

ISUF2021

G L A S G O W

Annual Conference Proceedings

of the

XXVIII International Seminar on Urban Form

“Urban Form and the Sustainable and Prosperous City”

29th June - 03rd July 2021 - Glasgow, UK

Edited by

Alessandra Feliciotti

Urban Design Studies Unit
Department of Architecture
University of Strathclyde

Martin Fleischmann

Geographic Data Science Lab
Department of Geography and Planning
University of Liverpool

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Foreword

Dear Authors, esteemed Readers,

It is with deep satisfaction that we write this Foreword to the Annual Proceedings of the XXVIII International Seminar on Urban Form held virtually in Glasgow, United Kingdom, between June 29th and July 3rd 2021.

When, at the closing of ISUF2019, the Urban Design Studies Unit at the University of Strathclyde in Glasgow (UK) was announced as the host of the XXVIII International Seminar on Urban Form, the world was indeed very different from what, in just few months, we all came to know, and in ways which, at the time, we could not possibly imagine.

Due to the protracted impact of the Covid-19 pandemic and related restrictions to travel and in-person gathering, we found ourselves to forfeit our plan to host the conference in our beautiful and welcoming Glasgow and, very much like our colleagues in Salt Lake City, to deliver the event as fully online instead. We were truly sorry not to be able share a dram of Single Malt Scotch Whisky, have you taste Scottish haggis neeps and tatties, or take you for a spin at an evening Ceilidh in our Dear Green Place. In addition to this, just few days before the opening of ISUF2021, we were shocked and saddened by the unexpected loss of Emeritus Professor Jeremy Whitehand, founding father of ISUF, leading scholar, inspiring educator, and dear friend to many.

But despite the odds being stuck against us, and while our community is still mourning this great loss, we believe we achieved the feat of delivering a thought-provoking and engaging event, continuing the long and prestigious tradition of the International Seminar on Urban Form, while also doing our best to remember and honour Professor Whitehand as he deserved.

A difficult goal, this one, that we could achieve only thanks to the valuable experience of our colleagues in Salt Lake City, the involvement of a formidable team of colleagues and students who volunteered their time to help through all the phases of this complex event and the guidance of the ISUF Council and, to Jeremy himself who, with his meticulous and impeccable planning, granted all of us a once in a lifetime opportunity to have him at ISUF2021 after all and in many different forms, through the voices of his fellow scholars and, quite extraordinarily, through his own recorded voice.

We were able to reach a wide audience of over 370 delegates presenting and attending from some 52 countries around the world, allowing us to bring urban morphology and its values to new colleagues and friends, as well as to audiences that would not have been able to join us in Glasgow, or that would normally not consider attending a conference. We held a total of 95 sessions - including keynotes, round tables, opening and closing sessions - each moderated by a chair and supported by a host, for over 230 hours of live content. All the sessions were also recorded and made available to conference delegates for a period of 60 days after the conference, allowing people attending from different time-zones to listen to each and every one of them at their own pace. Surely, we missed informal gatherings, tours, meals, and parties but we did our best to give all delegates the best of the Scottish hospitality, through virtual walking tours prepared and delivered by current and former students of the Department of Architecture at the University of Strathclyde and lectures delivered by representatives of the Glasgow City Heritage Trust.

And now, after little over six months from the end of ISUF2021, we are finally able to release to the public the Annual Conference Proceedings of the XXVIII International Seminar on Urban Form: "Urban Form and The Sustainable and Prosperous City" a work curated by Dr Alessandra Feliciotti and Dr Martin Fleischmann. The contributions collated in this edited book illustrate the great variety of research streams investigated within ISUF and represent the heterogeneous geographical distribution of contributions, both telling aspects of this florid and growing interdisciplinary field, characterised by deep solid roots as well as vigorous far-reaching branches.

We believe these Proceedings will provide urban form researchers and practitioners of the world with an excellent reference book on the latest advances in the broad area of urban morphology, stimulate new connections and research partnerships, and be an impetus for further research.

We thank all authors and participants for their contributions.

Dr Alessandra Feliciotti

Conference Organiser of ISUF2021

Urban Design Studies Unit (UDSU)

Department of Architecture

University of Strathclyde

Dr Martin Fleischmann

Geographic Data Science Lab

Department of Geography and Planning

University of Liverpool

Preface by ISUF2021 chair

The 28th ISUF Conference was organised by the Urban design Studies Unit at the Department of Architecture of the University of Strathclyde in Glasgow, from the 29 of June to the 3rd of July 2021. The weather was excellent in Glasgow in those days, with a daytime high of around 20 degrees Celsius and no rain throughout. Too bad we could not enjoy it, for all the good reasons that travelling had been a question mark all year round and despite all our commitment we just could not take any other decision than going fully online. Which we did, and it was a dizzy jump into the unknown for us all. Things got sorted out, eventually, and in style, thanks to Alessandra and Martin and all our incredible folks here at UDSU, the Department of Architecture and the University at large, ISUF's support and the enthusiastic contributions of splendid guests who committed themselves to enrich the environment of the conference – though virtually – with invaluable and unreplaceable insights of the real place.

