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BOOK OF PROCEEDINGS

THE FUTURE IS RESILIENT

TRANSFORMATIVE CHANGE
THROUGH
CIVIC ENGAGEMENT

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CONTENT

COMMITTEE

06 SCIENTIFIC
07 ORGANIZING

PROJECT DESCRIPTION

09 URBAN PLANNING FOR SOCIAL RESILIENCE IN URBAN NEIGHBORHOODS. TRANSFORMATIVE CHANGE THROUGH CIVIC ENGAGEMENT

FULL PAPERS

11 VIOLETA STEFANOVIĆ – THE URBAN DESIGN OF RESIDENTIAL NEIGHBOURHOODS AS A TOOL OF PROMOTING THE FORMATION OF STRONG AND RESILIENT COMMUNITIES: AN EXAMPLE OF GOOD PRACTICE FROM NOVI SAD, SERBIA

19 ALJOSHA SHOPAR - GOOD PRACTICES OF CIVIC ACTIVISM IN BUILDING RESILIENCE FOR SUSTAINABLE URBAN FUTURES: LEARNING FROM SKOPJE

31 KETI HOXHA ET AL.– THE ROLE OF CEMETERIES AS EXCLUDED SPACES IN BALKAN CITIES AND THEIR POTENTIAL AS INCLUSIVE SPACES

41 OLIVERA LEKIĆ GLAVAN ET AL. –EXPLORING THE SOCIAL DIMENSION OF URBAN NEIGHBOURHOODS WITHIN THE SERBIAN CONTEXT

50 DAMJAN BALKOSKI - ACHIEVING URBAN RESILIENCE: AN INTEGRAL APPROACH TO SOCIAL AND ECOLOGICAL SUSTAINABILITY IN RNM'S BORDER TOWNS

60 NADICA ANGOVA KOLEVSKA ET AL. – CITY QUARTERS AS A MECHANISM FOR URBAN REGENERATION: CASE OF CITY QUARTER J14-RASADNIK, SKOPJE

71 GIORGIA ARILLOTTA & GILDA BERRUTI – GOING BEYOND THE BRONX. COLLABORATIVE MAPPING AS A TOOL TO OVERCOME INEQUALITIES IN HOUSING RIGHTS IN EAST NAPLES

78 ISABEL HERRLE – CHALLENGES AND POTENTIALS OF INSTITUTIONALIZED CO-PRODUCTION: A CASE STUDY OF THE IMPLEMENTATION OF A NATIONAL FUNDING PROGRAM IN HAMBURG CITY CENTRE

86 KEFAJET EDIP – URBAN PLANNING IN SKOPJE AND THE INCLUSION OF THE COMMUNITY IN DECISION-MAKING: CASE STUDIES OF ČAIR, BUTEL, AND KARPOŠ

95 IVANA ANGELOVA ET AL. – HEALTH BEFORE PROFIT: CIVIC ACTION AND THE AND CONSTRUCTION REFORM IN SKOPJE

104 ARDALAN TAYEFEHHOSSENLOU – TRANSFORMATIVE ENGAGEMENT: RETHINKING PUBLIC SPACE AS A COLLABORATIVE PLATFORM FOR COMMUNITY INTERACTION

112 SANJA AVRAMOSKA – DECIDING ON MEASURES IMPLEMENTATION FOR RIVERFRONT FLOOD RESILIENCE: ACTOR MAPPING AND NETWORK ANALYSIS

120 SADMIRA MALAJ ET AL. – DIGITAL CIVIC ENGAGEMENT IN THE ERA OF MISINFORMATION: LEVERAGING TECHNOLOGY FOR RESILIENT COMMUNITIES

132 ANNA CSIZOVSZKY ET AL. – URBAN RESILIENCE AND PEOPLE'S ENGAGEMENT

140 GARIKA UJIANIK PRISTIWATI – UNFOLDING TRANSFORMATIVE POTENTIAL OF URBAN DIGITAL TWINS FOR RESILIENT NEIGHBOURHOODS

150 MIGLENA GERASIMOVA ET AL. – HOW INVESTORS CAN CONTRIBUTE TO SOCIAL SUSTAINABILITY AND RESILIENCE THROUGH TRANSFORMATIONS INSPIRED BY CITIZEN PARTICIPATION AND ADAPTIVE PLANNING

159 PAVEL VELJANOSKI ET AL. – INNOVATIVE METHODOLOGIES IN URBAN DESIGN STUDIES: TRANSGRESSING BOUNDARIES BETWEEN BUILT ENVIRONMENTS AND URBAN SCENOGRAPHY

169 ARIANE JEDLITSCHKA & ANNEGRET HAASE – EXPERIMENT SUPERBLOCKS IN EAST LEIPZIG: LOCAL CO-PRODUCTION FOR MOBILITY TRANSFORMATION

177 DIMITAR SAMARDJIEV - CULTIVATING RESILIENCE IN THE COMMUNITY GARDEN BOSTANIE

THE FUTURE IS RESILIENT TRANSFORMATIVE CHANGE THROUGH CIVIC ENGAGEMENT

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URBAN PLANNING FOR SOCIAL RESILIENCE IN URBAN NEIGHBORHOODS. TRANSFORMATIVE CHANGE THROUGH CIVIC ENGAGEMENT.

The aim of the Urban Planning for Social Resilience in Urban Neighborhoods. Transformative Change through civic engagement (UPRUN) research project is to provide future planners and other built environment professionals with a more sophisticated understanding of neighbourhood resilience. For this, UPRUN will identify strategies to strengthen social participation, resilience and sustainability in urban communities and neighbourhoods.

In many European cities, we can observe that civil society actors increasingly appropriate public spaces and contribute to the co-production of neighborhoods. As consequence, numerous 'experimental spaces' exist in cities, where 'city makers' develop social innovations and test new structures or new practices. Social innovations that emerge from organized citizenship have the potential to make a valuable contribution in addressing social and cultural issues in the neighborhoods of European cities, and can contribute to the development of resilient communities. These transformative processes have the potential to confront fragmentation and exclusion in neighbourhoods, and are thought to provide the groundwork for an educational mission of architects, urban planners and designers and other built environment professionals. However, these developments are not reflected in higher education curricula to date. The aim of UPRUN is thus to provide future planners and other built environment professionals with a more sophisticated understanding of neighbourhood resilience. For this, UPRUN will identify strategies to strengthen social participation, resilience and sustainability in urban communities and neighbourhoods. The findings are used to develop hybrid teaching modules enabling students to make urban neighbourhoods more resilient via planning, collective action, innovation and learning.

Therefore, UPRUN will – in a comparative perspective – (i) analyse to what extent civil society actors can take responsibility for 'their' neighbourhoods or communities; (ii) identify the potentials and risks associated with civic engagement concerning social resilience and democratic development; (iii) analyse how sustainable transitions and urban neighbourhoods can be implemented successfully; (iv) examine the role of urban and regional planning in achieving social resilience and sustainability; (v) identify strategies for both civil society initiatives and urban planners to strengthen social participation, social resilience, democratic development and urban sustainability; and (vi) to contribute to a comprehensive understanding of resilient urban neighbourhoods.

UPRUN consists of several modules that build on and complement each other in the development of a digital, interactive knowledge and learning platform. The different modules include theoretical-conceptual approaches, quantitative and qualitative research methods as well as online studios, workshops, etc. to derive potential planning and design approaches for a more resilient development of urban neighbourhoods in European cities.

The aim of the online-survey is to include the knowledge of civil society actors and municipal representatives. The focus here is on the challenges faced by community-based initiatives in realising their ideas and goals, but also on the experiences of local planners in dealing with those initiatives in different contexts across Europe. Therefore, the online-survey intend to generate extensive and robust empirical findings on potentials and barriers on social participation, social resilience, democratic development and urban sustainability in urban communities, based on the experiences of local stakeholders in Europe.

The intention of the case study analysis is to learn more about (i) the motivation of civic actors to take on responsibility for (former) public tasks and the resulting changes in the division of tasks between civil society and urban planning, (ii) the role of the built environment and historical or cultural heritage as important pre-condition for local identity and civic engagement and (iii) constraining and facilitating factors for planning resilient neighbourhoods. These goals are achieved with the comparative case study analysis as we are convinced that case-based learning contributes to a better understanding of the nature of difference, and can generate ideas and propositions that can more adequately inform practice on the development of resilient neighbourhoods. In this regard, it is the objective of the case study analysis (i) to deepen our knowledge from the online-survey and (ii) to generate a data base consisting of various case studies that can be used for different teaching and learning purposes.

In this module, we summarise the results from the first two modules and derive requirements for the teaching of future planners, architects, civil engineers and other built environmental professionals. We will develop innovative and activating teaching and learning formats and make them available on the knowledge and learning platform. This encompasses the development of the content and the materials for a 12-week course on 'planning resilient neighbourhoods', including e-learning components using innovative participatory tools and utilizing digital pedagogies to provide an online learning platform that fosters a collaborative and participatory experience.

Each partner takes the 12-week course with all the materials and test it at his/her respective institution. In order to evaluate the experiences with the digital and hybrid teaching formats, a monitoring system will be set up, evaluating the experiences of different user groups (teachers, students, external actors such as civil society actors, etc.) and identifying potentials for optimisation of the knowledge and learning platform. These can be technical, conceptual or pedagogical improvement options. On this basis, appropriate improvements to the knowledge and learning platform will be carried out. The aim is to have a robust digital learning environment, that enables interested lecturers and university teachers, but also students, to actively and interactively engage with the planning of resilient urban neighbourhoods from a holistic perspective.

THE URBAN DESIGN OF RESIDENTIAL NEIGHBOURHOODS AS A TOOL OF PROMOTING THE FORMATION OF STRONG AND RESILIENT COMMUNITIES AN EXAMPLE OF GOOD PRACTICE FROM NOVI SAD, SERBIA

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ABSTRACT

Collective city living is the dominant form of co-habitation in today's ever-growing cities, with the majority of residential buildings erected today usually taking up their entire intended building lots, designed to enable the maximisation of profitable square meters. However, despite the residential density that is gained from housing a vast number of people in the same building, nowadays we rarely encounter strong communities stemming from these housing forms. This comes from the fact that although residential density is a prerequisite for the formation of communities, in order for communities to be organically formed and strengthened, there is a need for frequent and meaningful social encounters of residents. Therefore, if an urban residential complex is envisioned in a way that reaches beyond the building itself and a neighbourhood is created with the integration of green spaces, urban furniture and specific spaces meant for various communal activities, then there is potential for the formation of strong communities. This paper aims to apply criteria derived from social, psychological and spatial theories and research regarding the creation of communities to a real and existing urban block in Novi Sad, Serbia, in order to evaluate it and showcase what kind of urban neighbourhood design has the ability to promote the creation and development of long-lasting, healthy and resilient communities. The aforementioned criteria stem from the basis of the formation of communities – derived from Steven Brint's classification of communities, as well as other studies which highlight the importance of relationships between residents in a neighbourhood community and their correlation with urban space. Since encounters of residents are facilitated by the spatial frame of their housing block, it is possible to analyse an existing urban block in Novi Sad in regards to its urban infrastructure and programmes which may aid in the facilitation of encounters, activities and shared experiences vital to the strengthening of communities. The block showcased in this paper is a prime example of how architecture and urban design can be used to facilitate and encourage encounters amongst residents, aiding the creation of strong interpersonal bonds and resulting communities. This research is relevant to today's rapidly growing cities and can serve as a guideline for developing residential complexes that foster stronger communities.

Keywords: communities, residential neighbourhoods, urban design, Novi Sad, Serbia

INTRODUCTION

The dominant form of city living today is in multifamily residential buildings. The everlasting growth of cities with constant population increase dictates the need for residential buildings, spaces and neighbourhoods. However, due to the current political, economic and social circumstances, the production and development of these new and numerous residential projects are led by individual private investors who have the goal of maximising their investment return. This means that these newly constructed buildings usually spatially take up the entirety of the building lot, leaving out the opportunity for the formation of shared public spaces within these residential blocks. Without the opportunity for frequent and meaningful social encounters among residents carried out in communal residential areas of a neighbourhood, it is highly unlikely for them to form social bonds. Therefore, the social benefit of having a large number of people living together in the same residential neighbourhood is left underused in the sense of the potential relationships that can be formed between them. Even though one could argue that encounters can be had in the surrounding streets or in the buildings themselves, shared outdoor spaces adjacent to residential buildings offer a wide variety of possible activities increasing the possibility for encounters, with the proximity of this space to the buildings increasing their accessibility. The urban design of residential neighbourhoods which includes the planning and creation of multipurpose urban areas intended for frequent use can facilitate the social interaction of residents which is the basis for forging a neighbourhood community. This paper aims to apply criteria derived from social, psychological and spatial theories and research regarding the creation of communities to a real and existing urban block in Novi Sad, Serbia, in order to evaluate it and showcase what kind of urban neighbourhood design has the ability to promote the creation and development of long-lasting, healthy and resilient communities. The methodology for this research combines interdisciplinary theories on community formation and their correlation to the spatial frame in which they are formed, with a qualitative spatial evaluation of the block's morphology and spatial structure. This research and its findings are relevant to today's rapidly growing cities, where fast-paced residential projects driven by private investors often result in large, densely populated buildings with limited natural and shared outdoor spaces, which diminishes the possibilities for the facilitation and formation of neighbourhood communities.

URBAN DESIGN AND THE CREATION OF NEIGHBOURHOOD COMMUNITIES

Generally speaking, human existence cannot be separated from the spaces it is carried out in. Everything that we do and experience is heavily reliant and defined by the space we are in at that moment. Therefore, the spatial frames created by architecture an urban design have a great impact on shaping and curating the type of activities, interactions and experiences that we can have in those spaces. If we were to define two segments of space within the residential area of a collective housing block in a city, where the first one refers to the individual residential dwelling occupied by a resident – the "inner" segment, while the other one, the "outer" segment refers to the immediate surroundings of the residential building, we can begin to understand the importance of the entire neighbourhood as a vital physical frame. Urban well-being is a multidimensional concept that encompasses various aspects of an individual's life in an urban setting. It involves the physical, psychological, social and environmental dimensions of well-being, all of which are interrelated and influenced by the urban context (Trisnawati Setiawan & Ningtyas, 2023). This urban context, specifically in terms of residential city areas has an impactful role in determining the quality of life of its residents regarding their overall well-being. The establishing of public spaces within this urban frame enriches the possibilities for the enhancement of life-quality through its numerous benefits. Considering the fact that our residential spaces bring with them great meaning into our lives – they are usually perceived as our personal spatial frames in which we feel safe, "at home" and at ease, the way residential neighbourhoods are formed have an immense impact on all of the people that reside in them. Apart from impacting each of them individually, the shared, communal areas of residential complexes shape the way in which the residents can interact with each other via the frequency of encounters and type of activities that can be shared amongst them. Jan Gehl, a renowned architect that advocates the design of „cities for people" highlights the direct correlation of spatial frames and the resulting interactions of people within that space, meaning that the physical framework can be designed to facilitate the desired interaction, or to impede contact (Gehl, 2011).

The quality of social interaction between residents directly impacts the quality of the resulting community. Communities created in residential neighbourhoods greatly enrich the lives of its members, adding the crucially important social aspect to everyday life. Living in a place with a strong community can positively impact mental health, social satisfaction and overall well-being. For example, in their research into „Happy neighbourhoods ", Deidre and Cloutier have highlighed the fact that more socially engaged residents may be able to better combat threats such as crime and recover from disasters. Overcoming threats and crisis can strengthen social bonds between residents and their sense of control, ultimately increasing their levels of happiness (Deirdre & Cloutier, 2016).

The manifold benefits of establishing and nurturing neighbourhood communities, as well as the direct impact of the spatial attributes of the neighbourhood in question highlights the importance of thoughtful and thorough architectural and urban design when it comes to residential city blocks. If communities are defined as aggregates of people who share common activities and/or beliefs and who are bound together principally by relations of affect, loyalty, common values, and/or personal concern (i.e., interest in the personalities and life events of one another) (Brint, 2001) and a city community rests and survives on territorialized social relations which are mediated by urban interventions in space (Pajvančić-Cizelj & Knežević, 2017), the link between the shared residential area and the resulting community becomes undeniable. The acknowledgement of the direct and complex system of co-existence formed through the relationship of inhabitants and their residential environment, opens up an interesting field of research, which encompasses the types of communities that are formed in different spatial settings (Stefanović, FROM SOCIALIST TO POST-SOCIALIST HOUSING IN NOVI SAD, SERBIA: A SHIFT IN SHAPING COMMUNITIES, 2021).

In his research of the concept of communities, American sociologist Steven Brint defines three primary criteria for the classification of communities: the elementary basis for forging relations, the primary reason for interaction and the frequency of interaction (Brint, 2001). When these criteria are applied to urban neighbourhoods, it is clear that a neighbourhood is a community where the elementary basis for forging relations (the first criteria for classification) is spatial closeness. The primary reason for interaction (the second criteria) in these communities is based on collective activities, while the frequency of interaction (the third criteria) is relatively high (Petrović, 2007).

Therefore, when it comes to neighbourhood communities, the more spatial closeness is achieved, the more opportunities there are for social interaction based on collective activities and the more frequent encounters between residents are, the community has a greater chance of developing and strengthening over time. Since social relations and interactions of residents of a multifamily residential neighbourhood are facilitated by its spatial frame, i.e., the urban elements, designated spaces, pathways, etc., the urban design of a residential neighbourhood greatly impacts the scope to which these criteria can be fulfilled directly influencing the type and quality of the resulting neighbourhood community.

METHODOLOGY

In order to research and evaluate an existing urban residential block in Novi Sad, Serbia, a mixed method and interdisciplinary research approach will be applied. The theoretical framework outlined in the previous chapter serves as a basis for the analysis of the case study of an existing urban residential block in Novi Sad which will be evaluated in terms of its urban design in relation to the possibilities for community creation within its spatial frame. Namely, Steven Brint's classification of communities applied to neighbourhoods (Petrović, 2007) highlights three important factors for interaction between residents of the same neighborhood: the primary basis for forging relations (the first criteria for classification) is spatial closeness; the primary reason for interaction (the second criteria) in these communities is based on collective activities and the frequency of interaction (the third criteria) is relatively high. The correlation between the spatial frame of a neighborhood and the resulting community has also been showcased in the previous chapter. Therefore, in order to evaluate and examine an existing urban residential block in terms of the quality of its spatial frame regarding the possibilities of aiding the creation of communities, it is necessary to thoroughly examine the block's morphology and existing state with the application of the aforementioned criteria – examining the spatial closeness of residents, the possibilities for collective activities and the established frequency of interaction among residents in their shared spatial frame.

The data collection regarding the block selected for analysis in this research paper was carried out by the author, who is an architect. Multiple site visits were conducted, while creating photo-documentation of the existing state of the block, as well as constant observation of the people that were using the shared outdoor space at the time of visits. Apart from that, the studying and examination of exact and official geodetic city maps depicting the area in question allowed the author to create a precise technical drawing of the block which will be used in the case study since it indicates the morphology of the block and its spatial infrastructure, i.e., the architectural and urban elements and specifically designed spaces.

The evaluation process undertaken in the case study presented in the following chapters involves a systematic assessment of the block's urban and architectural design, as well as its spatial infrastructure, through the application of the previously defined criteria for the creation of communities. By combining these research inputs, the case study will thoroughly evaluate how the urban design and formation of the shared outdoor area of the residential block influence opportunities for resident encounters and shared activities which can lead to the creation of strong and lasting communities.

AN EXAMPLE OF GOOD PRACTICE FROM NOVI SAD, SERBIA

By relying on and applying the aforementioned criteria for the creation of communities, a prime example of good practice in the form of an urban residential block in Novi Sad, Serbia has been chosen in order to identify and showcase urban elements and design decisions that can increase the opportunities for the social interaction of residents, carving a path for the establishing and growth of a strong community. The analysis of the urban block will be based on the criteria for the classification of communities outlined in the previous chapter of this paper, therefore focusing on urban design concepts and elements that can positively impact and facilitate perpetual social interactions between residents of various levels – from brief encounters to collective activities.

MULTIFAMILY HOUSING IN NOVI SAD

The city of Novi Sad is located in Serbia, formerly the Socialist Federal Republic of Yugoslavia, and is the capital of the Autonomous Province of Vojvodina. The city went through numerous changes in the past, but its modernization is what characterizes is in a significant way even today. During the period between the two world wars, after Vojvodina joined the Kingdom of Serbs, Croats and Slovenes, with the city being proclaimed the capital of the Danube Banate, the beginning of Novi Sad's modernization was initiated. However, the biggest changes were made in the city after the Second World War, when the building activity was extremely high. The city went through several radical changes which were carried out through official urban planning documents. These changes shaped and defined the city, creating the urban morphology and identity it has today. As for housing, the immense growth of the population required new residential spaces. Therefore, the marshes along the Danube River were being dried up so as to allow for the city's expansion. This previously uninhabited land which was prepared for building enabled the exact realization of planed neighbourhoods, influenced by the discourse of modernism, as well as the famous Athens Charter (Stefanović, 2024). The residential blocks formed in socialist Yugoslavia are large-scale complexes, equipped with green areas, specifically defined public spaces and urban furniture, which creates distinct neighbourhoods. However, after the disintegration of the Federation and the change in political, economic and social circumstances, the form of housing changed as well. Led by private investors, the housing created in post-socialism is of a smaller scale and often lacks elements such as green space and specific places for socialisation that would add positive value to the daily life of its residents. This kind of urban and architectural design is still dominant today. Therefore, generally speaking, there are two types of collective housing forms present in the urban fabric of Novi Sad today which can be identified as socialist and post-socialist housing. However, it is important to note that that the urban neighbourhoods created during socialism, with their multipurpose public spaces in the block's communal areas remain the primary choice as residential spaces according to public opinion: multiple official and unofficial public surveys were conducted over the years concerning the public's opinion about the "best" area in Novi Sad to live in, and the results always indicate that the general public prefers the areas built during the socialist period. For example, a poll created by a local news outlet in 2021 reported that 23.95% of poll participants (1671 out of 6978 participants) would choose to live in the Liman area of Novi Sad (built between the 1960s and 1980s) (021.rs, 2021). A block from the Liman area has been chosen as a case study for this paper, seeing as its complex urban design and elaborately planned communal area could be seen as ideal for social encounters.

A BLOCK IN THE LIMAN IV AREA IN NOVI SAD – A CASE STUDY

The Liman area is a large neighbourhood of Novi Sad, consisting of four segments: Liman I, II, III and IV, with their names corresponding to the order in which they were created. So, the blocks in the Liman I area were built before the 1960s and the blocks in the last instalment of this spatial endeavour, the Liman IV area, were built during the 1970s (Figure 1). This string of neighbourhoods represents a very interesting spatial sequence in which one can observe the development of multifamily housing during socialism. In socialist Yugoslavia, housing concepts were continually developed since after the Second World War. Numerous realizations and the forming of entirely new city areas were also followed by theoretic and other research in the fields of habitology (Alfirević & Simonović Alfirević, 2018). During the seventies, significant results were achieved in the fields of science and practice. As the Federation progressed, the housing conceptualizations (from residential units, buildings and blocks to entire settlements) were also advancing. The advancement of housing concepts was primarily seen in urban design and the development of the communal areas of the urban block. These developments are based on the wider programming of the blocks in terms of multipurpose spatially defined areas, urban furniture and elements, along with green spaces and vegetation which were present even in the earliest of urban spatial concepts. The Liman IV neighbourhood is the final instalment of the entire Liman spatial endeavour which was carried out continuously. The block in the Liman IV area that will be analysed in this paper was built in the 1970s and represents a great example of the later stages of the development of housing concepts in socialist Yugoslavia, featuring a multitude of urban design aspects that enrich the communal block area.



Figure 1: The Liman residential area in Novi Sad, Serbia; Source of satellite image: GeoSrbija https://a3.geosrbija.rs/

The block can be characterized as an open one, due to its morphology, with space between the buildings allowing access and the possibility of passing through the entire complex. The fact that the parking areas are located in the outer corners of the block frees up the inner courtyard. Not only does this design decision enable the creation of public spaces in the inner block area, but it also adds the important aspect of safety and accessibility: the elimination of moving traffic from the space intended for outdoor activities, enables all residents - including young children, to safely walk and use the communal space. The juxtaposition of the buildings within the neighbourhood was planned so as to allow the formation of pathways, plateaus and a sports field, along with plenty of green spaces and vegetation (Figure 2).

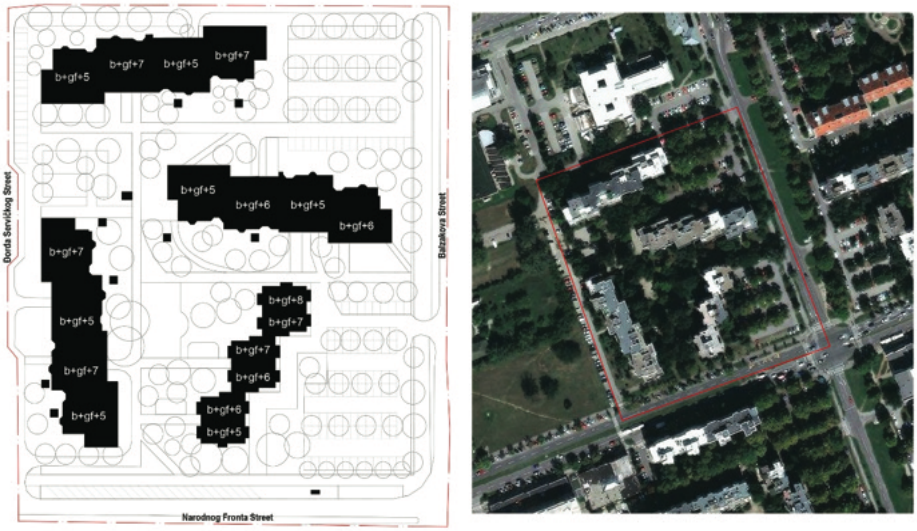


Figure 2: A block in the Liman IV area: morphology (left), source: Violeta Stefanović; satellite image (right), source of the original satellite image: GeoSrbija https://a3.geosrbija.rs/

As for the primary criteria for the creation of neighbourhood communities – spatial closeness, there are two main points to consider: the number of residents and their proximity to one another. Since this is a fairly large urban block, consisting of 15 buildings in total, there is a large number of residents occupying this block. The relative positions of the buildings in relation to each other have been thoughtfully established so as to provide adequate privacy, sunlight and ventilation, while still being quite close to one another. These aspects indicate that the primary criteria for the creation of neighbourhood communities, where the elementary basis for forging relations is spatial closeness, has been adequately fulfilled.



