapid urbanization, historical spatial pattern, three-dimensional height analysis, thermal comfort, virtual block

Women's Preference and Public Spaces Quality: A Case Study of Public Spaces in Hong Kong

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ABSTRACT

The gradual commodification of public spaces in Hong Kong favours their exchange value and market logic over their use value, resulting in public spaces becoming less publicness and inclusivity (Chan, 2020). Women's preferences in current urban spaces appear to have received less attention in research on women's studies and urban public spaces. Hence, the main purpose of this research aims to investigate the relationships between the public space quality and women's preference for public spaces from women's perspectives in Hong Kong. To this end, the quality of selected public spaces is objectively evaluated by using the Public Space Index (PSI) (Mehta, 2014). Subjective data are gleaned by an online image-based survey with a supplement of the on-street survey, encompassing five aspects of PSI. Hierarchical linear modelling is then employed to analyse the associations between the objective evaluation and subjective preference in three dimensions (individual, social and environmental) of women's presence in public spaces. The results show that in the social environment, there is a significant correlation between the presence of other different genders and the perception of safety and comfort of women. Among physical components, women's preference for public spaces is most significantly related to the legibility, openness of public spaces and the presence of desolate places. This study identifies physical components and social environments that provide the context for women's frequent and repeated presence in urban spaces to perform optional or social activities, which indicates the desired quality of urban spaces, and social environments for women in Hong Kong.

Keywords: Women, Public space quality, Presence in urban public spaces, Physical components, Social environment

Port, Piazza, and Gardens: The Morphogenesis and Reconfiguration of the Thirteen Hong Area in Canton(1757-1856)

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ABSTRACT

Canton was a major seaport city during the “one-port trade” period (1757-1842) in the Qing Dynasty. It was known for its Thirteen Hong area, which was a hub of international trade located along the Pearl River in the southwest of the city. This area became well-known in the Western world due to its export paintings, which made it a popular image of Canton in the imagination of the West. Despite several serious fires that occurred in the Thirteen Hong area, it continued to be an important hub of commerce until it was completely destroyed in a final fire in 1856. During the process of reconstruction and replacement, the area underwent changes in its spatial distribution and social connections, as different communities, such as merchants, Tankka people, and foreigners, interacted and merged.

This paper aims to examine the morphological evolution of the Thirteen Hong area through close reading of export paintings, maps, and historical documents. It analyses the impact of coastlines and boundaries, cadastral patterns, plot scale, and important morphological elements, such as squares and gardens, on the morphogenesis and reconfiguration of the area. The study also explores the construction ideas and technology that were brought in from both the East and West, as well as the mechanisms of East-West communication in this specific practice.

Overall, this research has an important academic significance to the history of morphological transition influenced by the early East-West communication, as well as the future morphological design of the site where the Thirteen Hong was located.

Keywords: The Thirteen Hong Area, East-West Communication, Reconfiguration, Export paintings, Waterfront international trade district

Transformation Mechanism of Historical Urban Fabric in Malacca

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ABSTRACT

Historical City of Malacca has been selected as the research object to analyse the historical development and transformation mechanism of its urban fabric from colonial era till present. Malacca was once colonized by three major European countries, reflecting the integration of multicultural elements. The cosmopolitan culture has been formed over a long historical period and clearly manifested in the complexity and hybridity of the production of its urban morphology. The aim of this study is to analyse the urban morphological evolution and determine the efforts of preservation or transformation in Malacca old district. The findings will be described in chronological order. This study incorporated the method of graph-bottom relationship theory with Geographic Information System (GIS) by comparing the maps and bottom graph at different historical periods at the same location to analyse the urban transformation. The findings indicated that Malacca's urban fabric was highly dependence on historical background which was separated into two different systems by the river, one system adjacent to the river was waterfront pattern and the other system was the grid pattern which the town was divided into several large grid blocks. The properties of the buildings were analysed to be preserved or transformed according to the timeline and the result showed that most of the historical buildings were well preserved with new usage. The overall analysis of Malacca's urban texture and transformation mechanism research can provide reference for Malacca future development to safeguard the heritage status of Malacca.