We decided to focus on “Urban Form and the Sustainable Prosperous City”. The more we study cities, the more we realise that their form is never neutral. On the contrary, space is active: how it interacts with social, economic, environmental and economic systems, is central to their success. On urban form also depends cities' capacity to be and remain successful and engaging in time. Form is central across all scales of urban systems and we are at a stage in which our capacity to study social, economic and environmental systems can be related to the analysis of urban form like never before. Furthermore, new technologies, as well as new interpretative frameworks that put time and resilience at the heart of cities' life, have grown in clarity and capacity over the past years, helping immensely our understandings of these complexities.

Theories, methods and practices in the study of urban form were explored in the conference, with two special focuses proposed: “The resilient city: ecological perspectives in Urban Morphology” and “Urban Morphology for SDG 11”. Sustainability and resilience are terms often used interchangeably, while they can be regarded as complementary in capturing both normative and descriptive aspects of change. As associated to urban form, these terms are still open avenues of research as well as promising areas of growth in the ability of urban morphology to further inform urban policy and practice.

Urban morphology is an inherently multi-disciplinary field of research, and each of its many convergent strands of knowledge brings its own set of tools and practices. To the foundational backbone of the discipline, still solidly developing around the Conzenian and Muratorian historico-geographical and morpho-typological living traditions, as well as to the more recent space-syntax quantitative-configurational approach, new impulses have been shaping up in the last few years that have conspicuously marked their presence in this 28th edition of the ISUF conference: these are quantitative approaches building on geographic data science, which rely on advanced techniques of data processing to push the boundaries of large-scale analysis to unprecedented levels, and – even more importantly – without compromising the richness of information. Which is fundamental: urban morphology's core-scale, that of the building/plot, street and neighbourhood, requires information at that scale. That is why other quantitative methods that look at the form of the city as a whole, or beyond to the metropolitan or regional forms of urbanisation, have always struggled to fit in, and contribute to, the development of urban morphology. The unprecedented flood of papers in this area of studies characterized the event. They also seemed to seamlessly and even delicately find their own place and meaning in the rich flow of the urban morphology discourse, building on – and making value of – its quantitative side. In fact, “metrology” studies of urban form have always been part of the discipline since its very foundations in the 1960s. This was also the focus of Jeremy's own contribution to the round table at the conference, entitled “Urban Morphometrics in Urban Morphology: Disciplinary Roots and New Perspectives”, where he explored these roots drawing them back to the inter-war period and Herbert Louis' precursory studies at the Geographical Institute in Berlin. A young geography student at that time in Berlin, MRG Conzen was there in attendance before leaving to Britain in 1933. This red thread of urban morphology metrology studies is now quite clearly evolving into novel “morphometric”

methods of reading and understanding urban form, under the impetus of new technologies, processes and large-scale, fine-grained geo-data.

Jeremy would have liked to bring this point of view in person to the round table, with his usual crystalline open mindedness and genuine generosity. We'll miss him dearly.

Prof Sergio Porta

Chair of ISUF2021

Urban Design Studies Unit (UDSU)

Department of Architecture

University of Strathclyde

Preface by ISUF Presidents

Over the last three decades, since ISUF's first meeting in Lausanne in 1994, our knowledge about the physical form of cities has substantially increased. Today, we know more about the different elements of urban form, how these are combined generating different patterns, and how these are shaped by different agents and processes over time. We also have a better understanding of urban form's influence on the social, economic, and environmental dimensions of our cities. Multiple concepts and methods as developed by founding scholars such as M. R. G. Conzen, Jeremy Whitehand, Saverio Muratori and Gianfranco Caniggia have proven to be quite effective in describing and explaining urban form, resulting in their widespread adaptation by urban morphologists today. Examples of these foundational tools for urban studies include town-plan analysis, fringe belts, morphological regions, typological processes, basic and special buildings, poles and nodes, to name just a few. Findings surrounding applications of morphological existing methods coupled with new tools for urban analysis continue to evolve further enriching our interpretations of urban environments. We realize how street systems can influence movement, social interaction, and the location of economic activities. We use new geometries and new mathematical models where agents have a key role and where the different elements of the urban landscape can be transformed into cells, enabling the simulation of alternative scenarios of development.