Figure 3: A block in the Liman IV neighbourhood – multipurpose sport field, source: Violeta Stefanović, July 2024.

The block features a multitude of individually defined spatial areas, while the most dominant one is in the form of a multipurpose sport field. The field is made out of two segments – one intended for 3x3 basketball and the other one for futsal. There are rows of benches alongside both segments. As can be seen from Figure 3, not only can this outdoor area be used for the designated sports, but the spatially defined area can be used in a platitude of ways. From conducted site visits, it has become evident that young children ride their bicycles and tricycles in this area, draw with chalk and play different games within this designated space, while young adults and adults mainly use it for sports. For residents of all age groups, the benches serve as spaces for conversations with friends during the day and in the evenings, as well as serving as important urban furniture for parents spending time with their children on the field. At the heart of all of the possible uses of this main multipurpose area is the socialisation of residents and the sharing of experiences. This focal point of the communal area of the neighbourhood represents an urban design choice that creates a space for various activities for residents of all age groups. Therefore, considering the fact that the second criteria for the creation of neighbourhood communities, where the primary reason for interaction is based on collective activities, it is clear that members of this neighbourhood community have a multitude of collective activities to choose from and take part in, facilitated by specifically defined multipurpose communal areas. The block also features rich vegetation and green areas which adds to the residents' overall life quality, favourably influencing the microclimate. The green areas are located alongside numerous pathways of varying widths, with several plateaus being formed in the widest segments, one of which can be seen in Figure 4. The pathways protrude through the entire block and connect all of its areas, as well as the surrounding streets (Figure 2), and they are lined with benches, streetlights and trash bins. Considering the third criteria for the creation of neighbourhood communities – the frequency of interaction, it is easy to see that the simplicity of walking throughout this block, along with the established connectivity of the block areas and streets, with the multipurpose spatial segments formed within the shared residential space indicates that there is a possibility for a very high frequency of interaction amongst residents, with different forms of social interaction.

The analysis of the block located in the Liman IV area in Novi Sad, Serbia, through the application of the most important criteria for the creation of communities reveals that there are plenty of possibilities for the establishing, strengthening and growing of the neighbourhood community formed in this residential area as a result of the complex and layered urban design of the block.



Figure 4: A block in the Liman IV neighbourhood: pathways, plateaus and urban furniture, source: Violeta Stefanović, April 2025.

CONCLUSIONS

The importance and value of having real, meaningful and evolving social bonds between neighbours and residents of the same neighbourhood is extremely high. Residential neighbourhoods in cities without the possibilities for the formation and developing of communities deprive its residents of satisfying their social needs, while the social dimension of human life should never be overlooked. After all, every one of us is affected by our relationships and social bonds with other people. Since our homes represent focal points of our everyday lives, social interactions with our neighbours are paramount for our personal growth, as well as for the creation of communities that we can all thrive in. The undeniable and complex relation between space and humanity means that the way residential neighbourhoods in cities are formed has a direct impact on the type and volume of social interaction carried out between residents, in turn shaping the type and quality of the resulting community.

The case study of the analysed block in the Liman IV area has showcased and highlighted urban design decisions and elements which can facilitate frequent and various encounters and collective activities all residents can take part in. While the main sports field is a focal point for various activities, the morphology of the block and its numerous plateaus and pathways lined with benches, makes it is clear that there are numerous places for encounters and prolonged conversations that can be held between residents of all age groups. It is this type of multifunctionality that enables the forging of interpersonal bonds and the strengthening of relationships upon which a community is established. The creation of a safe, green and programmed shared communal space within the urban block which includes good connectivity via planned pathways, a lot of urban furniture and carefully envisioned spatially defined areas of different characters and functions represents a complex urban design concept which results in spatial infrastructure that can facilitate, aid and encourage the socialisation of residents, which can lead to the creation and strengthening of a neighbourhood community. Unfortunately, the residential neighbourhoods being erected today do very little in the way of creating public spaces accessible to all residents in which they can encounter and get to know one another through shared experiences. In today's exponentially accelerating way of life with loneliness becoming an increasing trend, the implementation of urban design concepts that have socialisation at their core are a much-needed addition to our cities. Only by creating spaces that encourage social interaction can we support the creation of meaningful social connection and the formation of communities that enrich the everyday lives of its members, strengthening and further developing them both as individuals and as a group. Even though the block analysed in this paper which represents an example of good practice for multipurpose design of shared residential areas was built in socialism under different circumstances that does not mean a quality urban design approach cannot be executed in today's political and economic climate. Although the residential complexes being built today are of a smaller scale when compared to neighbourhoods created in socialism, a layered multi-faceted urban design can still be created. Referring to the criteria used in this research paper, spatial closeness is always established in multifamily housing, while creating spaces for various shared activities and encounters can be done in numerous ways, thus these spaces can be scaled accordingly. If municipal official policies were to include a mandatory fixed percentage of residential building lots that must designated as shared outdoor public spaces, they would have to be included in the urban design concept, thereby enhancing the physical, psychological, and social well-being of residents in multifamily housing.

The decision to facilitate the creation of city residential complexes which include thoughtfully designed and multipurpose shared outdoor spaces would enhance the possibilities for the formation and development of communities in urban neighbourhoods through the enabling of frequent and quality social interaction between residents.

ACKNOWLEDGEMENT
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GOOD PRACTICES OF CIVIC ACTIVISM IN BUILDING RESILIENCE FOR SUSTAINABLE URBAN FUTURES: LEARNING FROM SKOPJE

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ABSTRACT

The Industrial Revolution, which began in the nineteenth century, marked a significant turning point in human urban history. It led to the replacement of agriculture and handicrafts with factories and mechanized production. These processes of industrialization, which started over two hundred years ago and continue today, are significantly increasing pressure on both natural ecosystems and urban environments. The concentration of heavy industry in economically prosperous cities caused many displaced peasants to migrate to urban areas unprepared for such rapid population growth. This influx resulted in poor living conditions, socioeconomic inequality, and environmental degradation.

Among the first to address these negative urban conditions were social reformers such as William and Catherine Booth in London and Jane Addams in Chicago, who laid the groundwork for urban missions. This legacy of social reform that began with pioneers advocating for social justice has evolved into contemporary movements. For instance, Jane Jacobs inspired citizen-led urbanism, while grassroots movements have emerged to advocate for mobility justice, such as Amsterdam's Stop de Kindermoord and Detroit's Slow Roll. Additionally, advocates for environmental justice have initiated projects like Guerrilla Gardening, Portland's Depaving, and Medellin's Green Corridors.

In the development of resilient and sustainable urban ecosystems, civic participation has emerged as a powerful force that often fills the gaps left by institutions and governments. One notable example is Skopje's ongoing efforts to promote city greening and citizen-led urbanism. These initiatives illustrate how urban activism can energize and improve the effectiveness of existing institutions in the quest for a better city. Ultimately, it is clear that civic action has transformed urban spaces by promoting social justice, green infrastructure, equitable mobility, and participatory urbanism. This paper examines effective practices from these movements and key figures, analyzing their impact on sustainable urban resilience and drawing lessons for the future of cities.

Keywords: civic activism, participatory urbanism, green infrastructure, equitable mobility, sustainable city

INTRODUCTION

Cities are always on the front lines of environmental crises and are fertile ground for their resolution. While municipal governments and private sector actors focus on the urban economy, civic movements, local community projects, and citizen advocacy are emerging as vital forces in building urban resilience to climate change and balanced urban development. This paper presents successful real-world examples of resilient settlements shaped by civic action, followed by an analysis of good practices that promote urban sustainability and a bottom-up approach.

The world's cities now house more than half of the global human population. This rapid urban expansion introduces complex spatial, environmental, and social challenges, including rising greenhouse gas emissions, resource depletion, and environmental injustices. Traditional top-down governance approaches often fail to adequately tackle these interconnected challenges, resulting in citizen actions and community-led interventions aimed at fostering sustainable urban transformation. This paper explores the theoretical foundations and exemplary practices that highlight the transformative potential of citizen actions for sustainable urban development.

Methodologically, this paper uses a comparative qualitative approach that combines historical analysis with a review of contemporary urban policy. Data sources include archival documents, scholarly literature, urban plans, and reports on community initiatives. The analysis is organized thematically, drawing lessons from similar experiences in global cities to understand Skopje's unique path of civic activism and resilience. This mixed-methods framework enables an examination of grassroots mobilization across different times and places, highlighting best practices and lessons transferable to other urban settings aiming for sustainability.

THE PROGRESSIVE CITY OF THE LATE 19TH CENTURY

During the late 19th century, many cities experienced significant changes due to rapid industrialization and urbanization. European immigration and domestic migration from rural areas led to explosive growth in American cities like New York and Chicago. The working class often lived in overcrowded homes with inadequate sanitation, which allowed diseases such as cholera and typhus to thrive in these unhygienic conditions. One of the early attempts to improve urban living conditions was the installation of sewage systems; however, many homes still lacked indoor plumbing, which facilitated the spread of disease. Additionally, the reliance on coal as a primary energy source resulted in considerable air pollution. During this time, the problems of inequality and environmental degradation stood in sharp contrast to the vision of innovation and progress. Consequently, the initial reform initiatives emerged as social reformers sought to address the challenges faced by distressed cities.

LONDON'S SOCIAL MAPPING

At the end of the 19th century, London was a metropolis marked by striking contrasts and facing significant social, economic, and environmental challenges. Wealth disparities were a defining feature of the city, with affluent areas like the City of London and Westminster standing in contrast to impoverished neighbourhoods such as the East End and St. Giles. Due to immigration from Eastern Europe and Ireland, the East End endured significant overcrowding, which made poverty and other social problems worse. There was limited access to clean water and adequate sanitation, and many labourers lived in cramped, filthy conditions. The Thames River was frequently treated as a sewer, which resulted in recurrent outbreaks of cholera, and the city also suffered from extreme pollution.

In this socio-spatial context, Charles Booth emerged as a significant figure. He conducted extensive surveys between 1886 and 1903, mapping London's streets based on social class (Figure 1). His maps utilized colour codes to illustrate the economic conditions of each area, highlighting the contrasts between wealth and poverty. By visually documenting poverty, Booth's maps raised public awareness of the scale and complexity of social inequality in Victorian London . They challenged prevailing perceptions and sparked debates about social reform. Booth's work influenced the development of social policies and the welfare state. His findings supported the introduction of state interventions, such as old-age pensions and free school meals for the poorest children. He advocated for improved housing conditions, slum clearance, and better urban planning. His recommendations led to projects like the Boundary Estate, which became the first state-built social housing in the UK. His maps were public documents that engaged the broader community in discussions about poverty and social justice, ultimately supporting social reform. Charles Booth's social mapping is a pioneering example of civil action through data-driven advocacy. By documenting and visualizing poverty, his work significantly raised awareness, informed policy, and drove social reform in Victorian London. Even today, his legacy continues to influence contemporary urban planning and social initiatives, underscoring the power of data and mapping in promoting sustainable and equitable urban development.



Figure 1: Descriptive Map of London Poverty (1889), taken from: https://www.londonmuseum.org.uk/collections/london-stories/how-charles-booth-mapped-london-poverty/

CHICAGO'S REDEMPTION

According to the Census Bureau, Chicago's population in 1840 was fewer than 5,000 residents, but by 1870, it had grown to 300,000. The devastating Great Fire of 1871 destroyed much of the original city layout, paving the way for its reconstruction in what is now known as Chicago's "commercial style." In 1893, the city hosted the International Columbian Exposition, commissioned by the Chicago Commercial Club and designed by Daniel Burnham and Frederick Law Olmsted. The peak of these developments came in 1909 with Burnham's City Beautiful Plan for Chicago. Between the American Civil War and World War I (1865-1918), the city's population exploded, surpassing two million. In contrast to the "Grand Manner" displays of wealth that overlooked everyday concerns, Jane Addams and Ellen Gates Starr established Hull House in 1889, which directly addressed issues of poverty and disenfranchisement. Addams' concept of "civic housekeeping" gradually redefined public health, leading to significant reforms in sanitation and garbage collection. As noted, "Men build Chicago's skyline; women redeem the city."

Another Hull House resident, Florence Kelley, utilized surveys (Figure 3) to map out wages, employment, and living conditions in Chicago neighbourhoods. Kelley's groundbreaking work in data-driven advocacy exposed the dire conditions of sweatshops, contributing to Illinois' 1893 labour legislation that prohibited child labour. Hull House's model of community-oriented activism inspired the establishment of over 500 settlement houses across America by 1920. Its focus on participatory governance, improved housing, labour laws, and public sanitation effectively linked social justice with urban reform, ultimately shaping modern urban planning.



Figure 2: Chicago plan of the streets and boulevard systems (1909), taken from: https://www.architecture.org/online-resources/architecture-encyclopedia/1909-plan-of-chicago

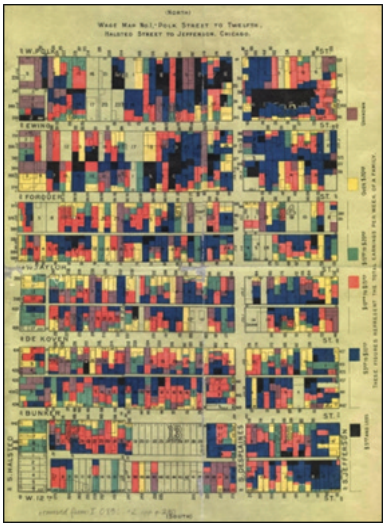


Figure 3: Chicago Wage Map (1985), taken from: https://dcc.newberry.org/?p=17805

STRUGGLE FOR THE 20TH CENTURY CITY

The struggle for 20th-century cities can be described as the clash between two fundamentally different approaches to urban development. The top-down approach was a car-centric urban renewal, and grassroots movements fought for human-scale, liveable cities. The two most influential examples are Jane Jacobs' battle for New York and Amsterdam's Stop de Kindermoord campaign. Both of them represent how grassroots civic activism can fundamentally reshape urban futures. They challenged the prevailing anti-urban, car-dominated planning paradigms of the 20th century. They showed that cities should be designed for people, not just for vehicles or economic efficiency.

BATTLE FOR NEW YORK

1956 was the year the Federal-Aid Highway Act was established to create the Interstate Highway System in the United States. The U.S. Department of Transportation (DOT), as the executive department of the U.S. Federal Government, was tasked with highway construction. The project was funded by the Highway Trust Fund and supported by federal gas taxes. It received 90% of its financing from federal sources, while the states contributed the remaining 10% and oversaw local implementation. As a result, over 66,000 kilometres of highways were constructed, making it the largest public works initiative in U.S. history.

In the context of mid-20th-century American urban development, New York's so-called "Master Builder," Robert Moses, epitomized the era's top-down approach to city planning. His vision prioritized highways, high-rises, and slum clearance—most infamously exemplified by the Cross-Bronx Expressway project, which displaced residents and fragmented longstanding Bronx neighbourhoods. Challenging this paradigm of large-scale urban restructuring was Jane Jacobs, a journalist and Greenwich Village resident, who emerged as a formidable critic of Moses' technocratic planning ideology.

The first major confrontation between these two figures occurred in 1952 over Washington Square Park. Moses sought to extend Fifth Avenue through the park, a proposal Jacobs vehemently opposed. Leading the "Joint Emergency Committee to close Washington Square Park to Traffic," she mobilized grassroots resistance. After a protracted seven-year battle, Jacobs and her allies prevailed in 1959, securing the park's preservation as a pedestrian-only space. The next and even more contentious clash arose over the Lower Manhattan Expressway (LOMEX). Initially proposed in the 1930s and revived in the early 1960s, this ten-lane highway was intended to link New Jersey to Brooklyn by cutting through Lower Manhattan. Proponents framed it as a solution to traffic congestion. The project would have required demolishing over 400 buildings, displacing more than 2,000 families, and shuttering 800 businesses in Greenwich Village, SoHo, and Little Italy. Jacobs and local activists decried LOMEX as an existential threat to community life, organizing protests, petitions, and media campaigns. Their opposition reached a climax in 1968 when Jacobs was arrested during a volatile public hearing, accused of inciting a riot. Ultimately, after nearly a decade of resistance, the project was abandoned in 1969, sparing the historic neighbourhoods from destruction.



Figure 4: Aerial photo of Washington Square Park (1950s), taken from: https://www.hmdb.org/m.asp?m=138949

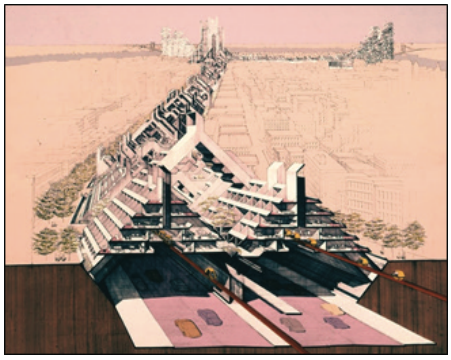


Figure 5: Paul Rudolph proposal for Lower Manhattan Expressway (1967), taken from: https://archive.curbed.com/2016/5/4/11505214/-jane-jacobs-robert-moses-lomex

Often dismissed as merely a "housewife," Jacobs offered a powerful counter-narrative to the grand visions of technocratic planners like Moses. Her activism challenged the prevailing belief in scientific rationality as the sole guiding principle for urban development. Rejecting the dogma that "new" inherently meant "better," she advocated for the preservation of organic, mixed-use neighbourhoods and the intricate social fabric they sustained. Her seminal question—"Why have cities not, long since, been identified, understood, and treated as problems of organized complexity?" —encapsulated her critique at a time when urban complexity was seen as an obstacle rather than an asset. Jacobs' legacy lies in her ability to reframe the discourse, demonstrating that cities thrive not through monolithic planning but through adaptive, community-cantered stewardship.

2.2. Amsterdam's Stop de Kindermoord

By the 1960s, cars and traffic were commonplace in Amsterdam. After experiencing rapid expansion in the post-war era, the city encountered many of the same issues common to its contemporaries. In that context, Robert Moses was transforming New York City, and the 1967 Vancouver urban plan, which sought to demolish inner-city districts to link with the Trans-Canada Highway, was presented. In line with world trends in 1967, the Amsterdam solution was introduced as the "Jokinen Plan," financed by the powerful automobile lobby. This initiative sought to improve vehicular access within the city. Ironically named "Give the City a Chance" (Geef de stad een kans), it suggested the burial of the city's renowned canals to increase roadway capacity and the demolition of multiple neighbourhoods to accommodate a six-lane highway intended to enhance access for downtown commuters. This car-centric planning has led to unsafe streets, rising pedestrian and cyclist deaths, and declining public space quality. The frequent traffic accidents resulted in the deaths of children and sparked public outcry. The movement against deaths by cars started with the death of a journalist's child in a road accident. Journalist Vic Langenhoff was the first one to use the term "stop the child murder" (stop de kindermoord), publishing an article with this headline in 1972. This slogan was a powerful message. Parents, school groups, and community members' occupied streets, blocked traffic, and demanded safer infrastructure for cyclists and pedestrians. Demonstrations occupied accident black spots and closed streets to allow children to play safely. One of the most remarkable protest, which is still used today as an example, took place outside the Rijksmuseum, where the participants were lying down on their bicycles pretending to be dead.

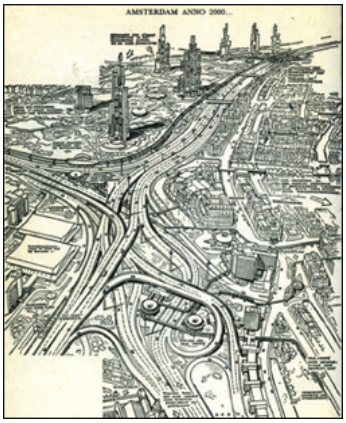


Figure 6: Jokinen Plan - proposal for the inner city of Amsterdam (1967), taken from: https://viewpointvancouver.-ca/2019/10/27/the-1960s-when-the-dutch-imported-american-planners/



Figure 7: Participants lay down with their bicycles besides pretending to be dead, outside Amsterdam's Rijksmuseum (mid-1970s), taken from: https://www.youtube.com/watch?v=XuBdf9jYj7o

Fortunately, Amsterdam's "Jokinen Plan" was never completed (except for a few viaducts), and "Stop de kindermoord" received Dutch government funding, set up its office, and created concepts for safer urban design. These gave rise to a new type of people-friendly streets known as "streets for living" (Woonerfs), a shared space designed for pedestrians, bicycles, and low-speed motor vehicles. Usually without sidewalks or curbs, these streets slow traffic by putting in planters, trees, parking spaces, and other obstacles. The "Stop de Kindermoord" campaign transformed Amsterdam and the Netherlands' approaches to urban planning, traffic safety, and public space. Its significance is still felt today, affecting worldwide city planning and sustainable transportation regulations. What began as a grassroots movement has evolved into a global model for sustainable, people-centred city design.



Figure 8: Woonerf (Street for living), taken from: https://naturespath.com/blogs/posts/woonerf-the-dutch-solution-to-city-planning

GREEN CITY OF 21ST CENTURY

The idea of a Green City focuses on integrating nature with urban environments, not just for leisure or recreation but as a core strategy for rebuilding the city. Two leading examples—Portland's Depaving and Medellin's Green Corridors—demonstrate how cities can transform their landscapes and address the challenges of climate change and excessive urbanization. Both examples illuminate a new paradigm for the 21st-century city—one where green infrastructure is not an add-on or luxury but a foundation. These initiatives show that by reimagining how we use urban land, cities can be cooled, storm water can be managed, biodiversity can be restored, and the city can become healthier and more sustainable.

PORTLAND'S DEPAVING

Portland's Depave movement started in 2008 as a non-profit organization that promotes the removal of unnecessary pavement from urban areas to create community green spaces and mitigate storm water runoff. The idea emerged from a simple act of reclaiming a backyard parking lot and from there spread through the city, then across the state, and even between continents.

According to Portland Depavers, there are three main principles explaining why the city needs to be depaved:

The pavement gets hot. Pavement raises temperatures during the summer, creating a "heat island effect" that can cause urban areas to be up to 5 degrees Celsius warmer than nearby rural areas. Since 2008, a group in Portland has removed over 33,000 square meters of asphalt from the city (Figure 10).

Pavement is impermeable. Paved surfaces prevent rainwater from seeping into the soil, directing it instead toward the sewer system (Figure 11). By depaving these areas, we can reduce the risk of flooding and create alternative drainage solutions for stormwater. This process also allows for the revegetation of land with trees and plants. It is estimated that Portland Depave's gardens divert over 13 million litters of storm water annually, significantly reducing pressure on its sewage systems and mitigating the chance of flooding.

The pavement is not green. Revegetating depaved areas with native plants and trees enhances urban ecosystems, supports local wildlife, and improves air quality. Additionally, transforming previously paved spaces into farming land can provide food and nutrition for the local community. Urban green spaces help regulate temperatures for homes and workplaces by blocking excessive sunlight, offering cooling through evapotranspiration from plants, acting as windbreaks, and reducing traffic noise



Figure 9: Depave network logos, taken from: https://www.depave.org/

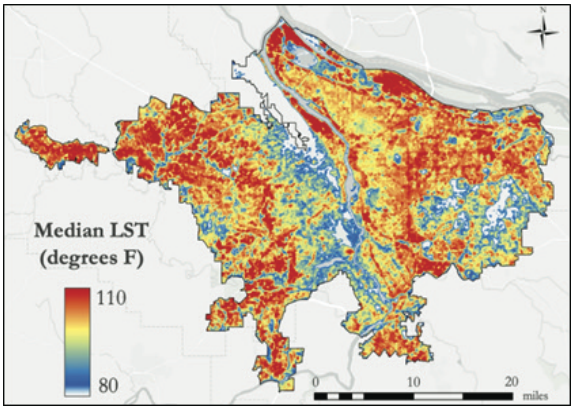


Figure 10: Heat map of Portland, taken from: https://www.depave.org/

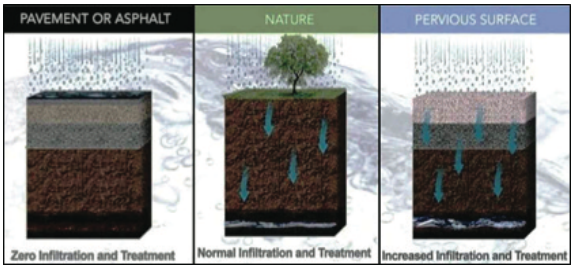


Figure 11: Pavement is impermeable, taken from: https://www.depave.org/whydepave

MEDELLIN'S GREEN CORRIDORS

During the late 20th century, similar to many cities in Latin America, Medellin (Colombia) experienced uncontrolled growth. That led to the creation of vast informal settlements, traffic congestion, and pollution. The city became infamous for drug-related violence. Rapid urbanization gained concrete infrastructure and lost green spaces; the temperature had risen significantly, and some areas were up to 6°C hotter than surrounding rural zones (the heat island effect).

At the turn of the new millennium, the city introduced the concept of social urbanism, which uses urban design to promote equity and sustainability. Under the leadership of newly elected Mayor Federico Gutiérrez, who prioritized sustainability, the Green Corridors project (Corredores Verdes) launched in 2016. The city collaborated with local colleges, environmental organizations, and community groups to develop the Green Corridors. The initiative transformed 18 highways and 12 streams into connected green corridors. More than 8,800 trees and 350,000 bushes were planted, focusing on native species that benefit local wildlife (Figure 12). The vegetation was carefully arranged to provide shade, lower temperatures, and absorb CO_2, while green pavements were built to absorb rainwater and help prevent flooding. The corridors helped lower urban heat by 2-3°C in some areas, making the city more liveable. Trees and plants filtered pollutants, reducing respiratory illnesses, and birds, butterflies, and pollinators returned to the city. The Green Corridors are part of Medellin's broader "Medellín Futuro" plan , which includes green roofs and vertical gardens, expanding bike lanes and pedestrian-friendly spaces, and further integrating nature into urban planning. In 2019, Medellin won the Ashden Award for Cooling by Nature and became a model for sustainable urbanism. Medellin's Green Corridors has shown us how cities can use nature-based solutions to tackle climate change, inequality, and urban decay. By combining environmental restoration, community engagement, and smart design, the project has become a global example for sustainable urban transformation.



Figure 12: A map of Medellín's Green Corridors, taken from: https://www.archdaily.com/1019444/environmental-urbanism-and-urban-geographies-medellin-2024-2027-urban-plan

SKOPJE, 60 YEARS OF FRAGMENTED DEVELOPMENT

The trajectory of Skopje's urban growth was forever changed at 5:17 a.m. on July 26, 1963, when a devastating earthquake—lasting only 17 seconds—claimed 1,070 lives, injured 3,700, and left 200,000 residents homeless. The disaster destroyed 75% of residential buildings and 80% of public structures, nearly wiping out much of the city's built environment. In response, the United Nations Development Programme (UNDP) led the rebuilding efforts, appointing Polish architect Adolf Ciborowski to oversee an international team of planners . Major contributors included:

Polservice (Poland)—Responsible for the Regional and Master Plans.