Keywords: Transformation Mechanism, Historical Urban Fabric, Preservation or Transformation, Malacca

Urban densification and sustainability in the contemporary Latin American city. The case of Cordoba

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ABSTRACT

In an increasingly urbanized world, architecture is called to make its contribution to helping cities face the great challenges of sustainable urban development, meeting the demands of 21st century life and guaranteeing access to basic services. The essay investigates the issues connected to the processes of densification of the urban form in the contemporary Latin American city with reference to a degree thesis developed in the context of a double degree agreement between the DICIV of the University of Salerno and the FAUD of the Universidad Nacional de Córdoba. The thesis achieves the development of a design proposal for the completion and regeneration of a residual urban sector of the city of Córdoba in Argentina, starting from the reinterpretation of the widespread residential blocks typical of the colonial city tissue. The Spanish-American colonial cities are the product of experience and theory represented in the norm, as a consequence of a socio-political and economic process of colonization, it was born in the search for an order and is thus represented to think about this new urban model that responds to the primary laws of the city. Theoretical research and analysis of reference cases have fed the process of knowledge of the subject and supported the development of the project that arises from the need to transfer these theoretical concepts to the operational process.

Keywords: Urban challenge; Urban density; Sustainability; Latin American city; City neighbourhood.

Measuring the three-dimensional (3D) urban form: an overview and interdisciplinary framework

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ABSTRACT

Nowadays, many regions are going through a stage of rapid urbanization, which shows not only the horizontal expansion but the fast vertical growth, influencing the urban energy consumption, local climate and sustainable development. Although there have been some consensus and basic frameworks on the epistemology of 3D urban form, the approaches or indicators for measuring urban form present a more complicated and pluralistic pattern, which may disturb the cognition of scholars and weaken the compatibility. Here, we reviewed 79 papers and explored more than 200 indicators and their relation structures through the network analysis method to reveal and clarify the indicator networks. The results indicated that the indicators currently used hold the following characteristics: first, the count of indicators is quite large with wide scope and diverse theoretical sources, but the centrality degree of each indicator node shows strong hierarchy and heterogeneity, which means there are some core indicators that play the leading role in the network; Second, the terms of the indicator systems composed of indicators are diverse, but the boundaries between the systems are fuzzy, which shows a trend of integration; Finally, the indicators used in different research topics have certain tendencies, but generally contain core indicators. The results guide us to discuss and establish an interdisciplinary framework of previous and future indicators for measuring 3D urban form based on the conceptual model and perspective of praxis, which is expected to provide a systematic summary and reference of the quantitative 3D morphological indicators.

Keywords: 3D urban form, indicators, network analysis, landscape metrics, morphology indicators

The diverse aspects of Athens's "sustainable" urban form: A Virtual field trip as an innovative educational practice to critically explore the contemporary form of cities

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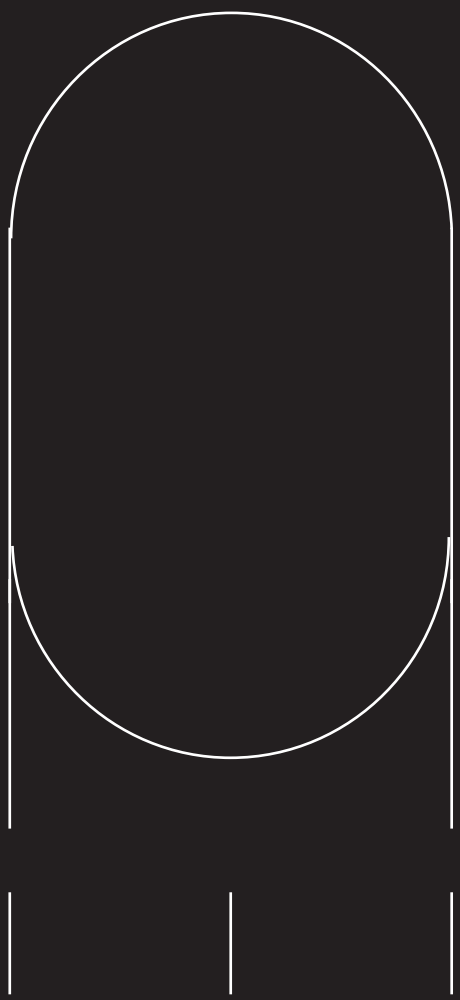
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ABSTRACT