While the early years of an organization are challenging by nature, for ISUF the last five years brought unprecedented challenges. The organization of our annual conferences was first faced with significant political barriers in a world with so many authoritarian regimes. It is with great sadness and concern that we see Ukraine being invaded by Russian forces at the time of writing this Preface. On the other hand, since early 2020 the Covid-19 pandemic has completely changed our lives. And yet, between 2018 and 2020, Irina Kukina, Nadia Charalambous and Brenda Case Scheer have successfully overcome these tremendous challenges, offering us three enlightening conferences in Krasnoyarsk, Nicosia, and Salt Lake City (online conference). As the pandemic has continued to inhibit in person gatherings and international travel, the organizers of the Glasgow conference have exhibited resilience by offering ISUF's second fully online conference.

One day after the 2021 meeting of the ISUF Council, and two days before the official opening of the Glasgow conference, we were shocked to learn of Jeremy Whitehand's sudden passing. Until the last weeks before the conference, Jeremy was working with us on a Task Force on Teaching Urban Morphology, on two special sessions (on the relation between research and practice, and on quantification in urban morphology) and on a keynote speech for this conference entitled 'The nature of urban morphology' (Whitehand, 2021). Jeremy was central in the creation of ISUF in the mid-1990s, and he has always been at the centre of our organization over the last three decades. He organized two conferences – the first open event in Birmingham, in 1997, and the Newcastle / Glasgow conference, in 2004, together with Michael Barke. For over almost 25 years he has edited with singular rigor the journal 'Urban Morphology'. Jeremy's legacy (see Oliveira, 2019) will always be part of our organization and of our morphological research.

Two generations of notable and committed researchers based at the University of Strathclyde collaborated over the past two years to organize ISUF 2021. They include Sergio Porta, Alessandra Feliciotti, Ombretta Romice and Martin Fleischmann. This book of proceedings, as the conference itself, is framed by the on-going debate about the role of urban form in creating sustainable and prosperous cities. Sergio and his colleagues propose a fourfold structure for debate including four main themes that are fundamental for ISUF and for urban morphology as a field of knowledge. Theory and method are the first and second of this set. Urban morphologists should be able to establish an open, but coherent, body of theories and methods for understanding the structure and functioning of cities. In addressing these two challenges, we must find a common ground, allowing each one of us to learn from each other, while maintaining the specificity of his own work. The third theme is practice. We must continue to search for effective ways of moving from morphological research to practice in planning,

urban design, and architecture. In this task it is not enough for urban morphologists to simply assert their relevance and claim that they could play a part, if only they were asked (Barke, 2021). It is not enough to create single events of interaction; we must create effective processes, involving many moments for researchers to understand and engage into real practice, and for practitioners to be exposed to and get involved in research on streets, plots and buildings, and how these change over time. Finally, the Glasgow team proposes a focus on sustainability. Urban morphologists must be able to show the relevance of urban form to several key aspects of our daily life in cities, and in the design of strategies for adaptation and mitigation.

This book of proceedings is built from the participation of over 350 researchers from more than 50 countries, presenting their work in almost 100 sessions – including keynote, round tables, and opening and closing sessions – representing almost 250 hours of live contents. The publication of this book takes place in between the realization of the Glasgow (June/July 2021) and Lodz/Cracow (September 2022) conferences. We owe a debt of gratitude to Sergio, Alessandra, Ombretta and Martin for their remarkable work. The second conference, led by Anna Agata Kantarek and Malgorzata Hanzl, is expected to bring us back the possibility of meeting face-to-face to restore place-based collaboration, presenting our investigation, establishing and reinforcing research networks, and visiting and exploring the physical fabrics of cities – the privileged object of morphological inquiry.

Prof Vitor Oliveira

President of ISUF

Research Centre for Territory Transports and Environment (CITTA)

Division of Spatial and Environmental Planning

Department of Civil Engineering,

University of Porto

Prof Emerita Wendy McClure

Former president of ISUF

Architecture Program

College of Art and Architecture

University of Idaho

Barke, M. (2021) 'Foreword', in Oliveira, V. (ed.) *Morphological research in planning, urban design and architecture* (Springer, Cham) v-viii.

Oliveira, V. (ed.) (2019) *J.W.R. Whitehand and the historico-geographical approach to urban morphology*, Springer, Cham.

Whitehand, J. W. R. (2021) 'The nature of urban morphology' (prerecorded video), *28th International Seminar on Urban Form*, Glasgow, 29 June – 3 July.

Organization of the Proceedings

The Annual Conference Proceedings of the XXVIII International Seminar on Urban Form: “Urban Form and The Sustainable and Prosperous City” collates 178 papers, and 3 posters and 1 viewpoint. In keeping with the structure implemented during submission, review and presentation of individual contributions, the present book is divided into four main sections: Theory, Methods, Practice and Focus. Within each section, papers were further grouped in a number of themes, as defined below.