Doxiadis Associates (Greece)—Carried out surveys of the built environment, housing programs, and infrastructure studies.

Wilbur Smith and Associates (USA)—Handled traffic engineering and transportation planning.

Kenzo Tange Team (Japan)—Won the international competition to redesign the city center.

This unique collaboration exemplifies a top-down approach that resulted in the Skopje Regional Plan, Master Plan, and City Centre Plan (Figure 13), which guided the city's redevelopment for the next forty years.

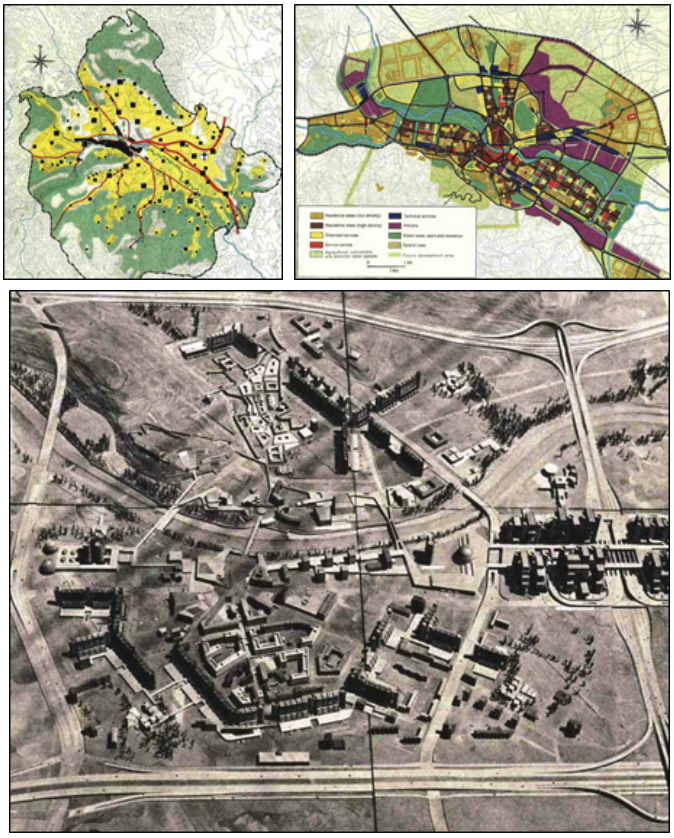


Figure 13: Skopje Regional Plan, Master Plan and City Centre Model, taken from: UNDP. (1970) Skopje Resurgent: The Story of a United Nations Special Fund Town Planning Project. New York: United Nations.

A PIVOTAL YEAR FOR URBAN POLICIES

The year 2012 marked a key turning point in Skopje's planning history. A Friendship and Cooperation Agreement was signed with Torino, Italy, encouraging collaboration across sectors such as public services, tourism, cultural heritage, and—most importantly—urban planning. A significant result was the joint research study "The Southern Boulevard of Skopje: A New Axis for the Development of the City," (Figure 14) produced by Skopje's Faculty of Architecture and Politecnico di Torino. This study examined infrastructure systems and strategies for urban transformation along the east-west axis of the city.

Later that year, the General Urban Plan for Skopje (2012–2022) was adopted with optimism for organized growth (Figure 15). However, its implementation in the following years was ineffective, failing to produce meaningful improvements to space or infrastructure.



Figure 14: Urban Centre in Skopje, The Masterplan for Southern Boulevard, taken from: https://www.to.camcom.it/sites/default/files/export-interna/14524_CCIAATO_2552012.pdf



Figure 15: General Urban Plan of the City of Skopje 2012-2022, taken from: https://skopje.gov.mk/mk/gup-na-gradot/

In 2017, the City of Skopje Innovation Centre (SkopjeLab) was launched as a UNDP-supported pilot project—the Balkans' first public-sector innovation lab. Its goal was to develop innovative solutions to urban challenges. Notable initiatives included "Redesigning Public Spaces in Skopje" (Figure 16)—aimed at revitalizing underused green areas to promote social interaction and recreation. The most recent effort to enhance Skopje's resilience is the project titled "Green Corridor for Skopje" (2025, ongoing)—a 12-kilometer east-west linear park covering four of ten municipalities, designed to reduce urban heat, improve air quality, and cut traffic fatalities along Partizanski Odredi Boulevard (Figure 17 and 18), with key objectives:

Environmental Resilience:

Connecting city greenery into a cohesive network.

Reducing excessive heating, air pollution, and flood risks.

Expanding permeable surfaces through urban forestry (trees, shrubs).

Mobility and Safety:

Lowering traffic speeds and boosting flow by replacing signalized intersections with turbo roundabouts (spaced 250–300 meters apart).

Improving public transportation by adding dedicated lanes.

Widening sidewalks and bike paths to prioritize pedestrian safety.



Figure 16: Six redesigns of existing public spaces in the City of Skopje, taken from: https://skopjelab.mk/redizajnskopje/redizajn-1-0/



Figure 17: Planned rout for the Green Corridor, drawing: by author.

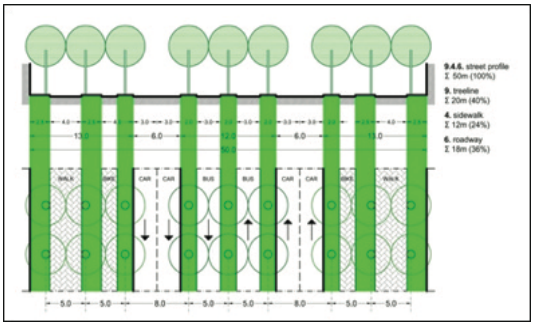


Figure 18: Characteristic cross section of the new boulevard, drawing: by author.

CONCLUSIONS

The history of civic movements in urban contexts demonstrates that resilient communities can be shaped by the tireless efforts of concerned individuals and local groups, rather than being the product of top-down design or technological innovation. Civic movements have consistently challenged long-established paradigms and reoriented the course of urban development towards equity, safety, and livability. From Charles Booth's social mapping in Victorian London and Jane Addams's groundbreaking community work at Hull House in Chicago to Jane Jacobs's struggle in mid-20th-century New York City and the Stop the Kindermurder movement in Amsterdam.

The 21st-century vision of the Green City, exemplified by initiatives such as Depaving in Portland and Green Corridors in Medellín, demonstrates how community-led projects can address contemporary challenges, including climate change, biodiversity loss, and public health crises. These efforts also show us that integrating green infrastructure, promoting equitable mobility, and fostering participatory urbanism are essential for building livable cities.

Skopje's experience, characterized by the aftermath of a devastating earthquake, decades of fragmented development, and recent emergent civic engagement, underscores the potential of bottom-up activism in revitalizing urban spaces and influencing policy. Projects such as "Redesigning Public Spaces in Skopje" or "Green Corridor for Skopje" exemplify how community involvement can integrate environmental restoration, mobility improvements, and public safety in a holistic resilience strategy. The city's evolving governance landscape, supported by international cooperation and innovation labs, further highlights the importance of multi-level collaboration in responding to complex urban challenges.

This brings us to the concept of the "Right to the City" in urban theory, first articulated by the French philosopher Henri Lefebvre in 1968. It argues that all urban dwellers—not just elites or property owners—should have a central role in shaping, accessing, and enjoying the city .This right is as much individual as it is collective, emphasizing the need for unhindered access not only to urban resources but also for sharing the power to participate in decision-making and co-create the spaces where everyday life takes place. In short, the right to the city is both a "call and a demand": a response to exclusion and inequality and a call for collective power to create cities that are sustainable and just for all.

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THE ROLE OF CEMETERIES AS EXCLUDED SPACES IN THE URBAN CONTEXT OF BALKAN CITIES AND THEIR POTENTIAL AS INCLUSIVE SPACES

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ABSTRACT

Cemeteries are unique urban spaces and differ qualitatively from other types of areas in the urban landscape. As a result, they function as intermediary zones with a distinctive role in society. Such spaces exist outside societal norms and at the same time, they carry a symbolic significance to the public, reflecting the respective societal beliefs and norms. They exist between the boundary of two realms, the world of the living and the world of the afterlife, thus, these spaces challenge the meaning of time and space, resonate insights of the cultural and societal norms of different communities, functioning as heterotopic spaces. Due to this, the cemeteries are often positioned as isolated and discrete areas within the urban layout, usually occupying the peripheral parts of the city. While the cities expand and new urban strategies develop, the cemeteries are marginalized. Their boundaries or relation to the urban pattern become blurred, often excluded and seen as spaces only dedicated to the deceased. This leads to a physical disconnection of these spaces from the surrounding communities.
The research aims to primarily understand the character of cemeteries as threshold spaces by applying a theoretical framework based on the concept of "heterotopia" of Michel Foucault and Lefebvre's theories of social space. This research provides insights into how these spaces are positioned within the urban fabric of Balkan cities, using the context of Albania and similar urban landscapes; analysing the relationship of these areas with the urban structure as a reflection of societal and cultural norms, and its effect on the expansion of the city. The study aims to explore through spatial and comparative analysis, how the cemeteries interact with the surrounding community as excluded parts of the urban layout and consider whether they provide the potential to function as inclusive public spaces, compared to the Western experience which has increasingly integrated these spaces as recreational areas within the urban context. In addition, through these observations, the paper aims to identify potential community engagement strategies for reintegrating these heterotopic spaces as integrated areas, serving as public spaces within the urban landscape, exploring their role in community engagement, and fostering cultural reflection.

Keywords: cemeteries, heterotopic spaces, urban exclusion, urban boundary, inclusive spaces, community engagement, social resilience

INTRODUCTION

Cemeteries occupy a paradoxical position in the urban settings of the Balkan cities. While serving as places of preserving collective memory and functioning as inclusive spaces by connecting communities, they withhold a marginalized character within the urban fabric in symbolic and physical terms. Due to the complex relationship of these spaces with society, their integration into urban planning strategies of city development is not considered, repositioning these places as spaces of exclusion within the urban context. This research frames cemeteries as threshold areas that mirror and destabilize their actual and temporal perception, by delving into the understanding of burial spaces from the social perspective based on Foucault's theories of heterotopia. As spaces that exist within the urban fabric and separated from the dominant order, the research aims to understand the meaning of cemeteries and societal attitudes toward these spaces. Through comparative studies and spatial analysis, this research explores the potential of these marginalized spaces to be reintegrated as inclusive spaces within the urban context, enhancing their potential for social resilience.

THE PARADOX OF INCLUSIVITY

In a cultural sense, we might define burial sites as the first “homes” built by humans. Archaeological evidences demonstrate that humans before building for the living, built for the dead. (Bahn, 2012) The Palaeolithic and Neolithic periods show that while human was nomadic invested time in the creation of burial sites, as it originates with the act of death acknowledgment and memory preservation. (Pettitt, 2010) This challenges the conventional architecture narratives that consider domestic architecture as the first act of building.

The first burial methods were simple and collective, while in the Iron Age burial techniques and social stratification methods started to advance by creating structures such as chamber graves, indicating an increased symbolic importance of the deceased to the society. Individual burial architecture drastically emerged, to later advance in Classical Antiquity, with the rise of Greek and Roman civilizations where burial methods and customs began to formalize through grave monuments, sarcophagi, and catacombs, reflecting a social hierarchy through design. The cemeteries were primarily developed inside the urban area and integrated with other public infrastructure, adapting to the architecture and spatial design of the cities. However, this model shifted with the restructuring of spaces within the city. Spaces in the antique city were divided into two main categories (Lefebvre, 1991): the political city that coincides with the central part where all the political and social activities take place, and the marginal spaces, those located in the periphery and not fully integrated into center, considered as secondary areas. In ancient Rome the “pomerium” was considered as the boundary around the city that divided these two areas, keeping commercial and funerary activities outside this boundary. The separation of the funerary areas occurred in ancient Rome, and were excluded from the considered sacred areas inside the center. This division went further from a physical limitation, it was considered a ritual boundary that strictly defined the inner core of the city, segregating funerary activities from its heart, where the privileged functions, such as religious and cult infrastructure, were positioned. As a result, the city was divided into "the city" and "non-city", joined and separated by neutral spaces, roads, and streets.

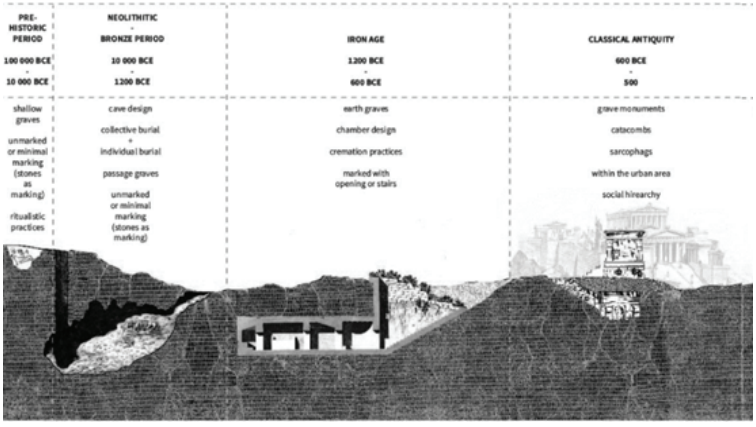


Figure 1 - Evolution of Cemeteries

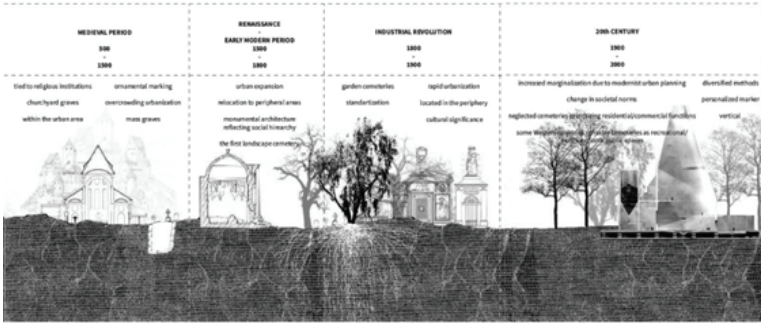


Figure 2 - Evolution of Cemeteries

During the Medieval Period, the cemeteries were closely tied to religious monuments, usually positioned within the churchyards, consequently located within the urban areas. The grave markings evolved from simple plates to ornamental markings, specified by a certain social hierarchy. In this period, these structures were owned by religious institutions, which were positioned in the heart of the cities. However, this concluded with an overcrowding of the land, where social hierarchies were well defined. Overcrowding intensified, and mass graves emerged due to the growing urbanization and the plague, leaving the urban context unprepared for the management of the consequences of unplanned spatial infrastructure. Major transformations emerged during the Renaissance to respond to spatial planning and urban expansion, pushing cemeteries to the outskirts of the cities, returning to the antiquity scheme. This movement was important for Europe, specifically France, where the burial lands from religious institutions ownership transferred under the responsibility of the municipality. Social stratification punctuated with the emergence of monumental architecture, diverting from the underground levels into vertical elements, well integrated with the landscape and organized spaces. The location on the outskirts of the cities allowed the development of the designed standardization strategies for the cemeteries at this time. The response to overcrowding and public health concerns became the main focus for this period, evolving into garden cemeteries in the peripheral areas or catacombs.

The 20th Century, led to the marginalization or neglect of the cemeteries, considered as obstacle spaces for the residential and commercial development of cities. However, in the western Europe, cemeteries started to transform into multifunctional public spaces and recreational areas, where diversified methods were developed and applied, emerging into vertical cemetery typology. This resulted from the shift of societal norms, influenced by secularization and changes in family structures. The contemporary era has presented a technological advancement applied to digital memorials and interactive grave markers, applying eco-conscious technological integrated practices, and application of green burial methods ensuring low maintenance and biodegradable methods.

The evolution of burial grounds reflects changing perspectives in societal, cultural, political, and spatial dynamics, detected from the physical features of cemeteries and relation to the city core. From the shifted perspectives, an evolution of the spiritual connection of these places is observed. Starting with rituals that transformed into societal reflections leading to the support of the functional duality of these spaces, both memorial and recreational, from inclusive to excluding spaces through a distinct social stratification that softens in the modern times. The inclusive nature of the cemeteries is challenged within their boundary, as a reflection of social hierarchies, and at the same time on a border scale, where cemeteries are excluded from the core of the city, a significative aspect inherited from antiquity, from the birth of “the pomerium”. This aspect notes the birth of heterotopia and marks the emergence of spaces that are essential but apart from the city, visible but yet disconnected from the daily activities, which Foucault (Foucault, 1986) defines as “other” spaces or "Heterotopias". As Lefebvre notes, “those places given over to exchange and trade are initially strongly marked by the signs of heterotopy” and are “excluded from the political city.” (Smith, 2014) This separation structure has left some cemeteries as sites living on the edge of the cities, perceived as separate spaces although present in the urban fabric, but not integrated into daily public activity. Such exclusion appears in the social resistance towards integrating these spaces in the development of new planning strategies. The main discussion remains the cause of cemeteries transitioning from visible to invisible, and vice versa. This constitutes to several aspects that are related to the attitudes of society regarding death in specific periods. Such aspect reflects a change in social perception, translated into the physical transformation and allocation of cemeteries, from visible to non-visible, from central to peripheral, and from static to adaptive. These characteristics remain the key features of

cemeteries to be further examined for obtaining the meaning of these spaces to society and their potential for future urban development.

MEANING OF CEMETERIES

As cemeteries are places that materialize mortality, a condition that gives sense to human existence and shapes human consciousness, society's relation towards these spaces is complex. Even though they are necessary to society, they often are considered places of anxiety, constantly seeking visual avoidance. To understand the complex nature of this relationship and its effects it is important to acknowledge the multi-faced character of the cemeteries.

As mentioned in Heidegger's theories in Being and Time, where death is the main focus of his philosophies, death is not just a biological act but is fundamental to human existence and the act of being. (Heidegger, 1962) He defines it as a possibility of the absolute impossibility of Dasein, as unavoidable and personal that defines the limits of our own existence. The act of "being-towards-death" is the act that shapes the present and structures of our being. It is a form of anticipation distracted by our daily routine until witnessing another person experiencing it. Death helps man understand his existence, while cemeteries materialize the awareness towards human mortality and how a society manages it. They interrupt the day-to-day urban flow and remind society of the "being-towards-death" when in visual contact. In this place, the essence of human existence becomes tangible while humans face the reality of their being denouement. Consequently, they become spaces of absurdity and revolt, followed by the desire of humans to find meaning in their existence and the revolt against forgetting, where death becomes deathlessness. As a response, anxiety emerges, which is variable in each society with various forms of appearance mirrored in the physical attributes of a built context. In some cultures, specifically in death-affirming societies, the anxiety towards mortality has already been managed and consequently reflected in urban strategies and considered as places of social resilience. While in other cultures anxiety remains strong and evident, leading to its classification as a death-denying culture.

Considering this, the relation of cemeteries to cities is different in each society. This cultural difference is generated from the death management theory, (Goldenberg, Pyszczynski, Greenberg, & Solomon, 2000) where humans have a profound fear of the act of death and to cope with it have created various beliefs of the afterlife, especially in religious groups where such anxiety is experienced in lower levels. (Morris & McAdie, 2009) Terror Management Theory suggests that people adhere to cultural worldviews and beliefs in order to suppress death and mortality-related thoughts. Individuals combat the terror of their mortality with the same cognitive abilities that cause this terror to arise by developing "death-denying cultural belief systems" (Goldenberg, Pyszczynski, Greenberg, & Solomon, 2000). Regarding this aspect, a form of managing this anxiety towards death is projected in providing visual disconnection to cemeteries and moving them to the outskirts of the city, distant from the public eye. Such thing reinforces the heterotopic nature of the cemeteries.

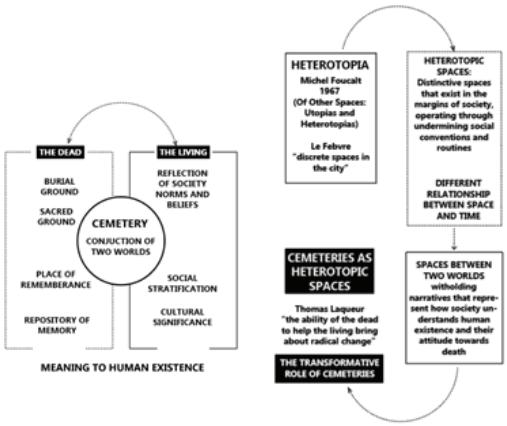


Figure 3 - The Meaning of Cemeteries and their Heterotopic Character

There are various enveloping levels an individual faces while experiencing spaces based on cultural, social, or emotional connections. We may consider the individual as “the body”, which represents the physical self or the center of the experiential space by which the environment is experienced, and encounters per diem all social levels. “The body” relates to dwelling as the highest level of comfort space, to the community where he/she engages with social events, and to independent lands that refer to separated spaces from home and community, within a broader scale. Amid these levels, the known and the unknown, exist uncertain spaces, positioning the cemeteries in this category, that are considered foreign that invoke the feeling of discomfort and hostility. Following this concept, two types of spaces are formed: the “place” and the “non-place” (Augé, 1995), which are distinctive from one another. “Places” are relational spaces that have a cultural, historical, and social meaning, which evoke a sense of belonging and identity, defining them as “anthropological places” since they are constructed through social practices or collective memory. In contrast, the “non-places” are spaces of disconnection, places of anonymity that lack relational ties, and generally are designated for movement, where individualism is excessed. However, a certain space may shift from “place” to “non-place” depending on one’s experience. Based on this definition, cemeteries are bipolar in nature, while they are considered “places” since they are identity-forming spaces that represent collective memories, at the same time acting as “non-places” in a gentrified city where they are physically present, but are socially and culturally invisible, which means that are excluded from the community space. This ambiguity is reinforced by the fact that such places are part of two contrasting realities: life and death, past and present, private and public. Moving from one reality to another as (Gennep, 2019) defines as a “liminal phase” or “rites of passage”, all of these phases are marked by three states: separation, margin, and aggregation. Since these spaces are not included in the daily activity of individuals they are characterized by a complex nature of both inclusion and exclusion due to the liminal quality creating a symbolic barrier with the living. As a result, often reflected as a place of distance and separation, resulting in socially constructed boundaries, differing from neutral spaces. “Logical relationships are relationships of inclusion and exclusion, conjunction and disjunction, implication and explication, iteration and reiteration, recurrence and repetition, and so forth. Thus propositions, judgments, concepts, or chains of concepts may include one another and result from inclusions, or else they may be mutually exclusive. Such logical relationships imply neither a pre-existing 'reality' nor a preexisting 'truth'.” (Deleuze & Guattari, 1987)

As in this case, cemeteries occupy multiple meanings and destabilize the ability to label, consequently defying easy definitions. “Heterotopias are disturbing, probably because they secretly undermine language, because they make it impossible to name this and that because they shatter or tangle common names because they destroy “syntax” in advance and not only the syntax with which we construct sentences but also that less apparent syntax which causes words and things (next to and also opposite one another) to ‘hold’ together.” (Foucault, 1994) The anxiety concerning these places is that they do not behave according to defined rules and do not fit binary categories, as a result, challenge the spatial, cultural, and mental order. “Places that do exist and that are formed in the very funding of society-which are something like counter-sites, a kind of effectively enacted utopia in the real sites, all the other real sites that can be found within the culture, are simultaneously represented, contested and inverted.” (Foucault, 1986)

Even though these spaces lie outside neutral spaces, they are yet localizable while existing in the margins of society, operating through undermining social conventions and routines, and not following the logic of daily used spaces. As a consequence, they incorporate the qualities of a heterotopic space which do play an important transformative role in the urban context, as potential spaces of social resilience.

CEMETERIES IN BALKAN CITIES

Based on the main points of discussion derived from the theoretical approach a set of spatial mapping and comparative analyses were conducted for the cemeteries of the main capital cities of the Balkans: Skopje, Tirana, Zagreb, Podgorica, Belgrade & Sarajevo. These interpretations are necessary to examine the role and position of the cemeteries within the urban fabric since they coincide with the understanding of cultural variations regarding the concept of death and its implications in the actions of society, as well as their indirect effect on spatial planning decisions.

ANALYSIS

Cemeteries in Skopje are located within the limits of the periphery and dispersed along the main infrastructure that facilitates accessibility. The spatial distribution reflects segregation between the city core and the cemeteries which are positioned in the northern part of the city, introducing a radical implemented structure developed on the edge of the city, going against the model of unified cemetery planning. However, the existing network of cemeteries suggests the future creation of a strategic loop by connecting the peripheral area to the central area, implying the creation of future green corridors or collective planning zones around the cemeteries, implying a

land use efficiency. While, Tirana presents a peripheral spread of the cemeteries, more integrated by infrastructure than the case of Skopje. The cemeteries are developed in two main directions providing a distant cluster effect in the northeastern and southern parts influenced by the topography and remaining non-visible from the city core or transport corridors. This model suggests a balanced distribution where the river appears as a central element, where cemeteries are interrelated through road networks suggesting the development of future strategic planning cemeteries by integrating the river with the landscape system. However, they remain segregated and correspond to lands developed without strategic planning, creating a clash of functions that causes discomfort and functional discordance.

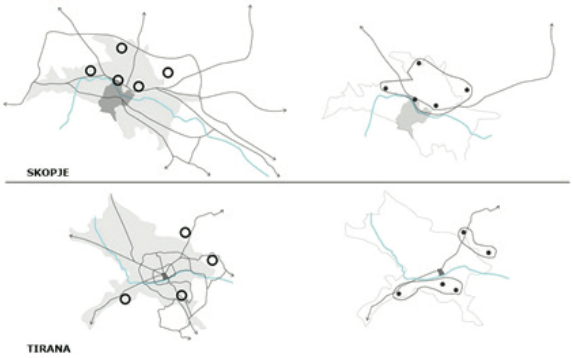


Figure 4 - Cemeteries Distribution in Skopje and Tirana

Cemeteries in Zagreb assemble in the northern direction and are distant from the city center. The triangular cluster intersects with the road infrastructure and river system but does not directly define the cemeteries' location. The river divides the city into two distinctive parts, where the northern area is more developed and the cluster creates a semi-central placement. The cemetery in the west remains isolated and not linked to this network, implying a disconnected spatial strategy. Zagreb differs from two previous cases, specifically Tirana due to the absence of a belt structure, reducing the possibility of developing an integrated cemetery network. However, the western part remains a possibility for extending the spatial distribution and access, potentially evolving into hybrid public spaces, mixed ecocultural and leisure functions. In Podgorica, cemeteries are more evenly dispersed around the city core, in all cardinal directions. Even in this case, cemeteries avoid the city core, especially in the western-southern part which serves as a limit to the city core. This model provides a strategic peripheral zoning which might be indicated by topography or regulations, with a central transport corridor connecting the cemeteries. The cemeteries' distribution follows the river, providing the possibility to develop accessible networks as suburban cemetery corridors integrated with the landscape. A cohesive urban-rural interface with cemeteries functions as a limit for the city and green edges, consequently, presenting an even distribution with equal access across districts and the possibility for green loop development for a complete circular system. Compared to Zagreb the river is a strong-shaped element, implying a resilient landscape strategy where cemeteries buffer urban sprawl.