The reform of teaching practices has been a subject of significant interest in recent years, particularly in light of new challenges posed by virtual and physical classrooms in the post-COVID era. In this context, along with our partners of the V-Global project, we propose a three-stage framework for creating a virtual field trip as an innovative learning and teaching practice for exploring the diverse nature of Athens' urban form and its often-contrasting aspects of sustainability. The first stage involves organizing a real field trip to Athens, where a group of 20 international and local higher education teachers explored four different routes selected to correspond with emerging themes of sustainability. The second stage involves a participatory workshop utilizing MIRO and GIS to co-create the concept of the virtual field trip. The final stage involves creating the virtual field trip in ArcGIS Story Maps, -accessible by this link https://arcg.is/5re4a0- utilizing a multi-level mixed methods approach that combines primary data collected during the field trip and secondary sources describing the historical evolution of the socio-spatial form and the latest sustainability developments in Athens. The findings of this research demonstrate the potential of the developed virtual field trip as a blended innovative educational tool for teaching, learning, and critically examining the contemporary form of cities, shaped by the post-COVID discourse on sustainability and resilience.

Keywords: urban form, virtual field trips, sustainability, innovative learning-teaching practices

LOBBY
SESSIONS



Creating the Sino-European research network about urban morphology and sustainable mobility

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ABSTRACT

Sustainable mobility is an urban form challenge. To achieve sustainable mobility, it is necessary to transform cities, their physical form with urban design interventions that will enable a wide range of mobility choices. Urban morphological research is crucial to inform urban design for improving walking, cycling and public transport. This lobby/special session will create the Sino-European research network on urban morphology and sustainable mobility with a goal to network institutions, projects and morphologists who research cities and mobility in Asian and European contexts.

The networks at ISUF are typically regional, but the Sino-European research network on urban morphology and sustainable mobility aims to create international thematic morphological network and encourage internationalisation of research on urban morphology, decarbonisation and carbon-neutrality among planners, urban designers and architects.

This lobby/special session will discuss:

1. Mapping research on urban morphology and sustainable mobility and creating thematic groups for ideal urban forms by transport modes. There are various urban form concepts for sustainable mobility e.g. the walkable and cycling cities, Transit-Oriented Development (TOD), shared mobility and mobility hubs, electrification, etc. Best case/practical experience from urban typomorphology transforming urban areas into TOD. Share successes and obstacles in planning, policies and practice.
2. Organising and informing on conferences and thematic workshops to encourage coordination and internationalisation of the research on urban morphology and sustainable mobility
3. Creation of mailing lists and a website of the network that will help in popularising both research on urban morphology and sustainable mobility

Keywords: research network, urban form, sustainable mobility, climate neutrality

Transit-Oriented Development 2 (TOD2) – Public spaces and mobility hubs, and developing urban form and decarbonisation analytics on the intersection of urban morphology and sustainable mobility

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ABSTRACT

Year 2023 marks the 30th university of the book The Next American Metropolis that established Transit-Oriented Development (TOD) as sustainable urban design and development policy since the 1990s. TOD is a planning policy of designing and developing walkable, dense and diverse neighbourhoods and concentrating urban growth around transit stops to support higher usage of public transport. Transit-Oriented Development 2 (TOD2) is a new Sino-European project will develop a new TOD2 framework advancing the old TOD design guidelines with perspectives on public spaces, new innovative solutions with shared mobility (mobility hubs) and toolboxes for carbon neutrality and decarbonisation. Mobility hubs are new transport infrastructure aiming to boost the accessibility (the so called last mile) by offering on-demand mobility systems as shared bikes and electric cars at public transport stations and in surrounding neighbourhoods. The project aims to contribute to achieving to carbon-neutrality and decrease the oil dependence in European and Chinese cities by analysing the morphology and integration of public transport stations with the surrounding neighbourhoods, the regional context, implementation of mobility hubs and shared mobility systems, the design and typologies of TODs and mobility hubs, effect of the mobility systems on urban spaces, air quality, carbon emissions and business models for urban development around stations. The lobby/special session will present the highlights of new Sino-European project on TOD2 and summarize the research on urban form and sustainable mobility with emphasise of 30 years of TOD and emergence of mobility hubs.