Section I, **Theory**, contains contributions deepening our understanding of existing morphological and typo-morphological theories, models and concepts as well as exploring new avenues of knowledge and perspectives from affine disciplines, linking them up to established or original morphological theories. Themes in the theory section include:

- **The epistemology of Urban Morphology:** retracing the evolution of a discipline and charting new research paths.
- **Towards a descriptive science of urban form:** old and new models explaining generative and transformative processes driving complex trajectories of urban evolution.
- **New trans-disciplinary perspectives in urban morphology:** new hybridisations for a holistic understanding of complex city systems.

Section II, **Methods**, looks at existing and innovative tools and procedures for the reading and understanding of urban form and its dynamics, encompassing both qualitative and quantitative approaches. Within the Methods sections, contributions are divided into the following themes:

- **Innovations in qualitative research in Urban Morphology:** methodological perspectives linking to classic Conzenian and Muratorian traditions, with an emphasis on qualitative research methods.
- **Innovations in Urban Morphometrics:** perspectives bringing new quantitative methods into Urban Morphology building on the rise of the digital age, including digital cartography, big data and remote sensing.
- **Engaging with the social, cultural and institutional discourse:** novel and original research methods capturing the interaction of urban form and human life engaging with complementary disciplinary fields.

Section III, **Practice**, looks at urban form as an active player in shaping tomorrow’s cities and at the world of professional practice, policy and education. Contributions within this section address the following themes:

- **Urban Morphology for design, planning and policy:** the practical role of urban form towards the sustainable and resilient, safe and inclusive cities for all.
- **Urban Morphology, Architecture and Heritage:** preservation, reuse, valorisation of built heritage as asset for future prosperity.
- **Teaching Urban Morphology:** methods, experiences and lessons learned to shape the next generation of architects, planners, urban designers and policy makers.

Section IV, **Focus**, reflects on urban morphology in light of emergent global drivers and in relation to the wider debate on Sustainable Development and Climate Change. Contributions within this section revolve around two main topics:

- **The resilient city: ecological perspectives in Urban Morphology:** perspectives and approaches linking urban form to the overall resilience of urban systems.
- **Urban Morphology for SDG 11:** contributions relating urban form to sustainable development goal targets.

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Urban Morphology and Urban Design Competitions in Serbia: Between Substantial and Procedural Aspects

Vladan Djokić¹, Aleksandra Djordjević¹, Mladen Pešić¹, Aleksandra Milovanović²

¹ MorphoLab, Department of Urbanism, Faculty of Architecture, University of Belgrade, Serbia

² MorphoLab, Department of Architecture, Faculty of Architecture, University of Belgrade, Serbia

Abstract

This research aims to open up a discussion about morphological perspective in the procedural and substantial aspects of urban design competitions, with the specific focus on Serbian context. The research builds on the previous findings concerning treatment of heritage in design competitions, presented on the 2020 ECTP-CEU Young planners' workshop. Research starts from the hypothesis that competitions offer the possibility of obtaining unique solutions, provide a platform for the presentation of new ideas, but also new views on the good, thus reducing the pressures of globalization, neoliberalism, and multiplication of identical and generalized patterns and forms. On the one side, research will offer understanding of the (1) procedural aspect (initiation, submission, evaluation, and implementation of urban design competitions) and (2) substantial aspect (competition brief content, design perspective, evaluation criteria structure) of urban design competitions. On the other side, the research will reflect on authors personal experience, both from the position of a jury member and a competition participant. Analysis of the above-stated elements could provide comprehensive insights into understanding the way how urban morphology can be used both as a method and theory in design process, and as a valuable element in evaluation process. This paper will argue for the need to strengthen the bond between urban morphology and urban design competitions, especially having in mind current urban development in post-socialist countries that are faced with various social and political pressures.

Keyword: urban design competitions, urban morphology, design process

Introduction

Within the contemporary cities' development and transformation imposed by a series of challenges and influential factors, urban design is positioned as a kaleidoscope for generating complex patterns. Within this postulation, urban culture has been looking for new practices - from deterministic to flexible, unified to contextualized. In line with the mentioned dichotomies, the process of urban design has to be enhanced with new approaches, hence introducing (a) greater scientific rigor in terms of general strategy and basic commitments, but also (b) greater flexibility regarding design solution to be applied in the implementation phase. In this problem-based context, it is more important than ever to interpret and overlap the substantial and procedural aspects that shape the urban design process – to understand operational mechanisms and regulatory factors and their procedural nature, but also design strategy and conceptual principles and their substantial nature. Achieving consensus between these two natures is a special challenge for researchers, practitioners, and policymakers, especially when it comes to the idea of *design by competition*.