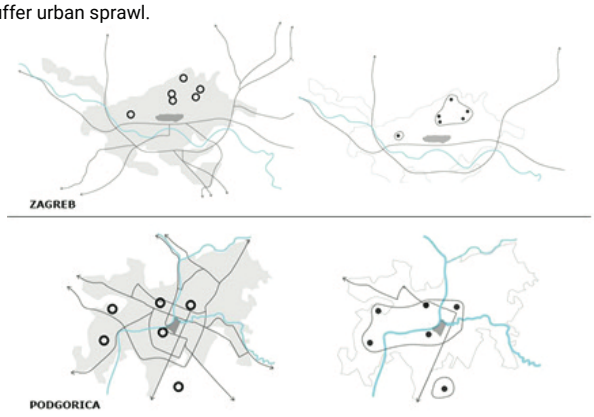


Figure 5 - Cemeteries Distribution in Zagreb and Podgorica

Cemeteries in Belgrade are positioned distant from the central area. The radial road network converges around the central urban area with moderate integration with the city center, where the cemeteries do not follow river routes but divide them into three clusters: north, west, and south, creating sub-networks rather than a loop. The existing spatial distribution suggests a future nodal urban planning strategy, focusing on the connection of the three areas to create a unified system ideal for neighbourhood-scale integration. Belgrade offers the potential to evolve into a polycentric model, where each cluster serves as a community link into a broader system

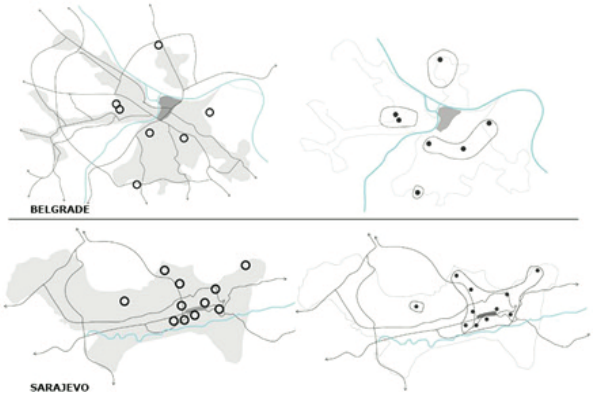


Figure 6 - Cemeteries Distribution in Belgrade and Sarajevo

Sarajevo has a higher density of cemeteries centralized in the eastern area of the city that coincides with the extension of the city core, forming a partial linear corridor and interwoven configuration following the river path and valley. This model creates a dominant spine for cultural and memorial infrastructure development, with continuous memory scapes where daily activities and remembrance overlap. In addition, the central coherence and equitable distribution of cemeteries in all directions have a strong potential to develop into integrated public memorial landscapes within the cities. Compared to all the Balkan cities, the cemeteries are continuously visible while experiencing the city. Such an aspect is significant regarding the cultural relation to death, which, in comparison to other cities, suggests a death-acceptant society model.

The spatial distributions of Balkan cities suggest different models of cemetery distribution, but in most cases similar in approach regarding the relation to the city core or visibility. In addition, it is important to compare them to developed cities, to learn from examples where the discussion of cemeteries in the urban fabric has evolved through history and obtained a planning strategy implemented in the present days. The selection of case studies has been made in accordance with specific characteristics that relate to the attributes of cemeteries: 1. Istanbul - as representative of Ottoman influence, 2. Paris - the first to implement the garden cemetery model, 3. Copenhagen - developed based on the principles of walkability, multimodal infrastructure, and public space integration into urban growth. 4. Stockholm - the model of Work-Housing-Center.



Figure 7 - Cemeteries Distribution in Istanbul and Paris

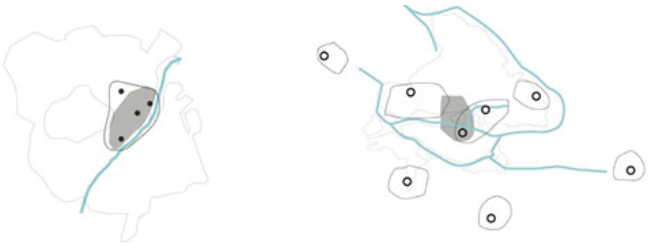


Figure 8 - Cemeteries Distribution in Copenhagen and Stockholm

RESULTS

Concerning the patterns created from the spatial analysis, it is visible that Istanbul, Paris, and Copenhagen follow a similar model of cemetery development positioned inside the city core. Such aspects demonstrate the integration of the spaces within the daily activities, with the exemption of Istanbul, which provides a denser cemetery distribution that extends to the peripheral area, similar to the Balkan cities. The case of Stockholm seems to be dispersed and peripheral with a decentralized pattern compared to other developed cities. The spaces are separated by natural elements suggesting their integration with a broader ecological network, forming island zones connected with accessible infrastructure. Such zoning development strategy in the periphery, provides the management of urban density, suggesting the integration of cemeteries with other public spaces or providing a dual function, as sites of memory and passive recreation.

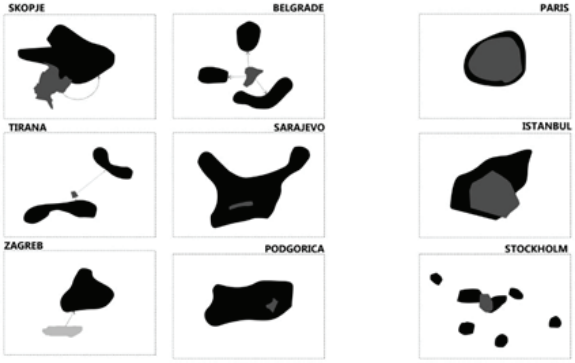


Figure 9 - Spatial Patterns of the Cemeteries in Relation to the City Core

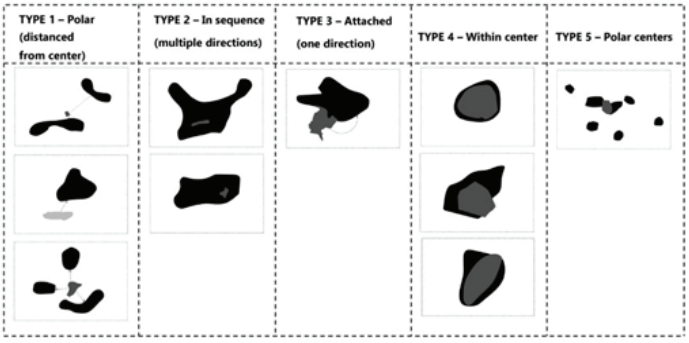


Table 1 - Spatial Patterns of Cemeteries in Relation to the City Core Divided in Categories

Comparing the spatial patterns of the Balkan cities with developed countries results in their division into five categories based on the relation with the city core and clusters' distribution. Type 1 - Tirana, Zagreb, and Belgrade - have a similar distribution of the patterns and are very distanced from the city center, indicating social and cultural disconnection from collective memory disintegration. The city development is fragmented and disorganized linked with infrastructure but with limited accessibility, distant from the main activities. This model suggests a disorganized growth and conflict with other activities spread around the city. For instance, cemeteries when mixed with agricultural land or informal functions create dead zones or congestion areas within the urban fabric. Type 2 - Sarajevo and Podgorica - characterized by a sequential development of the cemeteries in multiple directions, as an offset of the city core and serving as the limit to the periphery. The extension of the urban boundary has led to overcrowded cemeteries, for which it is necessary to provide new space as a response. This has resulted in the overlapping of housing settlements with these spaces over the growing urban sprawl. Type 3 - Skopje - with the cemetery network attached to the center in the northern part, characterized by a fragmented development, and functional disbalance from other parts of the city. In this case, if these spaces are not woven with the other parts of the urban fabric, they act as obstructions to the extension of the boundary, resulting in uneven urban development. Type 4 – Paris, Istanbul, and Copenhagen - suggest a clear distribution of the cemeteries within the city core and an overlapping of public functions with those of remembrance. Type 5 - Stockholm - which contrasts with other mentioned models, suggesting a sectional and polycentric distribution of cemeteries for each zone of the city.

Another interesting aspect related to the spatial distribution of the cemeteries is the relation to water, dividing the cities into three main categories: Type 1 – Skopje, Sarajevo, Zagreb - where the river coincides with the limit of the distribution of cemeteries, as they develop in the northern part of the river, likely related to spiritual significance. Type 2 – Podgorica, Paris, Istanbul - a model where the cemetery clusters are divided through the water elements, suggesting the future development of a system of natural elements integrated with public spaces, withholding aesthetic and environmental values regarding the spatial distribution. Some concerns regarding this type are flooding, erosion, and groundwater issues that need to be taken into consideration. Type 3 – Tirana, Belgrade, Stockholm - water as an element of separation that doubtlessly deals with lack of connection within areas since they are distanced not only from the city core but also the river route.

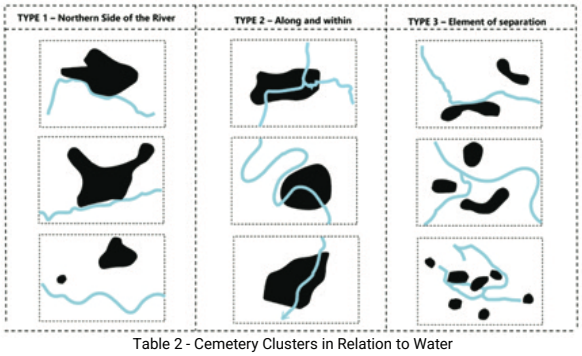


Table 2 - Cemetery Clusters in Relation to Water

Aspects	Balkans	Developed Countries
Cultural Framing of Death	Sacred, Private, Non-Place, Avoidant, Non - Visible	Sacred, Natural, Public, Place, Acceptance, Visible
Urban Placement	Peripheral, Isolated/Moderate Isolated	Central/ Integrated
Use of Space	Monofunctional (burial)	Multifunctional (green, cultural, social)
Design Intent	Symbolic, Hidden, Partially Hidden, Accessibility exclusion	Visible, Inclusive, Accessible
Public Interaction	Avoidance or ritual-based	Everyday use and Engagement

Table 3: Urban Implications of Cemeteries in the Balkans and Developed Countries

CONCLUSIONS

This research reveals the paradoxical position of the cemeteries in Balkan cities. Despite their societal importance, they are marginalized elements within the urban fabric, as a consequence reflecting a death-avoidance society followed by societal hesitation to fully integrate the concept of death into the flow of daily life. Despite their role in preserving collective memory, they have transitioned as isolated zones, physically distant from the urban core and disconnected from daily public activities, embodying the concept of "non-places" as they remain invisible to the community and daily routine. The comparison between the Balkans and Western countries demonstrates the possibility of cemeteries as heterotopic spaces to be reintegrated into the urban fabric, and to transition from "non-places" to "places", revealing that they can function as multifunctional and culturally vibrant areas in the public life.

Concluding with a perfect model of the cemetery is not a radical decision, since these spaces reflect societal, spiritual, and cultural beliefs that must be respected, however, these spaces need to reflect their inclusive character by considering their integration into the urban fabric. The research findings suggest that creating a polycentric system for cemetery development provides a balanced urban adaption, positioning these places as multifunctional areas that by implementing environmental planning strategies, develop the cemeteries as a biodiversity hub spread within a city reflecting their potential as social resilient places. Consequently, planning regulations need to be reconsidered by positioning cemeteries as liminal spaces that indicate the expansion of the city. In response to this, the fundamental move is to culturally reframe the cemeteries, by pushing the community to view the multifaced character of these spaces, as places of memory and recreation, not only mourning. Cultural and public engagement should be considered to soften the psychological burden retained in society. Since these spaces are subtle concerning urban fabric, zoning strategies should be considered in a very instructive way, with high importance on the buffer areas that provide a gradual passage from one function to cemetery, to reduce future conflicts and disbalance, and protect its sacredness by providing a peaceful transition. Burial density restrictions are necessary to provide a more sustainable layout, whereas public-private partnerships are important to improve their management and present innovative burial methods and technologies, contributing to the transformation of cemeteries as active and multifunctional spaces combining community goals and memory preservation.

Reimagining the role of cemeteries within the Balkan context not only recovers the historical essence of these lands but transforms the relationship of the city to remembrance and community identity, strengthening social resilience, and cultural continuity, responding to contemporary urban needs as dynamic and inclusive spaces.

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EXPLORING THE SOCIAL DIMENSION OF URBAN NEIGHBOURHOODS WITHIN THE SERBIAN CONTEXT

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ABSTRACT

Measuring citizens' satisfaction with social attributes in urban neighbourhoods is important for sustainable development, community resilience, as well as for improving the quality of urban life. In Serbia, no systematic place-based research has been conducted on this topic until now, and one of the reasons is that national law doesn't recognize the neighbourhood as a relevant spatial entity. The goal of this study is to research and potentially identify a common community stance regarding social aspects of urban neighbourhoods in cities across Serbia. The identification of a common ground would help researchers, stakeholders, and decision-makers to establish priorities in their actions towards neighbourhood development, and the achievement of sustainability and resilience.

The encompassed study area comprised three centrally positioned urban neighbourhoods in three medium-sized Serbian cities with a population between 50,000 and 100,000 inhabitants: Kraljevo, Valjevo, and Kruševac. Central neighbourhoods in medium-sized cities were intentionally selected, as these are the most developed socio-spatial units nested in the most common size-based type of urban environment in Serbia. The size of the neighbourhood adopted for the purpose of this research refers to a radial physical distance of 400 meters from the place of residence of the respondents.

The survey was conducted between November 2023 and March 2024, using a combination of online questionnaires and face-to-face interviews to ensure the inclusion of respondents without access to a computer and the Internet. The respondents from all three neighbourhoods were selected using a random sampling method, securing high internal validity. The size of the respondents' sample was determined based on the adopted number of variables, including the neighbourhood size, resulting in 50 respondents per neighbourhood.

The respondents from all three studied neighbourhoods and three cities provided similar answers, thus allowing for the definition of a common ground. Namely, the results reveal that the residents were the least satisfied, i.e., the most dissatisfied with their involvement in decision-making processes regarding interventions in infrastructure, and the design and planning of their neighbourhoods. Next, most respondents were also dissatisfied with the potential for involvement in joint activities within the neighbourhood. This was followed by the sense of belonging to the neighbourhood and the sense of security. On the other hand, relations with neighbours were evaluated as the greatest social strength in the studied neighbourhoods. Overall, the social component was perceived as important by most residents from the studied neighbourhoods, regardless of gender, age, work status, and level of education.

A particularly relevant finding from this research concerns the high observed contrast between measured satisfaction with interpersonal relationships and the sense of belonging to the community (which can be explained by the wider cultural context) on the one hand, and the dissatisfaction with possibilities for participation in neighbourhood planning and development processes on the other hand. Furthermore, the results indicate that citizens are aware of the shortcomings in their neighbourhoods. Bearing the aforementioned in mind, the course of future actions for researchers, stakeholders, and decision-makers should be straightforwardly directed towards exploring optimal models for citizen engagement in neighbourhood planning and design.

Keywords: urban neighbourhood, residents' satisfaction, social attributes, participation, planning and development

INTRODUCTION

Social indicators constitute a primary set of metrics for urban and global sustainable development, recognized alongside economic factors as drivers of overall progress (Milovanović & Lekić, 2018). Simultaneously, social aspects are crucial for resilience. While sustainability and resilience encompass different meanings (Stamenković & Vujičić, 2018), their social dimensions are often complementary (Kosanović et al., 2018). For instance, strong social relations enhance social capital, a sustainable development indicator, and concurrently bolster community resilience. Consequently, residents' satisfaction with social attributes is vital for achieving both sustainable urban development and community resilience. This paper aims to examine social attributes within Serbian urban neighbourhoods, addressing a gap in systematic research that currently hinders the development of policies grounded in actual community needs.

Given the complex, multi-layered nature of urban space, the neighbourhood emerges as a pertinent scale for analysis, measurement, monitoring, and the formulation of guidelines for potential interventions and future development. This is supported by numerous recent evaluation models, research, and publications focusing on neighbourhoods (Barton, Grant & Guise, 2021; Talen, 2019; Galster, 2019; Martí et al., 2022). Nevertheless, Serbian law does not officially recognize neighbourhoods as spatial units, which constrains strategic urban planning at the local level. This lack of formal recognition is not unique, as a universally accepted definition of neighbourhood remains elusive in scientific discourse (Galster, 2019). On the other hand, the neighbourhood, alongside the district and the corridor, is acknowledged as a fundamental organizational element of urban space (Duany & Plater-Zyberk, 1993), with its precise definition often tailored to the specific objectives of research or planned spatial interventions, as highlighted by Barton et al. (2010).

One of the central assumptions of this research, examining social attributes in Serbian urban neighbourhoods, concerns the limited participation of citizens in shaping their built environment. Residents often lack opportunities to influence decisions regarding their immediate surroundings, a situation exacerbated by insufficient institutional support and a degree of resident disengagement stemming from a perceived inability to affect decisions made by authorities. Furthermore, the involvement of stakeholders from other spheres (political, economic, etc.) in urban planning can lead to outcomes that do not fully align with residents' needs. Evaluating participation in planning presents an additional challenge, as Laurian and Shaw (2008) noted, citing the lack of clear definitions, authoritative criteria, and consistent methodologies.

While citizens' dissatisfaction with involvement in the planning process alone may not directly correlate with overall quality of life, the built environment's impact on residents' health and well-being (Lekić, Miletić & Fikfak, 2018) suggests an indirect link. Dissatisfaction with the built environment can have multifaceted negative effects on health, thus implying a connection between participation in planning and quality of life.

Anderson and Baldwin (2017) argue that local participation in urban design can positively influence residents' well-being and community empowerment. Similarly, Miltin (2008) emphasizes the necessity of citizen participation for equitable democratic citizenship and for developing effective interventions that best address residents' needs. In the context of resilience during emergency situations, Jakubowski (2013) noted that all urban planning participants, including citizens, must share both knowledge and creativity to optimally manage such events. From a social sustainability perspective, actions related to civic participation and the development of citizen governance, as well as processes at the neighbourhood, town, and city levels, directly impact the improvement of urban resilience (LopezDeAsiain & Díaz-García, 2020).

The preceding points underscore the necessity of finding a "balance between rights and responsibilities of the different actors in order to create resilient cities for the future" (Eraydin, 2013, p. 15). Compounding these challenges, the absence of a clear development strategy for urban sustainability and community resilience in Serbia further complicates efforts to improve long-term quality of life. This study, therefore, aims to contribute to neighbourhood development by identifying pathways to enhance sustainability and resilience, ultimately making a theoretical contribution to improving urban quality of life through the strengthening of social cohesion and participation.

STUDY CRITERIA

Reviewing models for evaluating the built environment at the neighbourhood level reveals that safety, inclusion, that is, social engagement, and sense of place are the most frequent social criteria. These criteria are represented by varying indicators depending on the model's focus. For the purposes of this research, five key, interdependent criteria shaping neighbourhood life are singled out.

The first is relations with neighbours, as strong social connections demonstrably improve both mental and physical well-being (Holt-Lunstad, 2021) and are key to feeling connected to a place (Lestari & Sumabrata, 2018). The second is safety concerns, since crime and vandalism can significantly impact residents' sense of safety and overall quality of life (Putrik et al., 2019). Participation in joint activities, the third criterion, reflects

community engagement. This is important for several reasons. For example, residents who participate in improving the place through various joint activities and volunteering are most connected to their neighbourhood (Li et al., 2023). Also, research has shown that joint activities have positive effects on health and social outcomes (Ide et al., 2023). The fourth is involvement in planning and decision-making, which measures whether residents feel they have a say in shaping their urban environment. This criterion also affects neighbourhood attachment, since engaged neighbourhood residents develop a sense of pride, trust, and ownership, further strengthening social relationships and improving well-being. Finally, the sense of belonging, i.e. neighbourhood attachment was examined, as strong neighbourhood identity can prevent social isolation and encourage long-term residence (Andersen, 2008).

All five mentioned interdependent criteria are vital for creating resilient neighbourhoods, or, as Larimian et al. (2020, p. 15) emphasized, "residents of a socially resilient neighbourhood recognise and present strong social networks and sense of belonging, which enable them to work together and support each other towards shared objectives to collectively improve the safety and well-being of their neighbourhood".

METHODOLOGY

This study employed the survey method as the most relevant approach for examining social aspects. Data collection involved a combination of online questionnaires and face-to-face interviews to ensure a diverse respondent pool, including individuals without internet access. The survey was conducted between November 2023 and March 2024. Study areas were selected based on the criteria that they were urban neighbourhoods located in at least three different cities. The chosen cities – Kraljevo, Valjevo, and Kruševac – are medium-sized (population 50,000–100,000) and were selected as representative of the most common urban size in Serbia. Given the absence of a definition for neighbourhoods in Serbia, a 400-meter radius around respondents' homes was used to define the study area. This distance was adopted based on walkability principles (Duany & Plater-Zyberk, 1993; Ekkel & de Vries, 2017).

The survey presented in this research is part of a larger questionnaire designed for the author's doctoral dissertation. The full questionnaire contains seven variables with multiple items: communal infrastructure, traffic infrastructure, functions and facilities, green and blue infrastructure, built structures, social aspects, and hazard/risks. For this study, items related to social aspects were relevant. The first section of the survey collects sociodemographic data of the respondents (gender, age, level of education, employment, housing unit), while the second part examines social aspects in the neighbourhood.

Consistent with the Study Criteria section, five items were used in this study to examine social attributes. The questions, presented as statements, were as follows: 1. "I am satisfied with the relations I have with my neighbours"; 2. "I feel safe from robberies and vandalism in my neighbourhood"; 3. "In my neighbourhood, people are involved in various communal activities"; 4. "In my neighbourhood, people are involved in making decisions about changes in infrastructure, design, and environmental planning"; 5. "I feel that I belong to this neighbourhood". An additional sixth question asks respondents to rate the importance of social aspects in their neighbourhood ("Please rate on a scale of 1 to 5 how important it is for you that your neighbourhood has good social aspects").

A five-point Likert scale (1 = 'completely disagree' to 5 = 'completely agree') was used to measure respondents' attitudes. Considering that the neighbourhoods in which the survey was conducted are located in different cities and have varying numbers of inhabitants, and because the exact number of inhabitants differs from neighbourhood to neighbourhood, the number of respondents was defined differently than in cases where the population size for which the survey is intended is known. In this case the sample size was determined based on the number of examined items, adhering to a minimum respondent-to-item ratio of 5:1 (Memon et al., 2020). For this research, a more conservative 10:1 ratio was employed, resulting in 50 respondents per neighbourhood, given the five examined items. Therefore, within each neighbourhood, 50 residents were randomly selected from a single residential block to ensure a balanced sample representing diverse demographic and social backgrounds. The selected residential blocks are located in central city zones, as these represent the most developed urban areas (Figure 1). For processing the comprehensive survey data, a multilevel linear regression statistical method was employed. However, for the specific objectives of this research, the results were analysed and presented using descriptive statistics and data comparisons.

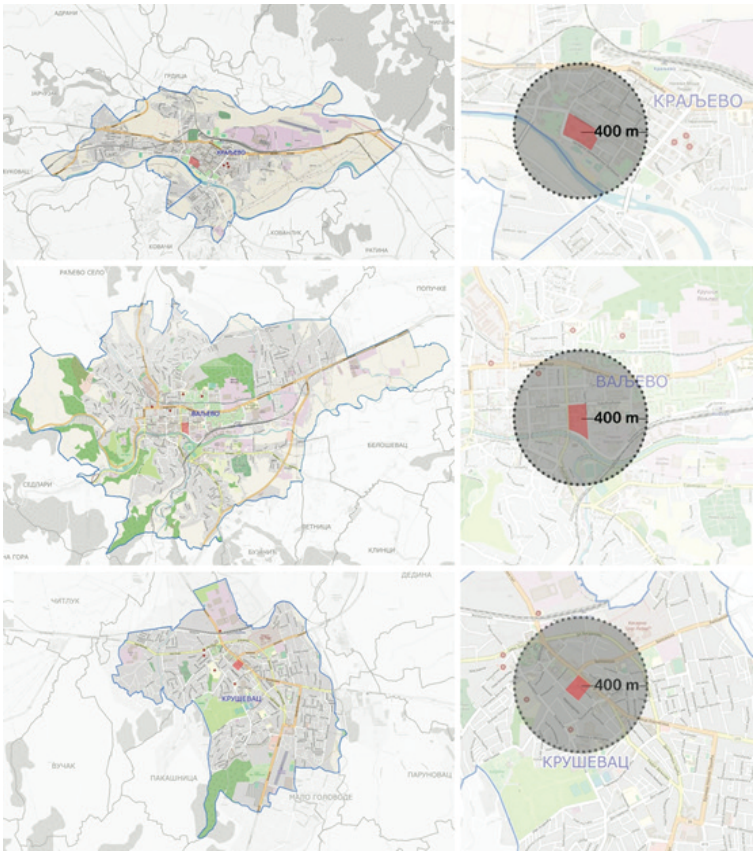


Figure 1: Study areas: 400-meter radius around selected residential blocks in the city centres of Valjevo, Kruševac, and Kraljevo

RESULTS

Of the 150 respondents across the three neighbourhoods, 62 were male and 88 were female. The majority of respondents were aged 36–55 and held a faculty degree. Regarding employment status, most respondents were employed, while retirees constituted the smallest group. Given the central urban location of the survey, a significant majority (74%) of respondents resided in apartments (Table 1).

	Number	Percent
Gender		
Male	62	41,33
Female	88	58,66
Age		
15-25	25	16,67
26-35	13	8,67
36-45	57	38
46-55	51	34
56-70	8	5,33
over 70	6	4
Level of education		
Elementary school	2	1,33
High school	54	36
Faculty	80	53,33
Master's degree	12	8
Ph.D.	2	1,33
Employment		
Employed	112	74,67
Unemployed	14	9,33
Pupil/student	18	12
Pensioner	6	4
Housing unit		
Apartment	111	74
House	39	26

Table 1: Sociodemographic characteristics of participants included in the study

The study revealed similar perceptions of neighbourhood social attributes across residents of all three cities (Figure 2). This consistency provides a robust foundation for establishing a common understanding of social aspects in Serbian urban neighbourhoods.