Keywords: urban form, sustainable mobility, Transit-Oriented Development (TOD), mobility hubs

Lobby/special session: Creation of Macedonian Network for Urban Morphology (MNUM)

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ABSTRACT

Following upon the tradition of the regional networks at the International Seminar for Urban Form (ISUF), this lobby/special session will create the Macedonian Network for Urban Morphology (MNUM). MNUM will coordinate morphological research on Macedonian architecture, cities and urbanism, network researchers and scholars who publish in Macedonian language and create a database of projects and researchers. MNUM also aims to cooperate with Balkan networks, e.g. Serbian Network of Urban Morphology (SNUM) and Turkish Network of Urban Morphology (TNUM) and develop collaborative studies of urban form on the Balkans. MNUM will specifically focus and develop thematic research on the following topics:

1. Archaeological research and built heritage, historical architecture and urban form from Neolithic settlements to the beginnings of industrialization, with special emphasis on localities with national and world value (e.g. Ohrid, Krushevo, historical parts of Bitola, Veles, Kratovo, Debar, Skopje, etc.).
2. Industrial cities and urbanism, post-socialism and sustainable development with special emphasis on experimental cities like Skopje with a mix of different architectural styles and urbanist paradigms.
3. Morphological education in Macedonian universities and links with architectural, archaeological, sociological and geographical faculties and schools.
4. The relationship between architectural and urban morphological theories and practice in Macedonian cities including strategic cooperation with practicing architectural and urban planning companies. Synergies between theory and practice for the development of future sustainable cities.
5. Smart cities of the future supported by digitization of architectural and urban morphological theories including strategic cooperation with information technology companies.

Keywords: research network, urban form, Macedonian, Balkan

Lobby/special session: Comparing Cognitions of Urban Form and their effect on Urban Design

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ABSTRACT

The city is the gathering place of human production and life, and urban form is the result of the gathering of human activities and culture so that urban morphology can reflect the production processes, living habits, social behaviors, land construction technologies of making the city. The urban morphological analysis has identified the morphological elements of urban form: urban morphological structures, blocks, streets, plots, building types, etc. The characteristics of these elements and their interrelationships and combinations are closely related to the operational instruments and changing social identification of the city as a whole. Therefore, interpreting the characteristics of urban form and its formation mechanisms while comparing the influence of different cultural circles on the aspects of urban form, can not only deepen the understanding of the critical elements of urban form and their significance but also help to find the key elements that construct the characteristics of the city. The significance of this round table is to compare critically how the study of urban morphology can eventually provide a solid knowledge base for urban design.

Keywords: Urban form and design, Layered morphologies, Morphological structure, Reading methodologies

The flow of knowledge in urban morphology: from education into practice and from practice into education

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[3] Sapienza University of Rome, Italy