Urban design competition (UDC) represents a special form of urban practice seen as a form of design method (Banerjee and Loukaitou-Sideris, 1990). Throughout history, UDCs have been recognized as operational and socially oriented mechanisms in which the profession has the task of providing solutions and developing original concepts on set criteria and in line with the competition brief (Đorđević et al., 2020). Due to its procedural nature, which includes several phases in the implementation of UDC, the research of this type of urban practice includes numerous perspectives that, in addition to architecture, urban design, and urban planning and development, very often include management, political issues, and economic development. Contemporary UDC practice is becoming increasingly market-oriented using the UDC procedure itself as a veil for selecting a particular design solution where the substantial framework becomes completely neglected or interpreted through a competition brief.

In order to demystify the relationship between procedural and substantial in the practice of UDC, this paper will use the method of multiple case study analysis to decode the position of urban morphology in a comprehensive UDC process - from defining a competition brief to evaluating design proposals. The first part of the paper presents the state-of-the-art of UDCs with a particular focus on decoding regulations for DCs. The second part explains the methodology and research steps with an explanation of selected case studies for analysis. Finally, the discussion is built in accordance with the results of three conducted analyses - content analysis of six UDC briefs, quantitative comparative analysis in relation to the evaluation criteria matrix, and critical analysis from UM perspective.

State-of-the-art of UDCs

There is a series of studies that critically analyse design competitions (DC); however, they are usually limited to architectural design competitions (ADC) (Newton and Backhouse, 2013; Menon and Vanderburgh, 2014) and are based on biographical histories of individual cases (Banerjee and Loukaitou-Sideris, 1990; Lipstadt, 2006; Cimen, 2010). Although there are certain similarities in-between ADC and UDC, especially when it comes to the procedural aspect, these two types of DCs differ significantly when it comes to substantial aspects. In this sense, a gap is identified in contemporary research when it comes to the substantial aspect of UDC. Through decoding political agendas in the context of DCs, Sagalyn (2006) singles out several key differences between ADC and UDC: (a) *problem solving* within UDC requires importing skills and knowledge from IMT framework, (b) difference in the *content* within UDC focusing on the relationships among tangible and intangible elements, (c) difference in the *context* within UDC which is multi-scale oriented in order to establish a relationship with the wider and immediate environment, and (d) complex combination of *public and private interests* occurs within the UDCs, as opposed to ADCs which are usually implemented for the level of a single plot. Although there are numerous definitions of DC, that most of them focus on a key aspect of the analysis, while as a consensus definition it can be pointed out that DCs (a) provide a democratic basis of design (Banerjee and Loukaitou-Sideris, 1990) through citizen participation (Garde, 2014), (b) respond to

the same problem according to a set of rules (Nasar, 1999) and to the point where it realistically prefigures a realizable building (Lipstadt, 2006), (c) provide a system to assure spatial qualities in cities, and finally (d) generate “platform where different discursive formations, with their objects, enunciative modalities, concepts and strategies, are exercised and practiced by human subject” (Cimen, 2010: v). Although previous perspectives significantly contribute to understanding the complexity of DCs, only Menon and Vanderburgh (2014) challenged the various critical elements (both human and non-human) of a competition based on experiential research. They propose a “total competition” model and derived six principal elements (the organisers/jury, the programme, the competition rules, the modes of representation, the competition entries, and the competing teams) especially pointing out the importance of their interaction at all levels and phases of DCs implementation (Menon and Vanderburgh, 2014).

Regulations for DCs

In order to open a discussion on the relation of procedural and substantial in DC practice, it is necessary to understand and critically consider the regulatory framework for DCs. The General Conference of UNESCO adopted *Standard Regulations for International Competitions in Architecture and Town Planning* in 1956 (revised in 1978) and directed the International Union of Architects (UIA) to supervise their application and assist clients (International Union of Architects, International Competitions Commission, 2017). The mentioned Standard - thanks to the value framework focused on the production of the architecture of distinction and uphold the highest cultural and artistic values – provides the backbone for the implementation of DCs in the contemporary practice of architectural and urban design. However, these standards apply only to the procedural nature of DCs, but they don’t consider the value framework (criteria matrix) for the selection of solutions, nor define initial criteria and aspects within the competition brief.