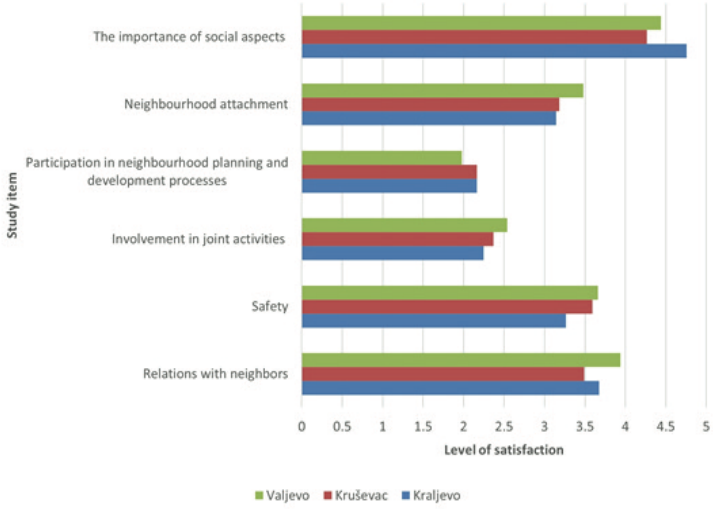


Figure 2: Survey results by cities

Comparing the results by study items (arithmetic mean and standard deviation, as shown in Table 2), neighbourly relations, identified as the most valued social attribute, received the highest rating in the city of Valjevo. Respondents in Kraljevo neighbourhood reported slightly lower satisfaction, while those in Kruševac were the least satisfied with neighbourly relations

Safety aspects also received the highest rating in Valjevo and the lowest in Kraljevo, with results from the neighbourhood in Kruševac falling between these two cities. Similarly, respondents in Valjevo's neighbourhood gave the highest rating to involvement in joint activities, followed by Kruševac, with Kraljevo having the lowest score for this aspect.

Regarding participation in neighbourhood planning and development processes, contrary to the previous three items, this attribute received the lowest rating in Valjevo. The mean results in Kraljevo and Kruševac for this item were identical. Neighbourhood attachment followed the same rating pattern as safety and involvement in joint activities: Valjevo had the highest rating, followed by Kruševac, and then Kraljevo.

While Kraljevo had the lowest rating for most study items (specifically 3 out of 5), the importance of social aspects was rated highest there compared to the other two cities. Following Kraljevo, Valjevo had the next highest rating for the importance of social aspects, and then Kruševac, where social aspects were considered the least important by respondents. It was observed that Valjevo had the highest scores for the largest number of items (4 out of 5), but simultaneously, participation in neighbourhood planning and development processes received the lowest rating in this city.

The average mean across all three neighbourhoods and for all examined aspects (excluding the importance of social aspects) was slightly below the neutral attitude value (2.99), with a standard deviation of 1.04, indicating a wide range of opinions, as illustrated in Figure 2.

	Mean	SD
Relations with neighbours		
Valjevo	3,94	0,75
Kruševac	3,49	0,87
Kraljevo	3,67	0,99
Safety		
Valjevo	3,66	0,95
Kruševac	3,59	1,08
Kraljevo	3,27	1,15
Involvement in joint activities		
Valjevo	2,54	1,33
Kruševac	2,37	1,01
Kraljevo	2,24	1,05
Participation in neighbourhood planning and development processes		
Valjevo	1,98	1,11
Kruševac	2,16	1,01
Kraljevo	2,16	1,14
Neighbourhood attachment		
Valjevo	3,48	1,14
Kruševac	3,18	0,95
Kraljevo	3,14	1,14
Average	2,99	1,04

Table 2. The arithmetic means and standard deviation results by study items

In summary, respondents expressed the least satisfaction with their involvement in neighbourhood planning and development decision-making processes (Figure 3). This is followed by involvement in joint activities. Next was the sense of belonging to the neighbourhood and sense of safety from crime and vandalism, while relations with neighbours were the most valued. Overall, the results indicate that social aspects are highly important to residents across all three neighbourhoods.

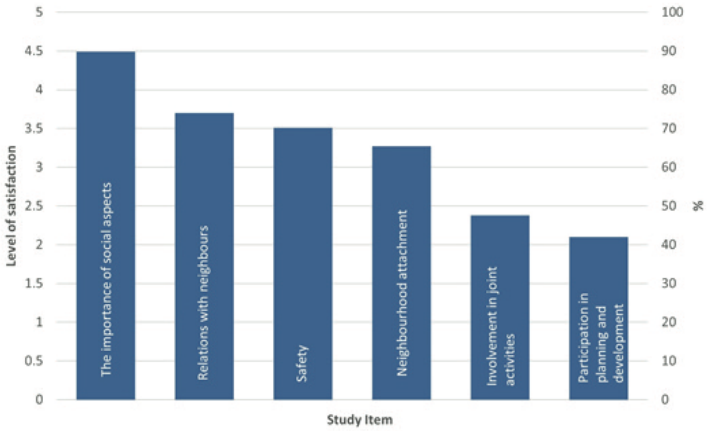


Figure 3: Residents' satisfaction with social attributes in three neighbourhoods

Our findings highlight a significant divergence between interpersonal relationships and institutional engagement within the studied neighbourhoods. On the one hand, residents reported positive relationships with their neighbours, suggesting that social bonds within neighbourhoods are strong. However, on the other hand, they expressed a high level of dissatisfaction with their role in urban planning. Most respondents felt excluded from decision-making processes, particularly in relation to infrastructure improvements, design interventions, and public space management. Another key finding was the relatively low participation rate in joint community activities. This resonates with a 2008 study conducted in Belgrade (Petrović, 2008), which, despite acknowledging the positive social fabric of neighbourhoods, identified widespread issues with building and environmental maintenance organization. That study also noted limited resident involvement in improving local living conditions, with a preference for paid services over civic activism, attributed to both inter-neighbour disagreements and ambiguous legal frameworks. These parallels suggest the persistence of similar challenges in Serbian urban neighbourhoods over a considerable period.

Furthermore, neighbourhood attachment and safety concerns were recurring themes among the surveyed residents. While a general sense of safety prevailed for most, a significant proportion expressed apprehension regarding crime and vandalism, largely influenced by past occurrences in their neighbourhoods. This aspect, coupled with dissatisfaction regarding participation in neighbourhood design and community activities, contributes to many respondents feeling disconnected from their neighbourhood.

Despite these challenges, the most robust social component identified in our study was neighbourly relations. Even while feeling disconnected from formal decision-making, residents maintain strong interpersonal connections within their immediate community. This contrast underscores the need to bridge the gap between social cohesion and institutional support.

DISCUSSION AND CONCLUSIONS

Based on the findings of this study, several key conclusions can be drawn. While residents of Serbian urban neighbourhoods demonstrate strong interpersonal connections within their localities, limited institutional involvement and a lack of comprehensive development strategies contribute significantly to low levels of satisfaction with planning participation. This dissatisfaction is further reflected in lower ratings for involvement in joint community activities and perceived safety. Collectively, these factors, exacerbated by the absence of a clear urban sustainability strategy, impede the sustainable development of Serbian urban areas and hinder the strengthening of community resilience.

This study suggests targeted improvements in three key areas, aiming to cultivate neighbourhood attachment: fostering greater citizen participation in urban planning, encouraging involvement in joint community activities, and enhancing safety within urban neighbourhoods. Achieving greater citizen engagement in Serbian urban neighbourhoods necessitates a concerted, systemic effort to actively involve residents in planning and decision-making processes. However, this is a complex undertaking given existing challenges. Petrović (2008) highlighted low levels of connection and trust between civic associations and institutions in Serbia, a situation exacerbated by underdeveloped institutional networks, citizen apathy, lack of information, and a prevailing sense of powerlessness regarding influencing decisions.

Giving an overview of the special edition of the journal Environment and Urbanization (Citizen Participation in Planning: From the Neighbourhood to the City), Mitlin (2021) concluded that institutionalization of citizen participation represents a considerable challenge. She emphasized the importance of continuous citizen effort in improving local opportunities, the necessity of focusing beyond just the neighbourhood to the city level, the near inevitability of conflict for collaboration, and the close link between increased citizen and political participation. Addressing these multifaceted issues requires developing effective, context-specific strategies for sustained citizen involvement.

Strengthening neighbourhood identity is crucial for fostering greater involvement in joint activities. This can be achieved by supporting community initiatives that promote social cohesion and shared responsibility. Beyond institutional and social engagement, urban planners play a vital role. Bottini (2018) emphasizes that spatial variables exert a greater influence on community participation than sociodemographic factors, while Ziersch, Osborne and Baum (2011) highlight the positive correlation between spatial attributes like local shops and recreational facilities and community participation. Consequently, planners should prioritize designing spatial attributes that inherently encourage neighbourly interaction and strengthen social cohesion, such as urban gardens, accessible recreational facilities, and versatile communal gathering spaces. Recognizing the unique local character and potentials of each neighbourhood is also essential for maximizing the effectiveness of these efforts. By creating more opportunities for joint activities, neighbourhood identity can be strengthened, which, in turn, will positively influence residents' willingness to participate in neighbourhood design and planning. Finally, there is a clear need to improve safety in public spaces. Addressing security concerns through better urban design can directly enhance the quality of life in urban neighbourhoods. As Ricklin and Shah (2017) note, an unsafe neighbourhood reduces the likelihood of residents spending time outdoors socializing, walking, or engaging in physical activity, negatively impacting their health and quality of life. Moreover, crime is a primary factor influencing decisions to leave a neighbourhood (Andersen, 2008). Given these security trade-offs, a growing body of research explores design approaches in accordance with security principles (e.g., Foster, Giles-Corti & Knuiman, 2010; De Donder et al., 2013; Zeng et al., 2023). In parallel, organizations like Crime Prevention Through Environmental Design (CPTED) advocate for design interventions aimed at preventing crime. Urban governance should therefore integrate core principles and design strategies to enhance perceived and actual safety, encouraging greater public space utilization.

To foster more sustainable and resilient cities, prioritizing community participation and inclusive urban development is essential. Therefore, further education for all stakeholders involved in planning and shaping the built environment is necessary. Considering these findings and conclusions, this research provides a foundation for

future studies and offers practical insights for policymakers, urban planners, and community leaders. Ultimately, it highlights the need to place people at the centre of planning, with the aim of achieving enhanced well-being and quality of life, which is key to realizing sustainable development and community resilience.

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ACHIEVING URBAN RESILIENCE: AN INTEGRAL APPROACH TO SOCIAL AND ECOLOGICAL SUSTAINABILITY IN RNM'S BORDER TOWNS

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ABSTRACT

The resilience of urban environments has become a critical area of inquiry, particularly in regions characterized by socio-political complexities, ecological vulnerabilities, and planning challenges, such as the eastern border towns in the Republic of North Macedonia (RNM). This paper investigates urban resilience in three specific border cities—Kriva Palanka, Delcevo, and Dojran—each facing distinct challenges on spatial, social, economic, demographic, and ecological levels, making resilience-building essential for their sustainable development and stability.

To analyze resilience, the study employs Integral Theory, using the "All Quadrants All Levels" (AQAL) framework as a comprehensive analytical tool. This framework examines resilience across four interconnected dimensions: individual experiences, social dynamics and cultural perspectives, physical and ecological systems, and institutional and systemic structures. The AQAL method is adapted to explore the alignment between these dimensions, particularly focusing on pathways to achieve social and ecological sustainability. In this context, the study identifies how subjective and collective perceptions of urban challenges influence objective environmental and systemic outcomes.

This paper emphasizes the significance of citizen engagement in fostering social cohesion and sustainable urban transformation. By promoting participatory approaches and considering the active role of local communities in shaping their urban environments, the research highlights how collaborative initiatives can strengthen resilience. The paper contributes to the discourse on resilience by presenting a framework tailored to the specific challenges and opportunities in RNM's eastern border towns. The findings underscore the importance of combining theoretical models like 'AQAL' with actionable policies that incorporate citizen-driven strategies to advance resilient and sustainable urban systems.

Keywords: AQAL, border towns, integral theory, sustainable planning, urban resilience

INTRODUCTION

The Republic of North Macedonia (RNM), is a landlocked country in the Balkans, which borders Bulgaria, Greece, Albania, and Serbia. It is a multi-ethnic state with a population of 1.8 million and Skopje as its political and cultural centre (SSO, 2022). Since gaining independence from Yugoslavia in 1991, RNM has undergone major socio-economic transformations, resulting in the collapse of industrial capacities, fragmented trade, rising unemployment, and intensified migration from small towns to larger cities. This process has weakened the urban functions of many smaller settlements (Acevski & Matilov, 1997).

While larger cities have managed to adapt, border towns such as Kriva Palanka, Delčevo, and Dojran (fig.1) have struggled with depopulation, economic stagnation, and urban decline. Although these towns are geographically close, they operate independently, lacking synergistic economic and social ties. The aging population, limited investment, and scarce employment opportunities have contributed to deteriorating public spaces, undermining their role as vital community hubs (Dunovski et al, 2020). Environmental issues, including pollution, illegal construction, and insufficient ecological awareness, further threaten the towns' long-term viability, despite their favourable geographic conditions.

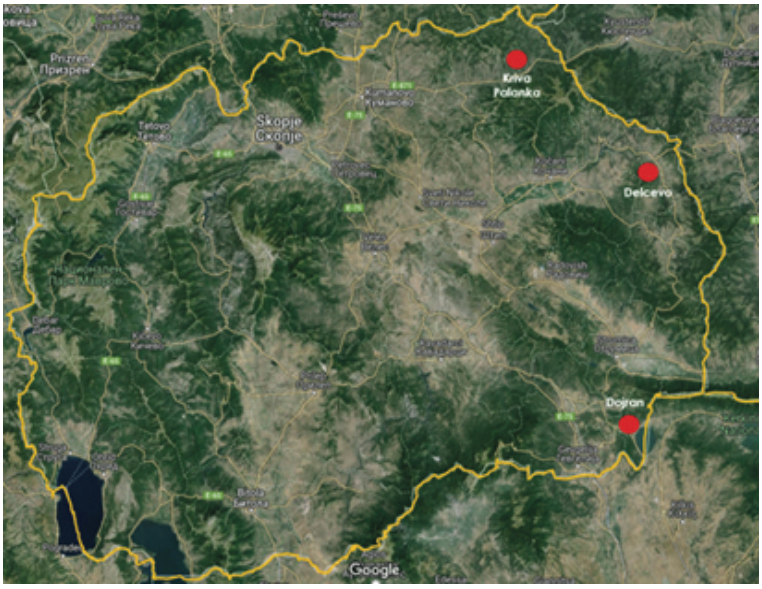


Figure 1: satellite image of RNM and the position of the selected border towns

These intertwined socio-economic and environmental problems directly challenge the social and ecological resilience of border towns. The weakening of social ties, migration of the youth, and the loss of vibrant public spaces diminish community cohesion, making it harder to adapt to future challenges. At the same time, environmental degradation reduces their ability to maintain healthy ecosystems and respond to ecological risks.

However, the ongoing EU accession process offers a new opportunity to foster resilience. Strengthening cross-border cooperation, revitalizing infrastructure, and promoting sustainable planning are crucial steps toward enhancing both social and ecological resilience. By applying integral frameworks that consider the complexity of these challenges, this paper aims to propose strategic pathways for building a sustainable and resilient future for border towns in the eastern region of RNM.

RESEARCH METHODOLOGY

The study focuses on the eastern and southeastern border towns of the Republic of North Macedonia—Kriva Palanka, Delčevo, and Dojran—applying qualitative methods and a case study approach. The objective was to propose sustainable and resilient urban transformation strategies by applying a comprehensive methodological framework aligned with the complexity of the subject matter.

The AQAL framework (fig.2,3), grounded in Integral Theory, was selected as the principal method. It enables a holistic analysis by integrating multiple perspectives, development levels, and influencing factors, making it suitable for addressing the multidimensional challenges of urban transformation. The research was conducted in three phases:

1) Problem Contextualization and Data Collection: A theoretical basis was established through literature review and analysis of primary and secondary sources. National data included the RNM Spatial Plan, State Statistical Office publications, and municipal development plans.

2) Integral Theory Framework: Integral Theory provides four analytical perspectives: subjective ("I"), collective ("We"), objective ("It"), and systemic ("Its"). This approach enables the integration of individual experiences, collective cultural values, material realities, and systemic structures within a unified framework for sustainable development (Wilber, 2007; Brown, 2007, 2005; Lalovic et al.2019).

3) Case Study and AQAL Application: The AQAL method was applied to assess the towns across four dimensions: psychological, behavioural, cultural, and systemic. Reality was analysed at the individual, group, organizational, and systemic levels. Additionally, spiritual development, conceptualized as the evolution of consciousness and inter-connectedness, was recognized as a key element supporting resilience and sustainable urban growth.



Figure 2: Ken Wilber's integral theory matrix

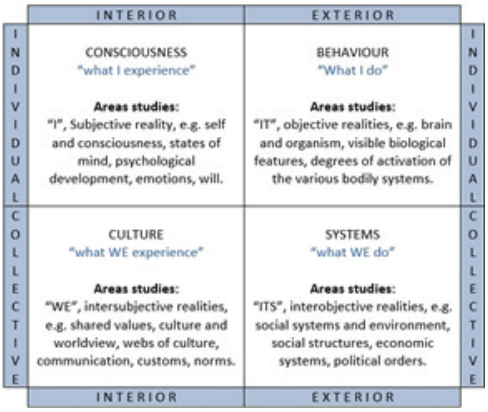


Figure 3: Ken Wilber's AQAL model and quadrants

This structured approach provided a comprehensive understanding of the social and ecological challenges facing the selected border towns, forming the basis for developing resilience strategies.

The case study method was selected as a research strategy due to its capacity to explore complex, context-dependent conditions. Each of the three towns—Kriva Palanka, Delčevo, and Dojran—served as an individual unit of analysis within a comparative framework, allowing for both in-depth investigation and cross-case synthesis.

Data were collected through qualitative content analysis of municipal development documents, spatial plans, statistical records, and tourism strategies, complemented by on-site observations and photographic documentation. For example, Kriva Palanka's Local Economic Development Program (2022) was used to understand institutional priorities and identify resilience gaps. In Delčevo, particular attention was paid to the urban master plan revisions and local strategies for youth retention and environmental protection. For Dojran, the focus was placed on cross-border tourism development and the preservation strategies for Dojran Lake, which is a vital ecological and economic resource. Key AQAL dimensions—subjective (interior-individual), intersubjective (interior-collective), objective (exterior-individual), and inter-objective (exterior-collective)—were adapted to align with local planning realities. The AQAL tables for each town were constructed based on this data triangulation process, providing a multidimensional understanding of the specific urban challenges and potentials. This granular approach also enabled the formulation of contextualized strategies that consider both material and immaterial aspects of resilience. To ensure the contextual depth of the AQAL analysis, each selected border town was investigated as a distinct case study. The cities—Kriva Palanka, Delčevo, and Dojran—were chosen due to their representative character within the eastern and south-eastern regions of North Macedonia, their exposure to border-specific challenges, and their varying levels of demographic, economic, and ecological development.

The case study of Kriva Palanka was based on interviews conducted with of ficials from the Urban Planning Department of the municipality. These interviews, provided insight into institutional priorities, urban challenges, and citizen engagement levels. Key data such as the strategic vision, infrastructure conditions, and perceptions of civic participation were obtained directly from department heads. The municipality's Local Economic Development Program (2022) and other public reports were also consulted to cross-reference and expand the information shared in the interviews.

In Delčevo, interviews with the heads of the Urban Planning Sector were conducted in late 2022. These sessions highlighted pressing local issues such as high youth emigration, underutilized agricultural capacity, and weak integration of cultural identity into development frameworks. Through the perspectives of municipal officials, it became evident that although there is growing awareness of sustainable planning approaches, the town faces structural limitations in implementation. Additional data were retrieved from the Municipal Action Plan and the Master Urban Plan, providing input for the AQAL behavioral and systemic quadrants.

The case study for Dojran focused on environmental vulnerabilities and tourism-driven urban development. Interviews with municipal urban planning representatives were carried out with specific questions targeting the challenges of seasonal urban management, ecological protection of the lake, and coordination with regional institutions. Key strategies and concerns were drawn from these interviews and supplemented by documentation from local and European-funded tourism development programs. The information enabled a more accurate mapping of Dojran's socio-ecological resilience through the AQAL framework.

INTEGRAL URBANISM, AQAL FRAMEWORK AND URBAN RESILIENCE IN SMALL BORDER TOWNS - A CASE STUDY

Small border towns in the RNM face a unique combination of urban challenges shaped by their geographic, political, and socio-economic positions. These towns often experience depopulation, economic stagnation, aging infrastructure, and environmental vulnerabilities. Despite their proximity to international borders and potential for cross-border cooperation, many remain marginalized in national planning frameworks and lack the resources to implement sustainable development strategies.

Urban resilience has emerged as a vital concept for these towns. Resilience is understood not only as the ability to withstand shocks—whether economic, ecological, or demographic—but also to adapt and transform in the face of long-term stressors (Colucci, 2012; UNISDR,2015; Maruna, Colic & Rodic, 2018). In small towns where institutional capacities are limited, fostering resilience requires an approach that integrates social, economic, environmental, and cultural dimensions simultaneously. To address this complexity, the study employs the Integral Theory.

Through this integral lens, the resilience of border towns is evaluated in a structured yet flexible way, ensuring that both subjective experiences and objective conditions are addressed. The AQAL method is particularly suited to the complexity of small towns, where informal networks, local identity, and limited governance structures all play a crucial role in shaping urban transformation. The analysis followed a three-level structure (fig.4), providing a comprehensive and systematic evaluation:

Level 1: Identification of key urban resilience factors classified into the four AQAL quadrants (Individual-Interior, Individual-Exterior, Collective-Interior, Collective-Exterior).

Level 2: Description of the actual state and current problems affecting each town.

Level 3: Development of tailored solutions aimed at strengthening social and ecological resilience.



Figure 4: A 3 level structure of the AQAL framework

KRIVA PALANKA

In Kriva Palanka, resilience factors highlighted issues related to strong cultural identity but declining youth engagement, limited sustainability awareness, high reliance on traditional economic sectors, and aging infrastructure. Problems such as migration, weak civic participation, and underutilized cross-border trade potential were evident (fig. 5).

•Upper-Left Quadrant (Individual-Interior): Kriva Palanka's citizens display a deep cultural and spiritual identity, shaped by traditions, religious practices, and intergenerational knowledge. This cultural continuity is a potential strength, yet younger residents increasingly lack connection to local values, perceiving limited prospects for personal or civic growth. The internalization of stagnation among youth threatens future resilience, as motivation for engagement diminishes.

•Upper-Right Quadrant (Individual-Exterior): The town's economy is highly reliant on traditional sectors such as agriculture and small-scale trade. This behavioral pattern reflects limited adaptation to modern economic trends, particularly digitalization or green industry. Daily practices remain static, and infrastructural shortcomings (e.g., limited public transport, outdated utilities) reinforce conservative economic behavior.

•Lower-Left Quadrant (Collective-Interior): Kriva Palanka is known for its summer festivals and cultural cohesion, which historically served as community anchors. However, collective attitudes are shifting as youth emigrate and civic organizations weaken. A sense of collective fatigue is evident—traditions continue but without vibrant community participation, which compromises social cohesion and adaptive potential.

•Lower-Right Quadrant (Collective-Exterior): Institutional structures are formal but underutilized in terms of cross-border potential and integrated planning. Existing development plans reference regional cooperation, but implementation remains weak due to bureaucratic inertia and underinvestment. The town's peripheral location is strategically important, yet this is not reflected in policy execution or infrastructure development.

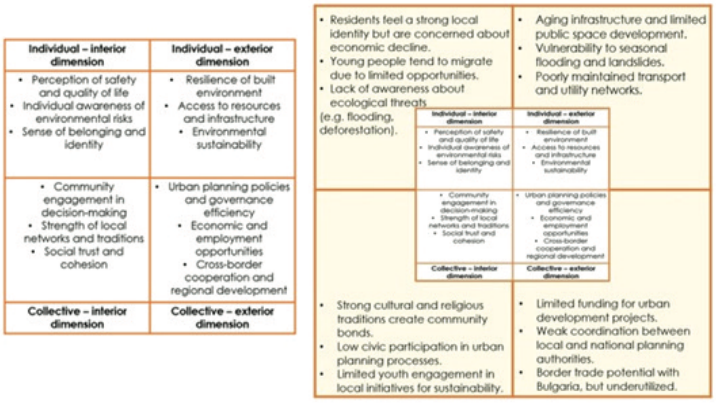


Figure 5: Key factors, examples and current problems of Kriva Palanka

To respond to these interconnected challenges, the proposed solutions for Kriva Palanka emphasize both infrastructural and socio-cultural interventions. Educational programs focused on environmental awareness and cultural heritage aim to reactivate civic identity, especially among youth. Participatory planning methods are proposed to foster local ownership in decision-making, while green entrepreneurship initiatives and infrastructure modernization seek to reduce dependency on traditional sectors and build adaptive capacity. The cross-border location is reimagined not just as a geographic fact, but as an opportunity for integrated development strategies. (fig.6).

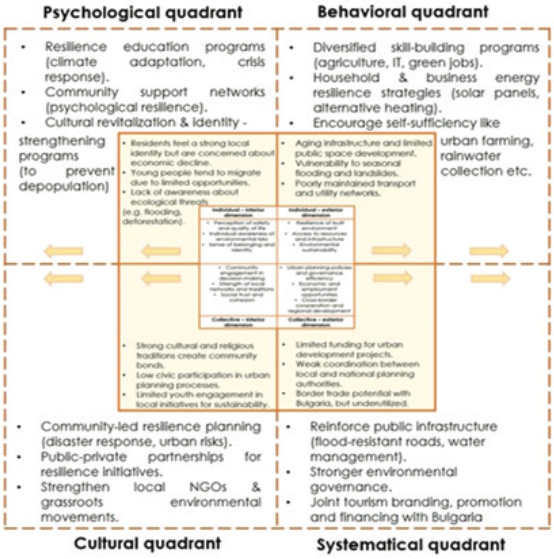


Figure 6: AQAL analysis of Kriva Palanka

DELČEVO

The AQAL analysis for Delčevo (fig.8) revealed similar challenges but with additional nuances.

•Upper-Left Quadrant (Individual-Interior): Residents of Delčevo often express pride in their town's historical significance and natural surroundings. However, a lack of local career prospects undermines personal aspirations, especially among younger generations. A growing resignation to outmigration has emerged, creating internal narratives of escape rather than engagement, which erodes the psychological basis for local resilience.