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ABSTRACT

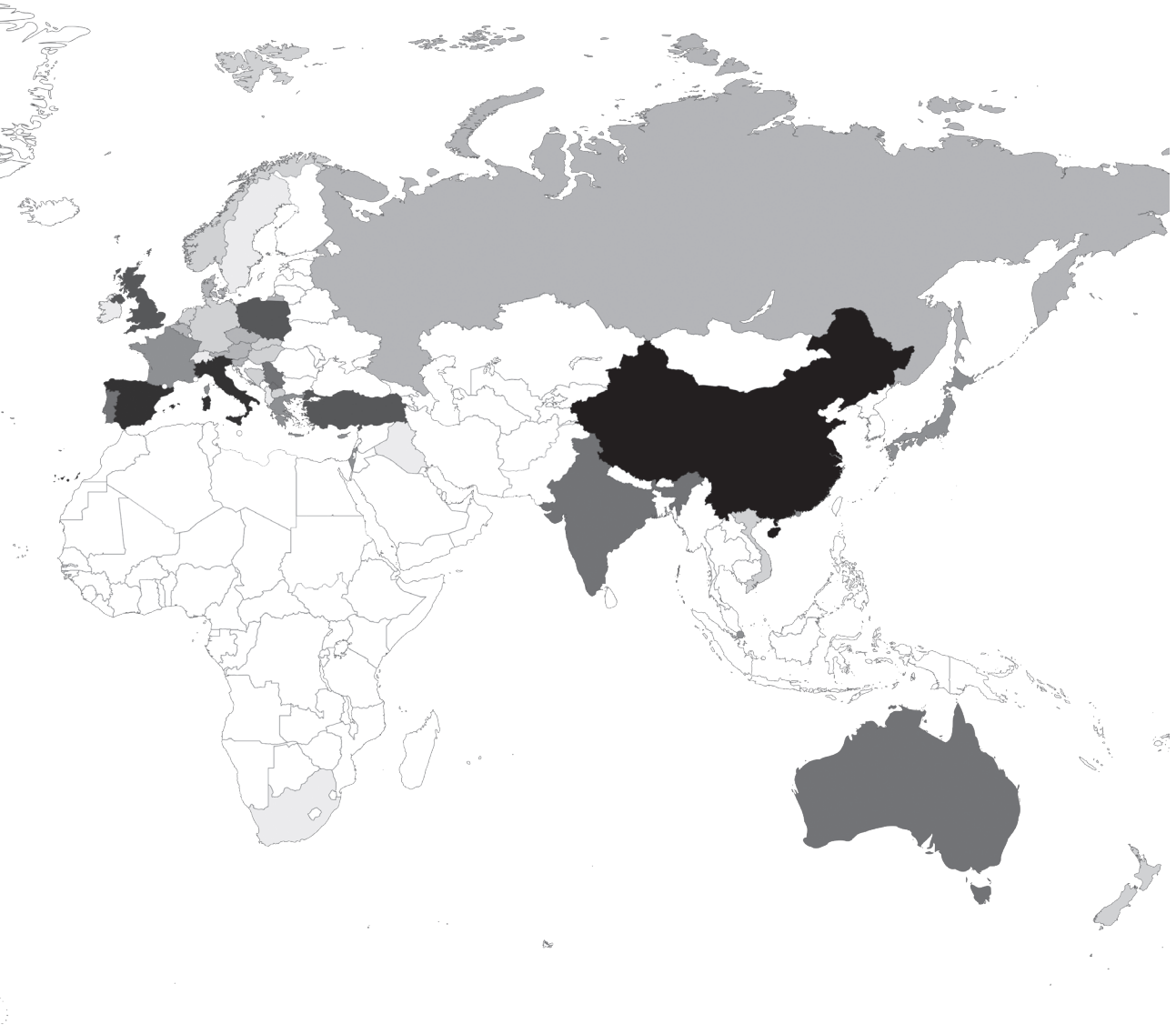
Urban morphology has long contributed to the knowledge base Informing urban design and planning, shedding light on the transformation processes of settlements and the built form, and Influencing design and policy decisions. Dealing with the science of urban form, urban morphological research methods are particularly apt to analysing the interrelationships of physical elements of the urban environment to a variety of socio-economic influences and outcomes. The discipline is therefore called upon to inform design practice and various morphological approaches are used in the design process to evaluate and elaborate design options. In educational settings, however, urban morphology is often taught in a 'static' mode, meaning that knowledge transfer tends to make use of evaluations of completed past projects and of the urban or architectural environment at set points in time, with no feedback from research activities to the practitioners and largely no involvement of designers in such activities to provide the real-life framework (professional, market, social, cultural, etc.) within which a specific project is developed.

This round table builds on the experience of the KAEBUP project, which has integrated practitioners and real-life projects in urban morphological education. Through a series of intensive training workshops and smaller-scale learning activities, KAEBUP has combined the use of space syntax, process-typology and historical geography with ethnographic methods, urbanistic investigation, the use of GIS techniques and environmental modelling software. In these settings, research was carried out by students and teachers on selected real-life case studies provided by the KAEBUP industry partners (MoMRA Headquarters in Riyadh and Solar de Avenida in Porto), yielding valuable findings on the relationships between upstream socio-cultural demands, environmental needs, and the urban and architectural form. This round table provides a summary of these results and evaluates the knowledge feedback loops created through the involvement of professionals and practitioners in academic education. It discusses the value and effectiveness of placing on students the same constraints, challenges and limitations faced by practice when learning to apply urban morphological methods to make and evaluate design decisions.

Keywords: transdisciplinarity, urban morphology education, design practice.

SUMMARY participants


No. of participants per country
1 participant
2-3 participants
4-5 participants
6-8 participants
11-12 participants
17-18 participants
25-30 participants
148 participants



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