Table 1. Evaluation competition matrix (ECM) according to Architects’ Council of Europe (2010)

Urban criteria	Architectural criteria	Functional criteria	Ecological criteria	Economic criteria
Urban fabric	Beauty	Development system exterior and interior	Energy consumption	Economic evaluation of the submission, by building cost and maintenance costs
Design of exterior spaces	Design approach	Zoning of interior areas, through ways, connections	Area / volume factor	Constructive system, engineering factors
Quality of landscape planning	Idea of the design	Functionality of the solution	Façade areas	Life cycle costs
Traffic solution	Structure	Traffic solution external and internal	Use of building material	
	Architectural quality of spaces, appearance		Maintenance	
			Sustainability	
			Grey energy	

A step closer to regulating the substantial aspect of DCs has been achieved through the Policy Position by Architects 'Council of Europe (2010). Although this document regulates the issue of ADCs, the point concerning the *Scale* defines the implementation of town planning projects / urban design projects, which means that this document has a multiscale approach and DCs is viewed in a broader framework of a strictly architectural scale (level of building with the associated plot).

Methodology

Having in mind that the research starts from the assumption that adequately defined UM-oriented criteria in competition brief affirmatively influence the production of design proposals, the methodological framework is based on case study analysis of competition brief both as conceptual and regulatory input for competitors. The primary framework for conducting a critical analysis of competition briefs is the evaluation competition matrix (ECM) established by ACE as the umbrella matrix of criteria at the European level (Table 1).

From previous research insights of both ADC and UDC as the most important approach stands out experiential - research from the perspective of competition participants. The research in the case also engaged an experiential approach that, in addition to the author's position (participant in the competition), includes the position of evaluator (member of the competition jury). In this sense, the basic subject of research consists of six UDC case studies in which the authors of this paper were either participant in the competition or a member of the jury. An additional criterion for the selection of case studies included the competition level with the intention to conduct a multilevel analysis in relation to the established ECM at the European level - Regional with International participation, National with international participation, and National without international participation (Table 2).


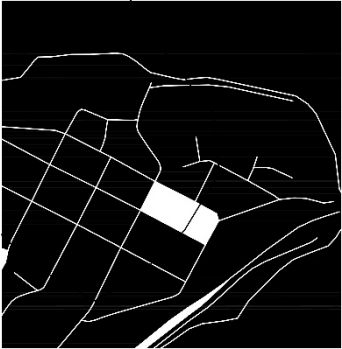

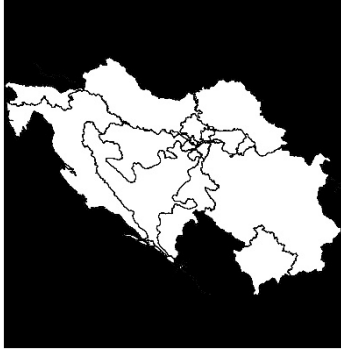


The research included three steps as follows:

(1) *Content analysis* of six UDC briefs – three where one of the authors of this paper participated as an author of the competition design proposal, and three where one of the authors of this paper participated as a jury member. A special focus in this analysis was given to the identification of evaluation criteria, and to their relation and compliance with the recommendations and design guidelines.

(2) Based on the identified criteria in all six UDC briefs, a *quantitative comparative analysis* was performed in relation to the ECM. For each case study, criteria that matched the ECM criteria were identified and as well as additional criteria that differed from the ECM.

(3) In final step, *critical analysis* from UM perspective was performed in order to identify the presence of specific UM aspects within competition brief based on design perspectives provided within competition proposals envisioned from experiential position.

Table 2. Selected UDC case studies in relation to the authors role and competition level

	Regional with International participation	National with international participation	National without international participation
Participant as an author	<p>Competition for development of the conceptual urban-architectural solution of the central pedestrian zone in Banja Luka</p>  <p>(BANJALUKA)</p>	<p>Competition for developing an urban-architectural solution of the city center of Kursumlija with the city park</p>  <p>(KURSUMLIJA)</p>	<p>Urban - architectural competition for the conceptual design of old city complex in settlement Tulbe in Vranje</p>  <p>(VRANJE)</p>
Participant as jury member	<p>Competition with secured anonymity</p>  <p>(ANONYMUS)</p>	<p>Urban and Architectural Design for Golotočkih Žrtava Square in Podgorica</p>  <p>(PODGORICA)</p>	<p>Urban and Architectural Competition for the square of Kosovo Heroes in Kruševac</p>  <p>(KRUSEVAC)</p>

Results and Discussions

Content analysis of six UDC briefs indicates that there is mismatching between evaluation criteria and the recommendations and design guidelines within the competition brief. Quantitative analysis reveals that, when looking at the individual competitions, their correspondence to ECM is as follows: Anonymous (10/23, 43%), Podgorica (7/23, 30%), Kruševac (9/23, 39,1%), Banjaluka (11/23, 47%), Kuršumlija (3/23, 13%), and

Vranje (9/23, 39,1%). This shows that competitions with a higher level of internationality are more in compliance with the ECM. Looking at different criteria (urban, architectural, functional, ecological, and economic), the analysis reports that the average coverage of each aspect is as follows: 0.83/4 regarding urban criteria, 2/5 regarding architectural criteria, 1.67/4 regarding functional criteria, and 1.83/7 for ecological and 1.83/3 for economic aspect. This shows that urban criteria are the least represented, and as such require additional emphasis.