•Upper-Right Quadrant (Individual-Exterior): Behavioural trends in Delčevo indicate limited participation in local initiatives and a dependence on central government support. Employment remains low, and informal economic activity is prevalent. Despite possessing natural and cultural assets, daily practices do not reflect sustainable behaviours—recycling, energy efficiency, and green entrepreneurship are largely absent.

•Lower-Left Quadrant (Collective-Interior): Delčevo's collective memory includes periods of economic vitality linked to agriculture and crafts. However, this identity is not strongly embedded in current municipal branding or urban space design. Cultural resources (e.g., festivals, folklore) exist but are not framed as resilience assets, leading to a disconnect between cultural richness and present-day strategy.

•Lower-Right Quadrant (Collective-Exterior): Institutionally, Delčevo's urban governance faces capacity challenges. Strategic documents exist, but implementation suffers from limited staffing, funding, and stakeholder coordination. The physical infrastructure—especially roads and public spaces—reflects this constraint, while cross-border economic cooperation remains more rhetorical than actionable.

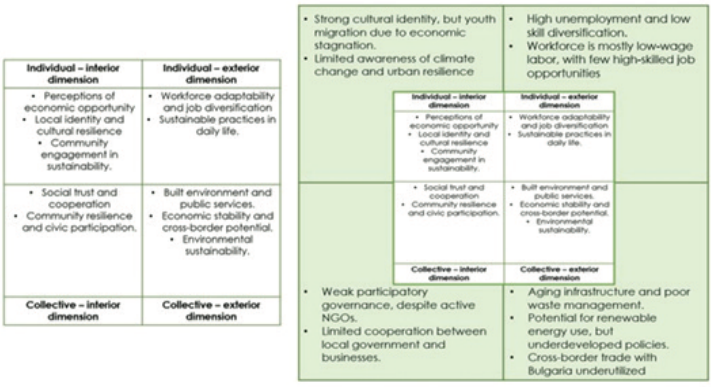


Figure 7: Key factors, examples and current problems of Delčevo

The solutions developed for Delčevo reflect the need for workforce revitalization and stronger institutional frameworks. Training programs in the green and digital economies are proposed to increase employment resilience and attract youth retention. Ecological measures—such as improved waste management—are aligned with participatory governance models to foster community accountability.

By strengthening its ties to Bulgaria and tapping into sustainable agriculture and eco-tourism, Delčevo can reposition itself economically while reinforcing its environmental and cultural assets.

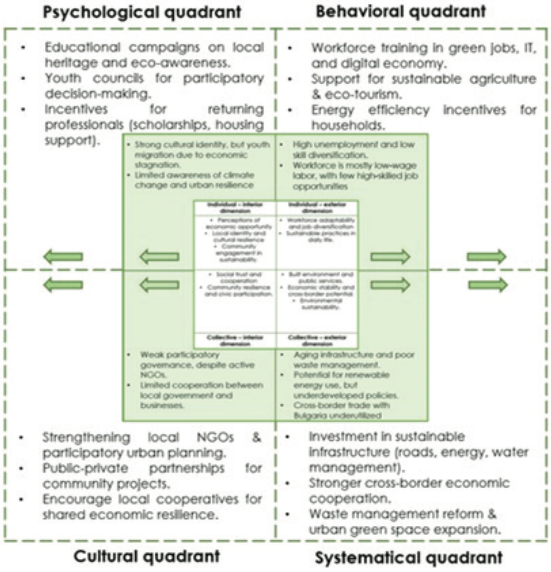


Figure 8: AQAL analysis of Delčevo

DOJRAN

Considering Dojran's unique contextual setting, the information used to construct the AQAL framework was sourced from various tourism-oriented institutions in the Republic of North Macedonia, along with insights from several European-funded projects. Integrating local economic development (LED) strategies into the AQAL methodology enabled a clearer understanding of how effectively and comprehensively local municipalities operate. As a result, the AQAL system offered a multidimensional and integrated structure that incorporated diverse viewpoints within the LED approach, enhancing its planning, execution, and assessment processes (fig. 9).

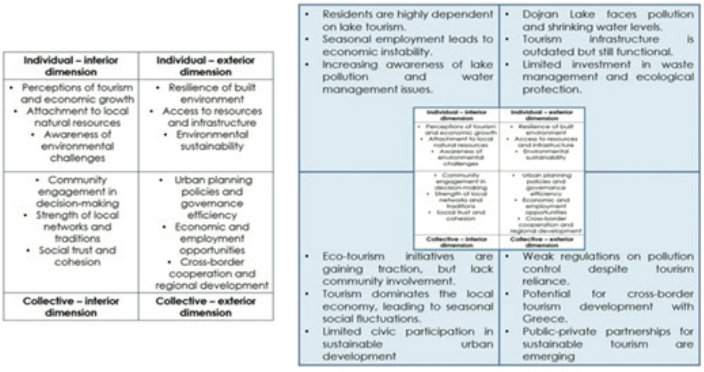


Figure 9: Key factors, examples and current problems of Dojran

For Dojran, the AQAL analysis (fig.9) showed a town highly dependent on seasonal tourism and vulnerable to environmental degradation, particularly pollution of Dojran Lake. Despite strong tourism potential, limited citizen engagement and outdated infrastructure weaken the town's resilience capacity.

•Upper-Left Quadrant (Individual-Interior): Dojran's residents strongly identify with the lake as a source of livelihood and pride. However, ecological degradation has generated anxiety and a sense of powerlessness among citizens, especially those whose income depends on seasonal tourism. These internal perceptions complicate engagement with long-term planning, as uncertainty breeds short-term thinking.

•Upper-Right Quadrant (Individual-Exterior): Seasonal tourism dictates behaviour patterns—most businesses, services, and public activities follow the tourism calendar. This creates infrastructural stress in peak months and underutilization in off-seasons. There is little diversification of economic activity, and behaviours that could reduce environmental pressure (e.g., waste sorting, energy conservation) remain sporadic.

•Lower-Left Quadrant (Collective-Interior): The town's collective identity revolves around hospitality and lake-centered heritage. Yet, communal rituals are being diluted by mass tourism, and intergenerational transmission of knowledge (e.g., fishing practices, lake stewardship) is weakening. The social fabric remains intact, but there is growing tension between traditional and profit-driven values.

•Lower-Right Quadrant (Collective-Exterior): Municipal institutions are oriented toward tourism development but lack comprehensive environmental planning. EU-funded projects have supported some cross-border initiatives with Greece, but these remain fragmented. Infrastructure upgrades are focused on tourist appeal rather than long-term resilience. Environmental regulations are present but inconsistently enforced.

For Dojran, the proposed strategies are centred on balancing ecological preservation with economic stability. The focus is on sustainable tourism practices that reduce the environmental impact on Dojran Lake, paired with stronger citizen-driven ecological protection programs. Modernizing infrastructure not only supports tourism but also improves everyday quality of life for residents. Cross-border cooperation with Greek municipalities is seen as a key mechanism for expanding both ecological stewardship and regional economic diversification, turning Dojran into a model for transboundary resilience (fig. 10).

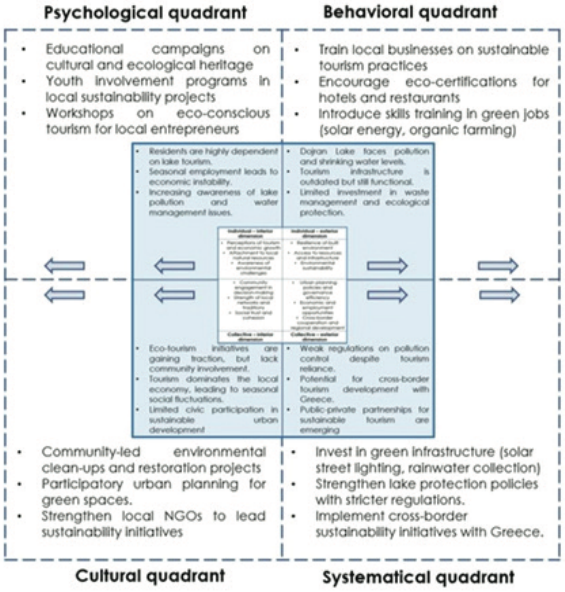


Figure 10: AQAL analysis of Dojran

DISCUSSIONS

The application of the AQAL framework to the three border towns reveals the potential of integral methodologies to unpack complex urban issues that cannot be addressed through sectoral or linear planning approaches alone. By integrating both internal and external dimensions—subjective perceptions, cultural dynamics, physical systems, and institutional capacities—this study demonstrates the necessity of a holistic lens in analyzing resilience in small urban environments.

A key insight from the case studies is the interdependence between civic engagement and environmental sustainability. In Kriva Palanka, for instance, the erosion of youth participation directly correlates with a stagnation in innovative urban planning practices. In Delčevo, strong cultural heritage has not translated into development leverage due to the lack of participatory structures. In Dojran, the absence of coordinated environmental action weakens not only the ecological stability of the lake but also its tourism-based economy. These findings suggest that resilience in small towns hinges not only on infrastructural investments but on activating human capital and reinforcing socio-cultural identity.

This study also reinforces the argument that urban resilience cannot be imported—strategies must emerge from within the specific socio-spatial and ecological contexts of each locality. While Kriva Palanka benefits from its border proximity to Bulgaria, this opportunity remains largely untapped due to administrative fragmentation and underdeveloped cooperation. Delčevo's economic stagnation is symptomatic of broader structural disconnects between national policies and local capacities. Dojran's tourism-focused development model is increasingly unsustainable in the face of environmental degradation and limited year-round economic activity.

From a theoretical standpoint, the AQAL method provided a powerful lens through which to assess both visible and invisible components of resilience. Unlike traditional SWOT or statistical assessments, the integral approach reveals how values, beliefs, governance, and physical systems interact. However, the operationalization of AQAL in urban research remains limited, particularly in Balkan contexts. This study contributes to expanding that methodological base and opens the door for further empirical research applying integral theory in post-socialist or peripheral urban settings.

One limitation of this study lies in the qualitative nature of the data. While interviews with municipal planning officers provided valuable insights, the lack of broader stakeholder input—especially from citizens, civil society, and private actors—limits the scope of interpretation. Future research would benefit from participatory mapping, focus groups, and surveys that capture a more diverse array of perspectives, particularly youth voices, marginalized groups, and seasonal residents (in the case of Dojran). Another limitation concerns the replicability of the AQAL tables in other contexts. While the method is adaptable, it requires local specificity, which makes it less suitable for purely comparative or meta-analysis studies without substantial contextual understanding.

Despite these limitations, the study suggests several broader implications. First, planners and policymakers in North Macedonia must embrace integrated and participatory planning approaches, particularly in towns that lack institutional robustness. Second, resilience strategies must align with local identities and ecological realities—generic urban models cannot be transplanted into towns with distinct histories, capacities, and spatial logic. Third, cross-border cooperation should be reconceptualized not merely as economic alignment, but as a platform for cultural exchange, shared ecological management, and mutual capacity-building.

Lastly, the AQAL framework has significant potential for urban education and practice. By training future planners to think integrally—across disciplines, perspectives, and systems—new generations can be better equipped to navigate the complexity of 21st-century urban transformation.

CONCLUSIONS

The application of the AQAL framework to the towns of Kriva Palanka, Delčevo, and Dojran reveals the complexity and interconnectedness of the challenges that small border municipalities in North Macedonia face. Each town, while shaped by its own unique geographic and socio-economic context, shares common patterns of vulnerability: economic decline, youth migration, environmental pressures, and institutional limitations. These are not merely infrastructural or economic problems, but deeply embedded issues that span cultural, BEHAVIOURAL, and systemic dimensions.

By using the AQAL method—an integral model that simultaneously considers individual and collective, as well as interior and exterior perspectives—the analysis was able to go beyond surface-level diagnostics. It exposed how individual attitudes and BEHAVIOURS, community values and cohesion, policy structures, and physical infrastructure are all interrelated in shaping a town's capacity to withstand and adapt to change. This multi-perspective approach allows for a more realistic understanding of urban resilience, particularly in towns that cannot rely on the institutional strength or economic diversity that larger urban CENTRES possess.

The final AQAL tables for each town synthesize this complexity into a clear pathway forward. For Kriva Palanka, the priority lies in revitalizing civic engagement and capitalizing on its strategic location near the Bulgarian border. Delčevo must address its workforce limitations and reimagine its economic identity by leveraging sustainable agriculture and cross-border partnerships. Dojran, with its deep dependence on lake tourism, must transition toward an environmentally conscious and diversified local economy that preserves its natural assets while offering long-term stability.

Implementing the proposed solutions demands a multi-level and participatory strategy. Local governments must take the lead in initiating change but must do so by building coalitions with civil society, regional institutions, and external partners such as the EU and NEIGHBOURING municipalities. Education and awareness campaigns, participatory urban planning, targeted infrastructure investment, and policy alignment with national and regional development goals will all be essential steps. Equally important is the creation of feedback mechanisms—channels through which citizens, planners, and decision-makers can assess the impact of changes and continuously adapt their strategies.

Ultimately, the AQAL analysis affirms that building urban resilience in small towns is not simply a matter of technical planning—it is a cultural, social, and political process. Only by addressing the subjective experiences of communities alongside objective development needs can these towns become not only more resilient but also more equitable, inclusive, and capable of thriving in an uncertain future.

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CITY QUARTERS AS A MECHANISM FOR URBAN REGENERATION CASE STUDY OF CITY QUARTER J14-RASADNIK SKOPJE

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ABSTRACT

Urban planning is a long and complex process that requires careful consideration of various social, economic, and environmental factors to ensure sustainable urban development. It begins with gathering relevant and comprehensive data on the demographic, economic, social, and environmental aspects of the area in question. This data enables detailed analysis and evaluation, and helps set clear planning goals and strategies including transport infrastructure, housing, and green spaces.

This paper discusses the background, necessity, goals, methods, and results of the urban renovation of the city quarter J14-Rasadnik, Municipality of Kisela Voda in Skopje. Moreover, it largely raises the question of finding the most appropriate solutions for the urban renewal of the currently dysfunctional J14-Rasadnik city quarter by applying international design standards adapted to local conditions and resident's needs as primary users of the area.

The methodology combines theoretical analysis with a practical architectural-urban proposal for the district in question, developed in accordance with the guidelines of the International Competition for a Conceptual Solution for the city district J14-Rasadnik published in 2022.

The resulting proposal aims to provide a detailed overview of a new, architectural urban solution for the city district J14-Rasadnik, Skopje, through which the area's spatial and cultural identity are preserved while improving its residential, socio-economic, and environmental conditions. This proposed solution aims to show how sustainable development strategies can be effectively implanted in a local context, while remaining adaptable to urban planning challenges.

Keywords: urban planning, urban renovation, city quarter JI14-Rasadnik, architectural-urban proposal

INTRODUCTION

This paper focuses on the current urban renewal challenge facing the city quarter J14-Rasadnik, where rapid and poorly planned urbanization has led to its dysfunction. The role of the residents of the city district in question and of the city of Skopje more broadly, as primary users of the space is central to this study, emphasizing the need to develop resilient urban areas fully adapted to local social, economic and environmental conditions. This research aims to propose a series of solutions for sustainable development that balance the preservation of the spatial and cultural identity of the area, while improving the quality of life of its citizens.

Urban planning as a discipline focuses on finding solutions that "suit all users", compared to architecture as a discipline in which the main focus is on the buildings themselves, while the relationship between the user and the public space is often put in the background (Elrahman & Moureen, 2020). To bridge this gap, urban design has emerged as a new third discipline, combining elements of both fields, with urban designers playing a key role in shaping the cities through creating high-quality architectural-urban projects, where resident's needs are prioritized. Despite the fact that urban designers are promoted as shapers of the city, nevertheless, within institutional frameworks, urban planners still have the power to make decisions about the city, creating them and actively participating in the development policies of urban planning (Elrahman & Moureen, 2020).

Sustainability is another important point which has become a fundamental principle in contemporary urban planning, addressing environmental, social and economic aspects. Integrating sustainability into urban planning ensures a high quality of life for residents, while at the same time minimizes the ecological footprints, the waste and negative environmental impact (Stephen M. Wheeler, 2014). This is aligned with the Sustainable Development Goals (SDGs) (United Nations, 2015) prioritizing efficient use of resources, resilience to climate change, and creation of healthy, inclusive communities (Newman, 2008).

Throughout the pages of this paper, practical solutions are proposed for the urban renewal of the city quarter J14-Rasadnik, municipality of Kisela Voda, Skopje. As urban designers, the authors of this paper, developed a practical proposal for the urban revitalization of the area, in accordance with the program guidelines defined by competitive urban planners in the International Competition for a Conceptual Solution for the city quarter J14-Rasadnik. The proposal aims to take advantage to the site's overall potential and its cultural memory to guide the urban regeneration process.

GOAL & OBJECTIVES

The main purpose of this paper is to explore the intersection of urban planning and architecture on one hand and urban design on other, by developing a sustainable architectural-urban conceptual solution for the existing city quarter J14-Rasadnik, Kisela Voda municipality in Skopje. This research highlights the urban design as collaborative discipline that integrates multiple disciplines to create functional, threedimensional forms and spaces for people that function effectively with each other (Diasa, Curwellb, & Bicharda, 2014).

A key objective is to identify the main strengths and weaknesses of the existing city district, proposing practical and innovative solutions grounded in both theoretical knowledge and local conditions. The goal is to create new spaces that strive to improve the socio-economic and environmental wellbeing of the district and its residents (Waterman & Wall, 2010).

METHODOLOGY

The applied research methods in this paper are both theoretical and practical. They focus on the current situation in which a dysfunctional neighbourhood is located and the possibilities for its improvement.

The theoretical methods are firmly supported by a clear follow-up of defined project guidelines for the city district J14-Rasadnik, Municipality of Kisela Voda in Skopje, precisely specified in the publicly announced International competition for a Conceptual Solution for Rasadnik, published in 2022. The program guidelines were prepared by experts from relevant public and governmental institutions with an active involvement of the residents of the city of Skopje. On the other hand, the practical methods aim to show how scientific knowledge about the city district in question, following the defined guidelines, can be implemented in practice, thereby creating a new, high-quality, modern architectural-urban solution for the existing city district, developed by the authors of the paper.

Taking into account the spatial and memory qualities of the area, we appreciate that with proper planning it has the potential to offer numerous residential, physical, socio-economic, and ecological perspectives. It is precisely the new proposed solutions for the renewal of the settlement presented in this paper that follow the principles of sustainability for balanced economic, social, and environmental development of the area and beyond. Thus, it is expected that they should become a relevant basis for further development of urban and project documentation.

Furthermore, the methodology used here aims to inform the creation of new urban planning policies and regeneration programs that could be applicable to other cities or districts facing similar issues of inefficiency and

dysfunctionality.
Overall, this study adopts a mixed methods case study approach, combining spatial analysis, and design iteration to diagnose conditions and propose context sensitive solutions.
Data collection and data analysis used as main methods in the research process, as well as the main objectives and sustainability criteria are presented in the following sub-paragraphs.

Data Collection

- Spatial & Document Analysis: Reviewed the GUP 2012–2022, competition zoning briefs, and earlier plans. Mapped infrastructure and green cover using municipal GIS and field surveys.
- Design Prototyping: Iterative workshops produced block layouts, green blue infrastructure strategies, and mobility networks, guided by best practices and the competition brief.

Data Analysis

- Quantitative: Measured density, green space per capita, and pedestrian/bicycle path lengths.
- Qualitative: Thematic coding of interviews and workshop content, identifying engaged themes like connectivity, recreation, and sustainability.

Objectives and Sustainability Criteria

- Objectives: developing a sustainable urban regeneration plan for J14 Rasadnik.
- Sustainable Criteria: applying sustainable principles of balanced land use, green spaces, efficient infrastructure, and inclusive public spaces, based on competition guidelines.

Table 1 shows the parameters of the project for J14 Rasadnik.

Numerical indicators of planned state by group of classes of purpose			
Urban Unit (Quarter)	**Groups of land purpose classes**	**Area (ha)**	**Percentage of participation in the area of planning scope (%)**
J14	A - Housing	3.22	3.92%
	B - Commercial and Business purposes	1.92	2.34%
	V - Public activities and institutions	0.91	1.11%
	D - Greenery, recreation and memorial spaces	37.86	46.12%
	E- Infrastructure	4.70	5.73%
	Zone of existing buildings	33.48	40.78%
	Total:	82.09	100%

Table 1: Table of parameters regarding the project

URBAN REGENERATION AND THE ROLE OF URBAN NEIGHBOURHOODS

Urban regeneration is recognized as one of the most effective tools used not only for driving economic development, but also for promoting more inclusive, resilient, safer and sustainable cities (UNHabitat, 2021). Taking in consideration that this study focuses on the city district J14-Rasadnik, Skopje, an area heavily affected by rapid and informally planned urbanization, a significant dysfunction within the district has been detected. This dysfunction can be defined as a result of several factors among which overpopulation, caused by the increased migration from villages to cities, plays a major role.

The urban regeneration strategies applied in this research follow the key principles for urban revival such as: reviving nature in cities, decarbonization, decentralization of city core and services, considering nature as key aspect, using modern technologies to anticipate, prevent, and mitigate effects of the climate change (UNHabitat, 2021), whose main aim is to strengthen social cohesion and economic sustainability within urban settlements nowadays.

One of the most important policy frameworks for integrated urban development in Europe named "New Leipzig Charter 2020" serves as a reference example of a policy that focusses on the transformative power of cities for the common good. By promoting integrated and sustainable urban development, it aims to improve overall living conditions in European cities (especially in the most deprived urban neighbourhoods) (European Commission, 2020). This makes the policy more relevant and applicable than ever throughout European cities.

By framing the research within the concepts developed in „New Leipzig Charter 2020", this paper presents a sustainable architectural-urban vision for the city district J14-Rasadnik that respects its unique local context, while contributing to broader urban policy goals.

THE CURRENT GENERAL URBAN PLAN OF SKOPJE AND THE DIVISION INTO QUARTERS WITHIN THE PLAN - CITY QUARTER J14-RASADNIK SKOPJE

The planning concept of the current General Urban Plan of the city of Skopje is based on the concept of the General Urban Plan of the City of Skopje from 2002 (planning period 2001-2020) (Lazarevska & Markovski, 2019), the analysis of the space and the possibilities for spatial development where the planning documentation is defined by the Law on Spatial and Urban Planning and the urban planning norms (The Offical Gazette of the Republic of Macedonia: No. 51/2005, 137/2007, 151/2007, 91/2009, 124/2010, 18/2011,53/2011, 144/2012, 55/2013, 163/2013 and 42/2014. Law on Spatial and Urban Planning, n.d.). Although formally expired, this General Urban Plan is still in force, until the adoption of the new plan planned for the period 2022-2032, whose adoption procedure is still in process.

According to the current General Urban Plan 2012-2022, the territory of the city of Skopje is divided into 11 regions (Fig.1), which include a total of 162 city quarters (Fig.2). For each quarter, the plan sets general parameters such as land use, maximum housing density, maximum height, average percentage of built-up area, city infrastructure and superstructure (GUP na Grad Skopje, n.d.).

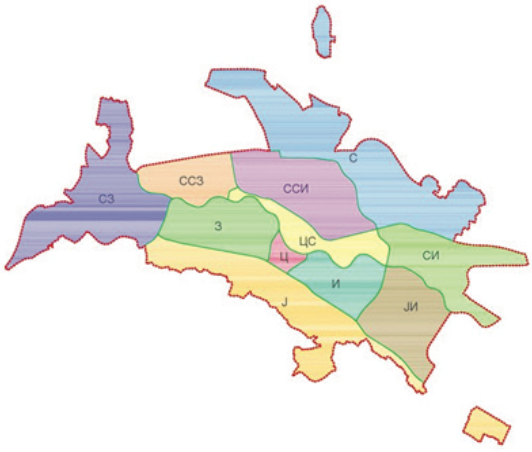


Figure 1: GUP 2012-2022. Division by regions (МАРХ Македонска АРХитектура)

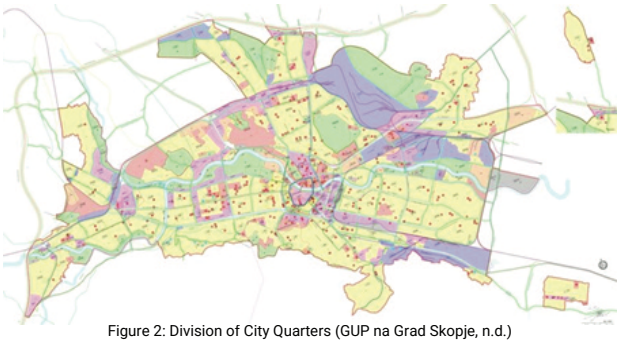


Figure 2: Division of City Quarters (GUP na Grad Skopje, n.d.)

A NEW VISION FOR THE CITY QUARTER J14 - CASE STUDY

After the local elections in 2021, the new authorities of the Municipality of Kisela Voda cancelled the DUP of Rasadnik from 2020 due to its significant mismatching with the current GUP. That disputed DUP had devastating proposals for the urban development for this sensitive part of southeast district of Macedonian capital. For example, the number of new dwellings constructed area according to this DUP was 943.771 m2, and the area for residential buildings according to the general urban plan is 260 000 m2. Also, the number of planned citizens with that debated DUP was 29 039 and from GUP this number is limited to 8 000 citizens. The financial needs of construction investors and the approach of "use the land as much as we can" were the pillars that dictated the brief and the project program of the plan. That was a DUP without green zones, area reserved only for dwelling buildings without respect to current lash green zone, without respect of constant citizen needs: clear air, more natural ventilation of the city, more recreation areas, and more open public spaces for everyone.

The International Architectural Competition for Rasadnik launched in 2022 by the Municipality of Kisela Voda was the answer of this disputed detailed urban plan.

The main issue that affects the observed quarter is that the Detailed urban plans that were proposed for this urban area did not respect the main parameters determined from the GUP such as the oversized residential structures, the density of population was increased several times and the percentage of green space was significantly diminished and neglected.

According to the Municipality of Kisela Voda and its authorities, their initiative was to design a high-quality urban space that will fulfill resident's needs for public functions such as education, healthcare, social services, culture, sports, recreation and green spaces including green park that will encompass all the amenities.

For the purposes of this research, and in accordance with the pre-defined program directions defined in the published International Competition for conceptual solutions for the existing city area J14-Rasadnik published in 2023, we developed a proposal for an architectural-urban solution for the area in question, which offers new perspectives for further urban development of the area.