Table 3. Quantitative comparative analysis of case UDC briefs – Relation to the ECM

Competition	Urban criteria (UC)	Architectural criteria (AC)	Functional criteria (FC)	Ecological criteria (EC)	Economic criteria (ENC)
Anonymous	2/4 + UC2 and UC3	2/5 + AC2	2/4	3/7 + EC2	1/3
Podgorica	0/4+ UC2	2/5 + AC1, AC2, AC3	1/4	2/7 + EC1	2/3 + ECC1
Kruševac	0/4 + UC1	2/5 + AC1	3/4	1/7 + EC1	3/3 + ECC1
Banjaluca	2/4 + UC3	2/5 + AC1	2/4	3/7	2/3
Kuršumljija	0/4 + UC4	2/5 + AC2	0/4	0/7	1/3
Vranje	1/4 + UC3, UC5	2/5	2/4	2/7	2/3 + ECC1

Within Urban Criteria, conducted analysis reveals the tendency of adding several new criteria such as Integration into the cultural-historical ambient and surrounding public space (UC1), Attractiveness of urban design solution and recognizability of the space (UC2), New solutions, adapted to local climate, culture, and challenges (UC3), Relation to the protection, preservation, and improvement of Cultural and Historical Heritage and Space continuity (UC4), Possibility of the design implantation regarding planning framework (UC5). When talking about Architectural criteria most of the competition briefs highlighted the criteria on part and whole relationship (AC1), originality, Innovative aspect (AC2), Relation of Architectural values (AC3). There were no additionally recognized functional criteria while within ecology, the aspects of the use of renewable energy sources (EC1) and Energy management (EC2) were recognized. The economic criteria are predominantly corresponding to the EU criteria, except the project feasibility, which was included.

Additional criteria that were highlighted in two of the competitions were concerned with Clarity of communication through the presentation of the innovative architectural solution, and as such needs to be taken into account.

The analysis reveals that the highest gap can be observed within Urban criteria, which is often left to the author's point of view and employed design perspective and is rarely formalized within evaluation criteria. When we take into account personal experience and theoretical ground that derives from the field of urban morphology, it is possible to emphasize various criteria that can be further discussed: 1) from the Historico – geographical approach: a) systematic description and explanation of the urban landscape (Oliveira, 2021, p5), b) introduction of typo-morphological zoning as proposed by Samuels and Kropf (ibid), c) sensitivity and historical layering (Whitehand, 2021), d) conservation of the physiognomic identities of urban areas and their constituent parts (Conzen 1975 in Whitehand, 2021), e) preservation of human scale, f) conservation control of street spaces (ibid), g) Creating a hierarchy of urban elements (Banjaluka), h) Centralization of planning composition through urban acupuncture (Kuršumljija), transmission and preservation of cultural forms and patterns over time (Vranje), 2) process-typological approach: a) classification of common buildings and organization of types in logical sequences (Maffei in Oliveira, 2021), b) Design following the traditional relationship between street and building, and plot and building (Corsini 2009 in Oliveria, 2021), c) contemporary reinterpretation of traditional types and elements (Vranje), d) design following traditional physiognomy of urban spaces and squares at the local context (Anonymous, Podgorica) and (3) Space morphology: a) the analysis of pedestrian activity patterns and the conception of a pedestrian movement (Oliveira, 2021), b) space syntax concept of cones of vision, c) space syntax for connectivity analysis (especially for long distance and unapproachable areas), e) relationship of protective elements with the overall design concept (Krusevac).