This proposal was created as part of the competition process, which aimed to address the current dysfunctions of the city quarter by applying sustainable urban regeneration principles and integrating local social, economic, and environmental conditions. The competition brief set clear conditions regarding land use, infrastructure, green spaces, and the preservation of the area's spatial and cultural identity, which guided our design approach.

The project's spatial limits correspond to the planning scope of the J14-Rasadnik city quarter as defined in the General Urban Plan of Skopje 2012-2022, which is bounded by four primary traffic corridors, as shown in Figure 3.

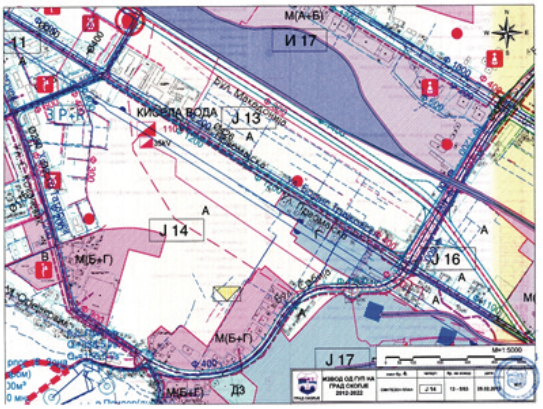


Figure 3: City Quarter J14- Rasadnik, (GUP na Grad Skopje, n.d.).



Figure 4: Existing zone division of J14-Rasadnik

Regarding the intended use of the land, what is important to mention is that the planning scope of the analyzed city district J14-Rasadnik in its current state is divided into 4 zones: zone 1, zone 2 , zone 3 and zone 4 (Fig.4). The subject of a more detailed analysis in this project in accordance with the competition rules and guidelines, was the area of Zone 1, the only zone which is not inhabited or constructed. With its 25.38 ha it differs significantly from other zones in terms of the degree of complexity and the required degree of detail requested to be elaborated. The other zones, Zone 2 and Zone 3 are also part of the project, areas that could keep some of the existing structures according to the rules of the competition's brief (Municipality of Kisela Voda, 2022). The new parts of the quarter are divided in 11 blocks (Fig.5) defined as logical units encompassing mixed-use urban character. Dividing the area on to smaller blocks influences on enhancing the sustainability, through prioritizing walkability, reducing car dependence, better natural ventilation, more efficient land use, promoting social interaction etc.

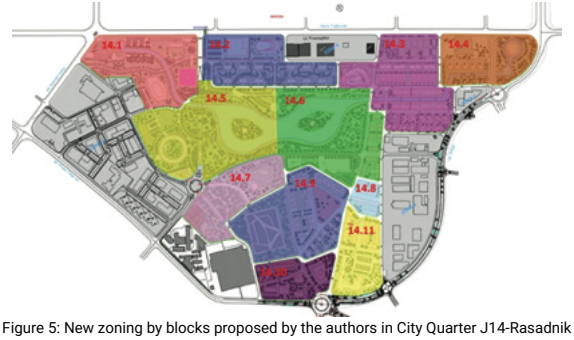


Figure 5: New zoning by blocks proposed by the authors in City Quarter J14-Rasadnik

Our team responded to the competition with delicate sensitivity, proposing sustainable urban and architectural structures that will not only improve the new planned area, but also it will improve the life quality of all neighboring areas around the city quarter J14, incorporating many sustainable aspects. One of the most important goals for every architectural project is not only to promote new qualities in the new buildings, but also to improve the life quality of every citizen in the surrounding areas and to increase the real estate values of their property. (Andovski, Urban Development of Skopje, 2020). Guided with this goal but also taken in consideration the severe propositions of the competition we managed to answer to all architectural and urbanistic challenges for this project.
In order to achieve urban regeneration and sustainable resilience of this quarter, besides responding to the basic demands from the competition brief elaborated in the previous chapters, we achieved to design a new city quarter with the following nine important features. Those parameters are results of the individual and teamwork research. The priorities for the design process were the result of the previous chapters:

Pedestrian and bicycle connectivity as new path infrastructure and improved safety features
New and current users of the planned space will have opportunity to link with the center of the town without direct crossing any street or boulevard using new independent infrastructure. (Andovski, Јавниот простор во урбаниот пејзаж, 2011). Therefore, the new planned pedestrian bridge that is surmounting the boulevard "Boris Trajkovski" is positioned in the northern part of the quarter, (Fig. 6) between the planned swimming pool and the mini zoo in first part, and in the second part the pedestrian link is close to the current pedestrian track that follows the railway towards the center of Skopje. The safety for its residents is enhanced by the introduction of underground street that will enable direct pedestrian and bike connections on the ground floor level between the school and the kindergarten and the Central Park without crossing any street. Prioritizing pedestrian and bicycle infrastructure over car-dominated movement reduces carbon emissions, air and noise pollution. Moreover, it promotes physical activity, social interaction and a sense of community.

Creation of new canal and lake with two islands
One of the main goals of this project is to bring the citizens of Skopje closer to the nature and in the same time to promote organic farming. (Gehl, 2010). There are numerous studies that show the positive aspects of biophilic design on users (Terrapin Bright Green, 2017). Besides the massive organized green park and green zones, we proposed also water canal and artificial pond (Fig. 5) with two islands. One island is planted with domestic fruit trees and the other island is representing the wild fruit wood trees. Both islands are places where the user can taste the fresh fruits directly from the trees or have variety of fresh smoothies. The future users of this space will have benefits of all these new pubic contents that begins with renting a small boat at the Landmark "Observing Tower" area at the north eastern corner of the location. Then, the users can continue their trip with the same ticket to the islands and finish the visit at the new planned botanical garden and the mini zoo. The mini zoo garden will have open and closed area offering new quality for the new and existing residents.



Figure 5: New lake and new residential area Quarter J14-Rasadnik

The clients for this boat trip could be not only the locals and tourists, but it could be frequently used by the students (with reduced price ticket or free of charge) from the new designed primary school and kindergarten according to their educational needs and possibilities to learn from real natural examples of flora and fauna.
A key sustainable feature of the project is the water management system. The regulation of the level of the water in the lake and canal will be controlled by using the source of the existing well that will fill up the lake at the desirable level. Also, the excess water will be used for irrigation of the greenery in the park and the surrounding greenery using underground pipeline infrastructure. As a result of this, the lake will have sustainable clear water, and the plants and trees will have always enough water during the whole year.

New life for Agricultural Institute

The new botanic garden (Fig. 6) is juxtaposed with the current Agricultural Institute having public part and private part that is planned to be the annex of the current Institute for the research purposes. This part of the quarter could be also used for educational purposes from the new and current surrounding schools.



Figure 5: New Figure 6: Botanical Garden (A); Mini Zoo (B); Current Institute (C) and new residential area Quarter J14-Rasadnik

Preservation of existing trees

Our care for preservation of the existing trees at the Rasadnik quarter is represented with our proposal for diagnostics for all trees in the project area by a competent biologist in order to recognize which trees can be replanted in the new designed green places of the planned landscape. Moreover, in the southern area in the Zone 3, we are keeping all existing trees that will be incorporated with the new Green Mall of open character, new tennis bar and tennis fields creating an open public space that is directly surrounded by lush nature (Fig. 9). This approach not only emphasizes sustainability and biophilic design, but also promotes urban greenery by maintaining mature trees, reducing the need for new planting and supporting local ecosystems.

Promoting sport activities

Promoting sport activities and active lifestyle is an opportunity to focus on the social aspect of sustainability. This is reflected in many points in our project: the New Swimming pool (designed with water recycling technologies), kayaking in the new lake and canal (1500 meters in one way), running track around the lake built with sustainable materials, two open sport field areas (between the school, the kindergarten and the tennis courts), biking in the selected and organized infrastructure in the quarter and the surrounding areas etc.

Replacing the substandard houses and infrastructure

Our idea for the current substandard and dilapidated residential area in Zone 3 (Fig. 8) was to create new architectural proposals of series of row houses, free standing houses and residential multistory buildings. Actually, the idea was to enable much better living conditions to the current users of this space, proposing one more additional level compared to the old buildings. This new residential area could be constructed from scratch by a possible investor who can provide new apartments/houses to the current owners (of old houses with only one level) and the second level will be for the investor. With this procedure we could enable an economical sustainability and feasibility of this part of the project for Rasadnik, which covers the economic aspect of sustainability.

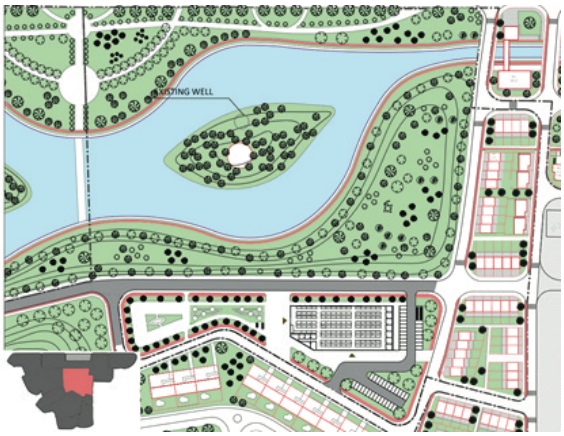


Figure 8: Part of the lake (A), Green Market (B) and new low-rise building area (C)

New commercial areas

Regarding the commercial zones and new proposed building in this quarter we envisaged: green market, open Green Mall (shopping mall + cinema + performance area), and small and exclusive shops in the ground floors of multistory residential buildings. This part of Rasadnik will not only satisfy the needs of its inhabitants, but also it will serve to all surrounding current residential areas.

Outpatient Clinic in the southern part (in Zone 3)

This proposed facility will reduce the lack of health care buildings in Kisela Voda. This clinic was not part of the compulsory contents from the competition's brief, but we decided to introduce this health care facility (Fig. 9) in this quarter because we diagnosed lack of this type of very important citizen's service in the district.

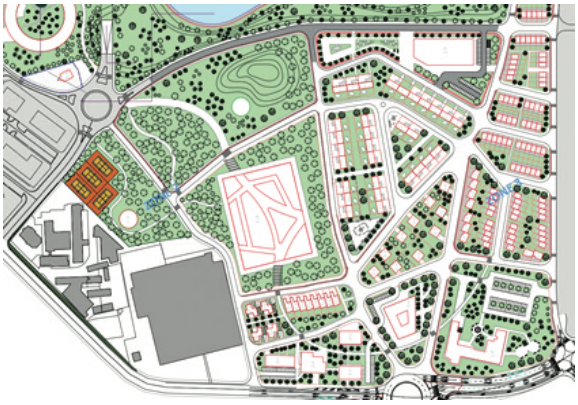


Figure 9: Amphitheatre (A); Shopping Mall (B) Clinic (C)

New public square with open amphitheater

This open amphitheater has multifunctional purpose situated in the heart of this quarter. Its free shape and its character emerging from the artificial hill, is just emphasizing the whole image and idea of this project of the complex that is focused in the nature and inspired by the nature. (Svarre, 2013)

OBJECTIVES AND SUSTAINABILITY CRITERIA

The sustainable aspects of the project are one of the main points in the study. Table 2 illustrates the connection between each major design element of the proposed urban regeneration project and its corresponding objectives and sustainability criteria. This matrix highlights how the integrated design approach addresses key social, environmental, and economic goals outlined in both the competition brief and international sustainability frameworks. By clearly linking interventions to measurable criteria, the table reinforces the project's potential to serve as a replicable model for sustainable urban development in post-socialist contexts.

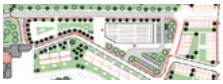
Design Element	Visual representation	Objective	Sustainability Criteria
Pedestrian & Bicycle Connectivity		Improve mobility, reduce car dependence, increase safety; Ensure that the whole area is covered with bicycle and pedestrian lanes	Sustainable transport, reduced emissions, social inclusion
Canal and Lake with Biophilic Islands		Reconnect people with nature, promote recreation and urban farming	Biophilic design, water reuse, health and well-being, food security
Botanical Garden & Mini Zoo		Educational and ecological value, support biodiversity	Environmental education and awareness, biodiversity conservation, ecological awareness
Preservation of Existing Trees		Retain natural heritage, reduce carbon footprint	Urban greenery, CO_2 absorption, habitat preservation
Sports & Recreational Facilities		Foster healthy lifestyles and community cohesion through open and closed sports areas	Social sustainability, public health, inclusiveness
Replacement of Substandard Housing		Upgrade living conditions, respect existing residents	Social equity, economic feasibility, inclusive development
Commercial Zones (Green Market, Mall, Shops)		Ensure economic viability, support local business	Mixed land use, local economy resilience, walkability
Outpatient Clinic		Address healthcare access gaps in the neighborhood	Social equity, health infrastructure, inclusive urban services
Public Square with Amphitheater		Create cultural and community gathering space	Cultural sustainability, placemaking, community engagement

Table 2: Linking Design Elements to Objectives and Sustainability Criteria

CONCLUSIONS

The case study of the City Quarter J14-Rasadnik in Skopje highlights a significant urban development proposal that combines sustainability, functionality, biophilic design, and human-centered design within the framework of the current General Urban Plan in Skopje. It emphasizes the importance of equal distribution of all sustainable aspects, environmental, social and economic. Moreover, it highlights the necessity of evaluating the environmental performance, but at the same time the need for focusing on the community well-being and resilience. As cities evolve, planners and designers must prioritize green infrastructure and public spaces to promote social interaction (Gehl, 2010). The application of diverse, sustainable materials, and re-use of materials (Janakieska, 2024) is also a key segment of the global goals set out in 2030 Agenda for Sustainable Development (United Nations, 2015). The central research questions focused on how urban design interventions can address social, economic, and environmental challenges in neglected urban neighborhoods while preserving local identity and improving residents' quality of life.

This final project is practically a result of several stages of the process which are inevitable in the design process. Commencing with data collection and analyzes, continuing with gathering designing proposals that reflects the competition brief and our independent research, it finishes with concreate urban plan that includes all systemized priorities.

The findings reveal a holistic approach incorporating sustainable practices, biophilic design, green infrastructure, and better pedestrian and bicycle connections. The integration of multifunctional public spaces, mixed-use developments, and reuse of existing land aligns with global sustainability goals and responds directly to the specific dysfunctions identified in J14-Rasadnik, such as overpopulation and fragmented urban fabric.

This study also is highlighting the challenges and limitations, including the complexity of coordinating multi-stakeholder involvement and ensuring long-term resilience of proposed solutions. These limitations are showing the need for continuous community engagement in the regeneration of the urban spaces.

By grounding the architectural-urban proposal with solid theoretical and practical framework, this research represents a model for other post-socialist cities facing urban dysfunctions. It demonstrates that sustainable and human-centered urban regeneration requires not only innovative design but also a systemic approach that integrates social, economic, and environmental dimensions.

Ultimately, the J14-Rasadnik case exemplifies how strategic urban design can transform neglected city quarters into vibrant, resilient neighborhoods that meet contemporary urban challenges while honoring local identity.

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GOING BEYOND THE BRONX. COLLABORATIVE MAPPING AS A TOOL TO OVERCOME INEQUALITIES IN HOUSING RIGHTS IN EAST NAPLES

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ABSTRACT

The ongoing regeneration of Taverna del Ferro housing estate in East Naples, known as an area of urban and social marginalisation, represents a pivotal phase of transformation, driven by funding from the National Recovery and Resilience Plan (NRRP).
The City of Naples is striving to develop innovative regulatory approaches, particularly by creating new forms of social agreements that ensure the active participation of community members in the ongoing transformations.
This paper presents the results of a mapping activity carried out with the "Taverna del Ferro" Fight Committee and inhabitants by researchers involved in the regeneration project. In anticipation of the opening of the construction site, the primary objective of the survey was to capture an overview of the formal and informal uses of the ground-floor spaces in the Taverna del Ferro residential buildings and the surrounding garages. The mapping was complemented by interviews with key local witnesses from the community and associations.
The case study prompts reflection on the role of participatory mapping and interviews as tools for actively involving inhabitants in the housing estate regeneration according to their requests and experience in the neighborhood. This approach serves as a lens for analysing the relationships between local stakeholders, unfolding inequalities and power relationships, thus addressing potential conflicts during the housing transformation process.

Keywords: participatory governance, inhabitants' engagement, regulatory innovative approaches, housing regeneration processes, housing rights

INTRODUCTION. THE REGENERATION OF TAVERNA DEL FERRO HOUSING ESTATE IN EAST NAPLES AS PART OF THE NATIONAL RECOVERY AND RESILIENCE PLAN

The ongoing regeneration of the Taverna del Ferro housing estate in San Giovanni a Teduccio, infamously known as the Bronx, marks the beginning of a significant urban transformation in a neighborhood that has historically been burdened by social and urban decay.

The project, funded through the National Recovery and Resilience Plan (NRRP), is part of Mission 5 of the NRRP, based on "Inclusion and Cohesion," which aims to regenerate the most vulnerable urban areas through Integrated Urban Plans. This contribution describes a participatory planning approach adopted by the City Administration of Naples to manage the urban regeneration of the neighborhood that was useful to unfold inequalities in housing rights and accompanying the ongoing transformation process.

The San Giovanni a Teduccio neighborhood, located in eastern Naples, is a coastal area stretching from the eastern side of the harbor to the city limits. Although the district lies along the coast, it has been separated from it for a long time due to the presence of the railway line, the first in Italy, which was built in the 19th century. The area between Corso San Giovanni and the sea, from Vigliena to Pietrarsa, is considered a historical residential suburb. It features a dense urban fabric around the main road that connects to the city center and the towns of the Vesuvius area. Today, the neighborhood is semi-central but still considered outside the city. It is composed of public housing estates that have developed near disused factories.



Figure 1: Map of San Giovanni a Teduccio neighborhood (elaboration by the authors)

In February 2024, the first construction site of the Integrated Urban Plans (IUP) opened, with the aim of redeveloping the Taverna del Ferro public housing estate. The intervention has an articulated financial framework of EUR 106 million from various sources, mainly related to NRRP. Access to these resources puts considerable pressure on public administrations, requiring an effective organisation of the administrative mechanism that has hardly been experienced so far.

The City of Naples is called upon to address historically unresolved issues related to public housing and the consequences of a chronic housing crisis. The regeneration of the public housing estate, in a state of serious degradation, is a structural problem of the city, a long-term emergency to be governed (Berruti, Mattiucci, Laino 2023). In Naples, effort is being made to use regularization tools to bring under control situations that have long operated outside formal channels.

In Taverna del Ferro, squatting for housing needs has become the norm. In order to be recognized inhabitants constituted a Fight Committee advocating for the right to housing. From the beginning, the city administration established a dialogue with the “Taverna del Ferro” Fight Committee.

The project, drawn up by the City of Naples in collaboration with the Department of Architecture (DiARC) of Federico II University of Naples, was preceded by an in-depth study of the context and constructed through a participatory process, which was fundamental to bring out the needs and inhabitant’s priorities. In fact, the

project is articulated on a twofold level: in addition to physical and infrastructural interventions, it envisages social accompaniment policies and co-design paths, with the aim of generating a lasting impact on the social fabric. The project involves demolishing existing buildings to make way for 28 new, low-density, energy-efficient housing structures. These structures will be organized into open, interconnected urban blocks enriched by public spaces that focus on proximity, quality of life, and well-being. Completion of the project is planned for 2027.



Figure 2: The project of Taverna del Ferro (source: Municipality of Naples)

The start of the construction site marks the beginning of a complex and synchronized sequence of actions: the demolition of disused sports facilities and garages in the northern part of the settlement is preparatory to the progress of new housing construction, the mobility of inhabitants from old houses to new ones, and the demolition of existing buildings within the planned deadlines.

This contribution recounts a significant moment within a process initiated in November 2023, the participatory mapping of the ground floors of residential buildings, carried out immediately prior to the opening of the Taverna del Ferro construction site. The mapping activity was part of a survey conducted in close synergy with the "Taverna del Ferro" Fight Committee.

The contribution reflects on how the expectations and perceptions that emerged through mapping and interviews can be translated into concrete design strategies. The importance of integrating crucial issues into the project, such as enhancing the local informal economy and improving the quality of public spaces, is emphasized. This integration is crucial to ensure that urban transformation does not result in processes of displacement or social exclusion.

After defining the methodology adopted, this contribution first reconstructs the portrait of the neighborhood that emerged from the field investigation, highlighting narratives, hopes and rights; it describes the current phase of civic participation through the relations between the administration and the Fight Committee; it recounts the mapping operation in detail, and then delves into the current picture of resisting uses and activities. Finally, the paper sums up the findings both in relation to the results of the mapping and the emerging power relations, thus providing a key to dealing with inequalities in housing rights.

METHODOLOGY

Participatory mapping is part of a critical tradition of cartography that focuses on subjective, social, and political aspects. In opposition to the Euclidean-Newtonian paradigm, which conceives of the map as an objective representation of space (Mugerauer, 2000), participatory mapping has developed as a device through which official plans can take shape from a collective dialogue among heterogeneous actors aimed at identifying common interests and shared actions (Healey, 1992). As highlighted by Saija and Pappalardo (2022), the value of the map resides not so much in its technical accuracy as in the quality of the participatory process from which it emerges. The mapping activity was developed with the aim of avoiding any tensions that could have jeopardised the start of the construction site, while at the same time gaining an in-depth understanding of the socio-spatial dynamics of the area. A central aspect of this phase was the analysis of the spaces used as garages and earmarked for demolition, to identify their uses and functions, which are often suspended between

formal and informal practices.
Alongside the mapping, the interviews were used as an opportunity to reconstruct a portrait of the neighborhood, a cognitive picture of the rights reclaimed by the inhabitants.
The interaction with the community was based on a dialogical approach based on active listening (Sclavi, 2003) capable of also enhancing the non-verbal dimensions of communication and fostering the construction of relationships based on mutual trust. The lack of up-to-date floor plans and the fragmentary nature of the information available made it necessary to carry out a preliminary phase of research and systematisation of the existing materials, with the aim of constructing suitable tools for the survey. The following were produced: descriptive cards for boxes and commercial activities, typological plans of ground floor spaces and garages along the Taverna del Ferro Street, a coding system for the identification of spaces, and an interview scheme aimed at reconstructing emerging criticalities.
An active core of the Committee participated significantly in the whole process, helping to communicate with inhabitants about the imminent opening of the construction site for the new housing and the consequent need to empty the boxes, which must be demolished.
Thanks to the information gathered by the Committee, it was possible to associate each box with its user, identifying the relevant housing unit (staircase, floor, interior). After the mapping, the issue of box garages was further explored through the analysis of archival documents.
At the end of the process, the data collected were shared with the Municipal working group, becoming a common ground and an operational resource for the subsequent phases of the project.

THE NEIGHBORHOOD PORTRAIT: NARRATIVE, HOPES, RIGHTS IN TAVERNA DEL FERRO

The Taverna del Ferro (TdF) public housing estate is in the heart of San Giovanni a Teduccio neighborhood, in East Naples. San Giovanni a Teduccio experienced a period of prosperity thanks to the presence of numerous factories, now disused. Several interviewees recall that era with nostalgia, marked by intense production activity and the presence of “seasonal workers” employed by the Cirio industry, until the decline in the 1980s.
The 1980 earthquake was a turning point for the district, generating profound changes. Many reconstruction projects remained unfinished, with serious economic and social consequences.
Post-earthquake reconstruction programmes led to the creation of new public settlements, including TdF. The housing estate consists of two parallel building blocks, each 35 metres high and about 250 metres long, separated by 10 metres. The two blocks, each consisting of eight floors, house a total of 360 dwellings.
However, this area was often negatively labelled with epithets such as “Bronx” or “Camorra fort”, as evidenced by inhabitants' testimonies (Berruti & Lepore, 2008). It was only in the second half of the 2000s that the first project was launched to thin out and redevelop the complex, involving the demolition of some buildings and the relocation of families to new housing.
One of the main obstacles to the management of these spaces is the difficulty for public administrations to obtain up-to-date and reliable data on the conditions of households and the occupancy of public housing. Often, accurate information is lacking or access to the properties is impossible. In Italy it is not uncommon for housing to be occupied informally (Chiodelli, Coppola et al. 2021; Esposito & Chiodelli, 2021) and spontaneous practices of appropriation and self-organisation to emerge in shared spaces (Cellamare, 2018).
To address this information gap, the Municipality of Naples conducted a door-to-door census that identified 332 households and 1,116 inhabitants in TdF, including occupants and assignees.
Taverna del Ferro began to deteriorate as early as the 1990s. With progressive degradation also came the phenomenon of squatting, which began immediately after the building site was closed (Magliulo, 2013), and an increase in crime. Constant media stigmatisation contributed to increasing the sense of insecurity, further isolating the neighborhood. Over the years, only a few shops have opened on the ground floor of the buildings, and many of these businesses have since closed.
Taverna del Ferro, once known as “the new houses”, was identified with the term “Bronx”, fuelling prejudice and a sense of shame among the inhabitants themselves. Many preferred not to reveal where they lived for fear of social judgement.
In the last ten years, however, the image of the neighborhood has started to change. “Compared to 10 years ago, the situation has clearly improved, also thanks to the opening of the University”, say some interviewees. This change has been accompanied by a progressive civic awakening. To counter marginalisation and ghettoisation, various groups of inhabitants have self-organised to claim multiple rights of access to the city (Lefebvre, 1968; Marcuse, 2009) such as the Taverna del Ferro Fight Committee, established in May 2018.
The City of Naples has involved the Committee in all stages of the ongoing redevelopment process.

CIVIC PARTICIPATION IN TAVERNA DEL FERRO REGENERATION PROCESS

According to Arnstein's (1969) scale of civic participation, the level of participation between the municipal government and the Fight Committee lies between Consultation and Partnership.

A true partnership, which Arnstein defines as a structured form of shared decision-making power through joint committees or equal negotiation processes, has yet to be established. The relationship has progressed beyond the level of consultation, which Arnstein defines as a form of symbolic participation in which citizens can express themselves but have no guarantee that their views will be considered.

Currently, the relationship between the administration and the Fight Committee is a collaboration in which both sides have transparently expressed their interests.

This is not a placation action, in which citizens are granted limited participation only to legitimize decisions that have already been made. Rather, the committee's involvement from the initial stages demonstrates the public administration's intention to develop a more meaningful participatory process.

Although we cannot yet speak of a formalized "pact" between citizens and institutions, the path taken seems to be moving in this direction. This approach stems from the administration's desire to respond more closely to the needs expressed by the citizens rather than impose planning decisions from above. It is a long-term vision of participation based on building mutual trust and creative, coordinated partnerships between citizens and the local government (Gaber, 2019).

INSIDE THE BOXES: BETWEEN CURIOSITY, INTEREST AND MISTRUST

The mapping took place in November 2023 and was carried out in close synergy with the Fight Committee with the aim of documenting the uses of the spaces at street level of the buildings and adjacent garages, in view of the start of the construction site.