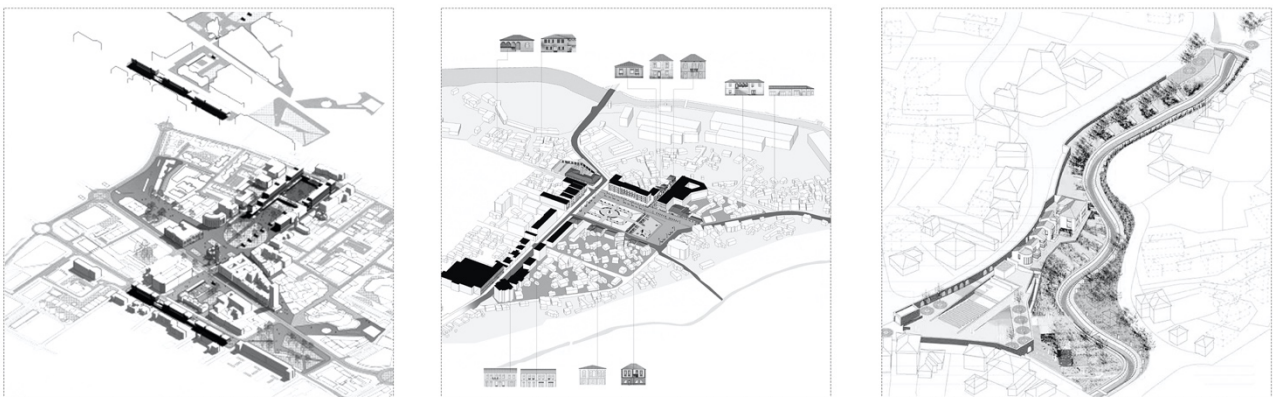


Figure 1. a) Banjaluka Competition Entry. Verica Krstić, Jelena Ristić Trajković, Aleksandra Milovanović, Marko Dedić, Katarina Dimitrijević b) Kuršumljija competition entry by Aleksandra Milovanović, Katarina Škrbić, Aleksandra Bašić, Aleksandra Mitković, Tamara Ilić, Ana Miletić, Marija Pantović, c) Vranje competition entry. Authors: Kostić Miloš, Djordjević Aleksandra, Zorić Ana, Basta Jelena, Arsić Nikola, Bugarski Jovana

Conclusions

The conclusions can be drawn on two levels: (1) the interrelation of local to the global/EU criteria, and (2) the importance of urban morphology regarding Urban criteria. Within the first, it is noted that evaluation criteria are more aspect-based and not scale-based. It was also noted that competition briefs usually emphasize various morphological aspects, but that they are not usually included in evaluation criteria, which often stay very generalized. The second level presents the ways how personal experience based on specific morphological aspects, theories, tools, and technics can become a principle that guides both the author and jury decision process.

In overall background, it is recognized that UDCs offer the possibility of obtaining unique solutions and generating of new ideas, but in order to render the UDCs role in reducing the pressures of globalization, neoliberalism, and multiplication of identical and generalized patterns and forms, evaluation criteria have the primary role in ensuring the quality of designs. The basic principle of this paper thus refers to the further perspective of strengthening the role of EMC as a quality control system, and not as a veil for the implementation of procedural aspects. In this sense, the challenge for future research is to review the existing evaluation matrices of criteria towards the possibilities of their (a) contextualization in line with the locally specific values and (b) flexibility in relation to different scales.

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References

1. Architects 'Council of Europe. (2010) Architectural Design Contest, ACE master document and brief for an ADC. 445/10/GP
2. Banerjee, T. and Loukaitou-Sideris, A. (1990) 'Competitions as a design method: An inquiry', *Journal of Architectural and Planning Research* 14, 114-131.
3. Cimen, D. (2010) Urban design competitions as discursive practice in Turkey: 1980-2009. The Graduate School of Natural and Applied Sciences of Middle East Technical University.
4. Djordjević, A., Pešić, M. and Milovanović, A. (2020). 'Heritage and urban design competitions: Global challenges and local experiences from Serbia', In V.Djokić and L. Triantis (Eds) *Heritage in a planning context*, ECTP-CEU Young Planners workshop, 9-31.
5. Garde, A. (2014) 'Citizen Participation, Design Competition and the Product in Urban Design: Insights from the Orange County Great Park', *Journal of Urban Design* 19, 89-118.
6. Lipstadt, H. (2006) 'The Competition in the Region's Past, the Region in the Competition's Future', In K.Malmberg (Ed) *The Politics of Design: Competitions for Public Projects* (pp. 7-27). Princeton: Policy Research Institute for the Region.
7. Menon, C. and Vanderburgh, D. (2014) 'Who –or What –"Wins" an Architectural Competition? A Model and a Case Study', *FormAkademisk - forskningstidsskrift for design og designdidaktikk* 7, 1-19.
8. Nasar, J.L. (1999) *Design by Competition: Making Design Competition Work*. Cambridge: Cambridge University Press.
9. Newton, C. and Backhouse, S. (2013) 'Competing in Architecture: Crowdsourcing as a Research Tool', *FormAkademisk - forskningstidsskrift for design og designdidaktikk* 6, 1-13.
10. Oliveira, V. (Ed.) (2021) *Morphological Research in Planning, Urban Design and Architecture*. Springer Nature.
11. Sagalyn, L.B. (2006) 'The Political Fabric of Design Competitions', *Penn IUR Publications* 19, 29-52.
12. Whitehand, J. W. R. (2021) 'Conzenian research in Practice', In V.Oliveira (Eds) *Morphological Research in Planning, Urban Design and Architecture*. Springer Nature.



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