The starting point is the Maradona mural, an informal landmark in the neighborhood, very famous and a place of pilgrimage created by the street artist Jorit. The group heads for the garage area on the north side of the complex, overlooking Via Comunale Taverna del Ferro. It is a continuous row of 84 garages, each with a different shutter, sometimes painted, sometimes ruined. The Committee introduces the first information, explaining that the garages do not appear in the formal housing allocation acts. Their distribution took place in the 1980s, verbally, after a lottery among the families assigned two floors of the northern slat. There is no written documentation. Occupation changed over time, following informal logics of exchange between families. Garages have become extensions of domestic spaces, adapted to needs, rather than used for parking. Some garages resemble small shops and function as temporary storage facilities. Others are used for small informal businesses: selling food and drink and storage spaces for commercial activities. Many contain accumulated objects or waste.

The dimensions are small, and access is often obstructed by cars parked in front. One resident points out his own box, recognisable by a Mickey Mouse drawing on the door. He relates that some time ago some young writers had started a customisation project. He states that, if work starts, he will dismantle the shutter to save the drawing. A former worker from the original construction site explains that originally there were only beams marking the stalls: the current partitioning is all later.

The Committee can associate many of the stalls with current users and their homes, thanks to a proximity knowledge built up over the years: delivering parcels, caring for the elderly, dealing with daily emergencies. Some members have a precise mental map of the housing units, their occupancy, and families. The mapping continues with the arrival of several inhabitants. Some take to the streets to be included in the survey, others observe from windows and balconies. Many open their boxes and show how they use them. There is a tavern with a foosball table, used in the afternoons by a group of friends. Others only use the boxes to store household items or work tools.

Inhabitants explain that they do not use the cellars, i.e. the basement rooms allocated to the dwellings, for various reasons: many of them are flooded when it rains, due to water rising from the sewage system; others are inaccessible because the doors have been welded shut, in some cases to prevent access by the police. The cellars are now leftover spaces, no longer functional. Along the way, the group came across several informal businesses. There is a car wash that occupies an opening between the garages, a blacksmith who has set up a small workshop, a seller of gas cylinders, a man who trades homemade soap for used objects.

A first description is recorded: opening hours, use of the space, history of the occupation. Most of these activities are carried out of necessity, in the absence of alternative sources of income. After the examinations in the archive, the box garages were never formally allocated because they were condominium spaces: the maps found in the municipal archives show that they were undivided spaces; the division into individual boxes and the external doors were added later.

The second part of the map covers the ground floor of the buildings, which were originally designed for neighborhood businesses. However, many of the spaces have never been assigned or are now closed.

The start of the construction site for the redevelopment of the district is viewed in different ways. Some inhabitants have no confidence that the situation will ever change. The shopkeepers know that they will have to vacate their garages. Some have already decided to temporarily close their business and hope to get a space in the new premises. Others are thinking of moving to another part of the neighborhood. Others, however, have not yet decided.

A RECENT UPDATE: RESISTING USES AND ACTIVITIES

As a result of the update and interactions with the committee in 2025, three main categories emerged: "frozen" businesses, businesses previously located in the demolished garage units and currently suspended; businesses in transition, interested in opening new businesses in the neighborhood; and new proposals, people who intend to start a business in the neighborhood. Although the total number of businesses has not changed significantly, their distribution has been affected by the demolition of the box garage: some have moved, others have ceased operations.

Meanwhile, the City of Naples has approved a Territorial Pact for Employment and Social Inclusion, an agreement aimed at promoting job placement opportunities for disadvantaged groups and supporting the implementation of projects and actions to accompany them to work. Work is underway to bring these two aspects together to try to encourage the retention of local energies in the transformation, which will at the same time be open to the city.

With the opening of the construction site for the new residential blocks in 2025, a new mapping was conducted to understand who, among the operators of formal or informal activities, would be interested in reopening the activities in the new project.

The main objective is to build guarantees that will enable these operators to be reintegrated into the development project. The Territorial Pact arises directly from mapping, gathers its evidence, transforms it into concrete directions and incorporates it into urban policies.

In this way, the Pact restores value to local knowledge and integrates it into decision-making, contributing to policies that can accompany the ongoing change.

CONCLUSIONS AND FINDINGS

During the active listening process, the complexity of the context was progressively deconstructed to understand and make legible existing relationships.

This case highlights the potential of participatory mapping and qualitative interviewing as tools for co-design, able to make visible relationships, inequalities and power structures that are often submerged, contributing to a more conscious and inclusive management of urban regeneration processes.

Mapping is configured as an interpretive device that helps to unfold and read inequalities: a tool capable of stitching together fragments to provide an overall picture that brings together informal and formal practices and makes explicit the links between behaviours, opinions and narratives that emerged during interviews.

In this context, inequalities emerge on two main levels. On the one hand, the map of the interviews highlights a deeper territorial disparity, linked to the fact that Taverna del Ferro itself is perceived and treated as a marginal part of the city and a place to avoid.

Secondly, disparities among the same occupants are highlighted, related to their legal status. Some traders have expressed an intention to regularise their position to access new spaces, because they believe in the project and see a possibility of improvement. Others, however, express fears related to their irregular status, or the debts accumulated over time for unpaid rent.

In Taverna del Ferro there are conflicts over the management of spaces and “out of norm” situations of various kinds, ranging from the occupation of apartments and spaces to non-payment of rents, to the drawing of lots for the allocation of garage spaces.

The effectiveness of the committee's actions depends on the degree of recognition it enjoys among the families living in the neighborhood. Those who do not recognise the committee as their representative chose not to participate in the mapping activity.

Distrust of a possible transformation generated a growing sense of uncertainty about the future. On the contrary, the committee and inhabitants gradually became convinced of the imminence of the transformation, which had certain dates. Despite different reactions, all inhabitants agreed on the importance of getting the construction site started as soon as possible.

The new mapping of uses and activities at the ground floor of TdF buildings showed how the relocation of some businesses to the ground floors of the buildings has kept the local business network alive and able to be included in the territorial pact approved by the city.

In this scenario, expectations and perceptions that emerged during the mapping and interviews find a possible

space for translation into concrete design actions.

These are interdependent elements that need to be carefully integrated into transformation plans to avoid phenomena of exclusion or marginalization. In this framework, the ability to activate relationships between the actors involved - institutions, planners and inhabitants - is a crucial resource. Participatory tools, such as the mapping, can facilitate this encounter, opening spaces for discussion and co-design that help to make the regeneration process responsive to the needs of local realities and capable of producing sustainable transformations.

The Taverna del Ferro construction site is an open process that aims to accompany the ongoing regeneration process, through the construction of a confrontation on design choices, on the modalities of shared management of some spaces, and on the possible involvement of local actors in some work activities, from the construction site to the maintenance of the transformed neighborhood, within the framework of actions and norms defined by the NRRP. In Naples outskirts, housing occupations, social conflicts and informal practices are common situations. Adopting approaches and tools of investigation that consider the multiple dimensions of the phenomena, addressing the contradictions that arise in the process between the tight timeframe of interventions and the need to adopt contextualized approaches, can be crucial and able to modify the problem-solving routines used by the public administration.

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CHALLENGES AND POTENTIALS OF INSTITUTIONALIZED CO-PRODUCTION A CASE STUDY OF THE REDEVELOPMENT OF HAMBURGS CITY CENTER

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ABSTRACT

In the face of growing urban density, climate challenges, and post-pandemic transformations of European city centers, transformative approaches to civic engagement are urgently needed. Co-production, though widely discussed, remains inconsistently defined and underexplored in practice. This paper offers a theoretical and empirical analysis of co-production in participatory urban development, examining its potential to foster resilient, inclusive cities. Drawing on a qualitative case study of a Hamburg based funding program to re-develop the city center (2021–2025), the study investigates how the concept is operationalized through new working structures between civil society and public authorities.

The findings highlight the potential of co-production to create experimental spaces for innovative socio-spatial practices that extend beyond conventional participation models. At the same time, the limits of time-bound programs, the power dynamics, political influences, and bureaucratic barriers are investigated. By connecting individual perspectives of situated practices to theoretical debates on participatory urban development, this paper provides insights into the promises and pitfalls of institutionalized co-production, contributing to a more nuanced understanding of civic engagement and socio-spatial resilience

Keywords: co-production, civic engagement, public participation, urban development, urban resilience

INTRODUCTION

City centers face acute challenges: shifting consumption habits, rising vacancy rates, and declining visitor numbers- trends that were further accelerated by the COVID-19 pandemic. These pressures raise the urgent question of how resilient, adaptive, and socially inclusive city centers can be designed. Recent planning discourse increasingly emphasizes multifunctionality, adaptive reuse, and civic engagement to align urban development with actual local needs. In this context, co-production has gained prominence as an innovative framework for involving citizens not merely as participants, but as active co-creators of urban spaces. Yet, despite its growing relevance, co-production remains inconsistently defined and underexplored in practical application. This paper examines the potential and limitations of co-production through an empirical case study of Hamburg's federal funding project "Hidden Potentials" (own translation; 2021–2025), implemented under the German national funding program "Future-oriented inner cities and centers" (own translation - ZIZ). The project aims to foster urban resilience by implementing co-creative strategies for new working environments between public authorities, private and civil stakeholders.

The aim of this paper is to analyse the extent to which the concept of co-production is operationalized in practice, to identify the working methods and structures it requires, and to examine the conflicts and challenges that emerge in its implementation. Drawing on a qualitative methodology based on interviews with key stakeholders, the study provides empirical insights into institutionalized, top-down forms of co-production in the Global North. The paper begins with a theoretical framework that traces shifts in urban development discourse from public participation to co-production. This is followed by a presentation of the methodology and methods. The results of the qualitative research are then briefly discussed in relation to the initial theoretical assumptions. The paper concludes with a summary and an outlook on ongoing research into urban development and co-production as a participatory practice from below in Switzerland.

THEORETICAL FRAMEWORK

Urban resilience increasingly demands collaborative planning approaches that actively involve civic actors. Traditional public participatory processes, however, are frequently criticized for the misalignment between their scope, timing, and actual impact. Moreover, participation critique addresses the reproduction of existing power structures (Huning, 2014; Hirscher, 2017, pp. 323–324; Tribble, 2023, p. 49; Rolfes & Wilhelm, 2021, p. 195). Scholars argue that participatory processes may legitimize pre-determined outcomes rather than transform governance structures and thus are politically influenced (Abt, 2022; Huning, 2012; Tribble, 2023). Furthermore, the actual effectiveness of participation would remain uncertain, as the influence of results on planning decisions is often non-transparent and rarely evaluated (Selle, 2013; Watson, 2014; Tribble, 2023). When criteria and scope of participation remain unclear, contextualizing and assessing outcomes becomes equally difficult (Kalandides, 2018; Rolfes & Wilhelm, 2021).

As Turnhout et al. (2020) state, participatory processes can be "paradoxical, reinforcing the problems that they intended to solve but now sanctioned or legitimized by the participatory process; this is why participation has been referred to as tyrannical" (p. 15). Addressing these concerns requires innovative approaches that go beyond traditional models (Brandsen et al., 2018; Jeutner et al., 2022; Selle, 2013; Watson, 2014).

Policy documents as the New Leipzig Charta (BMWSB 2020) or the Urban Resilience Policy documents such as the Memorandum (BMI 2021), alongside academic contributions (Watson 2014; Jetuner et al. 2022), suggest that the concept of co-production represents a potential new paradigm in participatory urban development. While traditional participation formats are typically dialogical and informative, co-productive processes promise to involve a transformation of working structures, where diverse actors are entrusted with greater responsibility in shaping the process (Abt, 2022, p. 252; Willinger, 2022, p. 3; Turnhout et al., 2020, p. 15; Kalandides, 2018, p. 8). The plurality and dynamism of urban actor landscapes necessitate this realignment and redistribution of responsibility, while also posing a significant challenge for implementation (Hirschner, 2017, p. 325).

The concept of co-prodcution, introduced by political scientist Elinor Ostrom, emerged alongside Arnstein's ladder of participation (Arnstein, 1969; Ostrom, 1990). Ostrom defined it as the joint provision of public services through structured collaboration between state and civic actors, with both contributing complementary resources- such as technical expertise and local knowledge (Ostrom, 1990; Watson, 2014, pp. 64–65). Unlike traditional participatory approaches, co-production emphasizes active involvement and shared responsibility, turning citizens from passive recipients into active producers (Abt, 2022, p. 252; Voorberg et al., 2014, p. 3).

In urban development, Tribble defines co-production as "joint spatial production" (Tribble, 2023, p. 52), which highlights the possible application in every phase of a planning project and refers not only to a design process, but to actual production of spaces, functions and socio-cultural structures. Definitions from public administration studies (Voorberg et al. 2014; Brandsen et al. 2018; Verschuere et al. 2012) can be adapted to urban planning, as they cover the similar theory of sharing responsibilities, overcoming hierarchies and designing goals,

processes and results in partnership-based arrangements.

The literature indicates that co-productive urban practices have a tradition in the Global South, largely due to local precarities such as high urban density, resource scarcity, and poverty (Watson, 2014; Alfaro d'Alençon & Moya Ortiz, 2024). In contrast, their application in the Global North remains less common, though it has gained traction in recent years (Jeutner, 2022). From literature, two forms of co-productive urban development can be differentiated: bottom-up co-production emerges from grassroots action, is often politically motivated and aims at systemic change. Watson (2014) terms this community-based co-production, rooted in struggles over housing, services, labour, and recognition, particularly in marginalized contexts often found in studies from the Global South (Watson, 2014, p. 65; Alfaro d'Alençon & Moya Ortiz, 2024). These initiatives mostly arise in response to state failure, supported by NGOs providing resources and advocacy, which is often linked to weak or absent welfare state structures in many countries of the Global South. (Watson, 2014; Hoffman, 2022). While local demands vary- ranging from basic infrastructure in the Global South to resistance, e.g. against gentrification, in the Global North (Ziehl 2013; 2020)- the co-productive logic is similar: the engaged communities act as initiators (Voorberg et al., 2014, p. 15), aiming to improve local living conditions through collective provision of public goods. Another form of co-production is institutionalized, in which public authorities initiate co-productive processes to involve civic engagement in planning and service delivery (Kalliomäki, 2015). This reframes the state-citizen re lationship as a partnership. Citizens may act as co-designers in selective stages or as co-implementers (Voorberg et al., 2014, p. 15), taking on roles and responsibilities which- in the logic of welfare states- should be provided by the state. Although less frequently discussed in research, this form adapts practices from grassroots initiatives to institutional contexts. While co-production originally emerged "from below" to address precarious conditions (Ostrom, 1990), the institutionalized form seeks similar goals- improving public goods and services- yet from a top-down starting point.

This study examines a case of institutionalized co-production to contribute to the academic discourse on understanding formalized, top-down governed processes of co-production from empirical perspectives in the Global North.

THE CASE STUDY: ZIZ IMPLEMENTATION IN HAMBURG

The Free and Hanseatic City of Hamburg is a city-state in northern Germany. Hamburg is a growing city with stable and dynamic economy. However, it also faces challenges such as social inequality and a lack of adequate housing. In this context, co-production is increasingly seen as a suitable approach to urban (re)development (Lee & Scholten, 2024, p. 125). Hamburg's city center faces structural changes which need to be seen connected to the urban development processes of HafenCity Hamburg, the former harbor area. HafenCity was called the biggest site development in Europe and is mainly determined by private investors and stakeholders, addressing new areas of housing, public use and economy (Lee & Scholten, 2024, p.125). Since development began in 2000, the municipality has been working on structural plans to prevent the relocation of inner-city functions from the old center to HafenCity. This aligns with the strategy of redeveloping functions, infrastructure, and spaces in the old center while expanding their use beyond economic interests to include more diverse purposes such as culture and housing.

In response to these challenges, Hamburg joined a national funding program for urban resilience in city centers. In 2021, the German Federal Ministry for Housing, Urban Development and Building (BMWSB) launched the federal program Sustainable Inner Cities and Centers (own translation, ZIZ). The program aims for pilot model projects from which actionable strategies for resilient urban centers can be derived. With a general funding volume of 250 million euros, the initiative runs from 2021 to 2025 (BBSR, 2024). A total of 219 municipalities— ranging from large to medium-sized and small towns— were selected for funding (BMWSB, 2023a). The case study of Hamburg, locally funded with around five million euros, seeks to develop "Hamburg's inner city as a project laboratory for model-based research and strategic implementation of diverse uses, supported by innovative tools and the active involvement of various stakeholders, under the leadership of the Ministry for Urban Development and Housing" (own translation, BMWSB, 2023). The range of stakeholders involved in implementing the program extends beyond official representatives and includes politicians, private actors and associations, city-makers, various urban development offices, municipal authorities, commercial agencies, property owners and citizens. Since spring 2023, the program has been locally coordinated by a designated coordinator tasked with establishing "co-productive arrangements" (Abt 2022, p. 260) to manage the complex stakeholder landscape. Citizen participation is facilitated through both analog and digital formats. A central element of the governance strategy is the quarterly round table, initiated in 2020. It serves as a multi-actor steering body that brings together representatives from politics, municipal administration, and the local economy. In addition, the funding program promotes two types of self-organized project models. First, pilot projects, which receive small- to mid-scale funding, invite civil society groups, private actors, and public

institutions to initiate temporary uses or pop-up interventions. These projects often aim to foster networking and promote cultural or artistic engagement (Kreativgesellschaft, 2024). Second, prototypes refer to larger-scale strategic projects focused on the three key areas of housing, culture, and the economy. In summer 2024, one pilot project combining cultural and economic uses was launched: a 700 m² repurposed inner-city vacancy was transformed into a production and exhibition space that integrates a cultural program with temporary fashion production. A prototype project focusing on inner-city housing was still in development at the time of the research (Kreativgesellschaft, 2024).

METHODS & METHODOLOGY

The research involved semi-structured interviews (Przyborski & Wohlrab-Sahr, 2014). Interviewees were selected based on their expertise and experience with the Hidden Potentials program. In total, twelve interviews were conducted with a representative of the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR), a freelance planning assistant of the Ministry of Urban Development and Housing (BSW), the coordinator, the head of the communication office that was implemented in the city center, a representative of local economics, one former scientist at the HafenCity University Hamburg and several representative city-makers. All interviews were anonymized, as the individual actors did not wish to be identifiable by their respective professional fields. When selecting the interviewees, it was important to cover a wide range of actors in order to (1) incorporate various perspectives ranging from state to non-state actors; and (2) to develop an in-depth understanding, as the project had already begun, although internal information remained largely unpublished. All interviewees expressed their role and motivation in relation to the ZIZ program as well as challenges and recommendations experienced in co-productive settings. Interviews from the civic sector in particular helped to understand the process, flows of communication, the existing working structure and expectation for the funding program. Also, they represented the role of civic activists or city-makers within the general urban development environment in Hamburg, which helped to locate the program within the local planning culture. Interviews from inside the program, such as with the coordinator or the BBSR, provided insights into the goals, structures, and limitations. Notably, more than half of the interviewees occupied dual roles: they combined academic work with civic or activist engagement, or they were simultaneously employed in urban development offices and involved in research or local initiatives.

The empirical investigation examines (1) the extent to which co-production is institutionally anchored within the ZIZ project Hidden Potentials, (2) how responsibilities and decision-making authorities are distributed among public institutions, private actors, city-makers and citizens, and (3) which participatory tools and actor constellations facilitate or hinder co-productive practices. In addition, the study uncovers (4) the challenges and conflicts that arise during implementation, and (5) to which extend co-production holds any real transformative potential for fostering more resilient participatory urban development.

DISCUSSION OF THE RESULTS: INTERVIEWEES PERSPECTIVES ON THE IMPLEMENTATION OF ZIZ FUNDING PROGRAM IN HAMBURG

The following section brings the empirical findings into dialogue with the theoretical framework, highlighting key dimensions of implementation from the interviewees perspectives on situated practices.

STAKEHOLDER ENGAGEMENT

Emotional involvement of the actors was consistently evident throughout nearly all interviews. Emotions such as passion, anger, disappointment, curiosity, hope, displeasure, scepticism, benevolence, indignation, and confusion were frequently expressed. Interviewees felt personally affected by the organization, communication, and interactions within the project administration. At the outset, actors expressed hope “that we will really be invited to talk about the inner city in open formats, then we will define goals together, in which direction these experiments can go, then there will be open calls, projects will be submitted by us by the people who are already involved here anyway” (own translation, Interview 09, 2024). However, this initial optimism was later dampened by experiences of rejection and exclusion, particularly in political decision-making, resulting in the sentiment that “the disappointment was very great” (Interview 06, 2024). These dynamics point to underlying processes of inclusion and exclusion: specific, established interest groups were well represented, while non-organized citizens were less involved- despite efforts to engage them through selective formats such as online participation, networking events, and workshops. Although 30% of residents have a history of migration, the average age is 40, 16.6% of households include children, and 30.7% are single-parent households (Statista, 2024; Statistik Nord, 2024), these groups remained underrepresented in both participation formats and collaborative processes, according to the interviewees. Additionally, a male dominance- above all in the political bodies- was identified (Interview 06, 2024). The invisibility of particularly marginalized target groups raised concerns about the heterogeneity of the program in the target group as well as in the administration itself. This findings of the lack of diversity highlights a theoretical critique of participation which also occurs in co-production: the risk of

reproduction of socio-economic, socio-cultural, and socio-sexual inequalities within participatory working environments (Turnhout et al., 2020). Additionally, it is outstanding that almost no economic actors, besides property owners, played a visible role in the program even though the location clearly marks the most important economic district of Hamburg.

PARTICIPATORY FORMATS

Among all participatory formats of the funding program, the round table was the one raising most attention. As a politically steered body, it is not a participatory instrument in the narrow sense but serves as a strategic governance tool. The intensity of engagement can be understood as a reflection of the political weight attributed to this body, while also pointing to the heightened visibility of its format. Moderated and configured by the Mayor of Hamburg, the format- comprising around 40 participants- has been perceived as excluding city-makers and civic organizations, which has provoked mixed reactions. On the one hand, it offers a high-level political forum aimed at building democratic majorities rather than addressing micro-level project concerns (Interview 01; 05, 2024). On the other hand, several interviewees shared the view that the exclusion of long-involved civic actors deepens mistrust and devalues voluntary engagement (Interviews 04, 07, 09, 2024). These interpretations raise concerns about political gatekeeping and questioned the committee's democratic legitimacy. By contrast, the pilot projects and prototypes were defined less by political orientation and more by locally embedded practices of civic engagement and community participation. From the interviewees' perspective, such formats offer considerable potential for experimental urban engagement, enabling city-makers to identify and connect neighborhoods or to design spaces and functions that foster resilience through socio-spatial community development. However, concerns were also raised in the interviews that applying for project funding entails significant bureaucratic effort, which poses a major barrier and a recurring source of tension between authorities and civic actors. (Interviews 01; 03; 04; 06, 2024). Additionally, a lack of transparency in the commissioning process can deter city-makers, raising concerns about repeated funding allocations to already established partners, as occurred in the first prototype (Interview 06, 2024). The mismatch between the time invested in administrative tasks, the uncertain benefits due to the opaque allocation process, and the actual funding received was a key factor in discouraging participation (Interview 09, 2024). Additionally, the digital participation platform was criticized for its complex language, limited accessibility, lack of data security- undermining trust in the results and raising concerns about manipulation and the legitimization of pre-defined planning goals (Interview 11, 2024).

The articulated frustration, especially from city-makers, illustrates a structural risk within the top-down governance of a co-productive project. It not only reveals a persistent mistrust in state institutions but also points to the vulnerability of processes characterized by a lack of transparency, such as the decision-making procedures, which, as Brandsen et al. (2018, p. 286ff) note, are liable to manipulation in favour of particular interest groups. In the long term, this can result in political instrumentalization and the control of outcomes. This aligns with Turnhout et al. (2020, p. 16) and Watson (2014, p. 70), who argue that political influences shape not only visions and ideas but also through control of funding power and decision-making frameworks, thereby limiting genuine local autonomy and innovation.

BUREAUCRATIC CHALLENGES & TIME CONSTRAINTS

Project frameworks, also in ZIZ, must follow specific guidelines regarding task distribution and funding structures, which predetermine the role of local administration. The funding period is further restricted by national regulations that cannot be exceeded under any circumstances, thereby limiting the scope of possibilities for the projects.

At the local level, this resulted in complex organizational tasks and bureaucratic demands that required intensive communication, coordination, and collaboration among stakeholders. These demands were perceived as particularly challenging due to (1) time constraints that required rapid action to maximize outcomes, (2) limited municipal experience with experimental funding schemes, (3) a shortage of paid staff working on the program, (4) a lack of overview within the municipality regarding voluntary or private actors already engaged in city-making processes, and (5) growing mistrust among city-makers due to non-transparent information flows, unclear responsibilities, and opaque funding structures. Interviewees primarily attributed these challenges to internal structures within the municipality. One city-maker remarked: "So how are we supposed to develop something new when we're still clinging to the old—and also holding on to old administrative structures […]. And then there's this hierarchical, bureaucratic setup. I ask myself: isn't that, I'd say, a waste of potential? In a way, we're wasting our own potential with these outdated structures" (own translation, Interview 04, 2024). These municipal structures affected both the trust of city-makers who perceived the process as unreliable and the willingness of administrative staff to engage in experimental approaches due to workload pressures. Even before the program,

, the municipality was facing structural deficits, including staff shortages and unclear divisions of responsibility between departments. In addition, the complexity of the funding structure was problematized for causing significant delays and hindering timely implementation. Among the suggestions made by interviewees were concrete ideas for improving funding mechanisms and bureaucratic management: "Ideally, funding would be activated quickly and with low thresholds so that it can be put into operation as soon as possible" (own translation, Interview 10, 2024). The analysis suggests that such conditions of funding and control, combined with the unequal distribution of paid and unpaid labor, may reinforce existing hierarchical power relations. As Brandsen et al. (2018, p. 290) argue, unpaid work is an inherent part of most co-productive settings, and the resulting imbalance risks undervaluing voluntary actors, which is potentially leading to a decline in civic engagement (Abt, 2022, p. 260; Turnhout et al., 2020, p. 16).

From an organizational perspective, the municipality in Hamburg addressed this risk by appointing a coordinator— a role designed to mediate between state and civic actors. Within this brokerage function, some key challenges of the top-down approach became apparent: the coordinator and their local office established a platform for iterative knowledge creation by connecting stakeholders and developing new forms of engagement, such as pilot projects. At this point, interviewees argued that nevertheless, this local knowledge is not recognized on an equal footing with established forms of knowledge; experts continue to dominate, for example, through decision-making authority or control over funding (Interview 01; 08; 09, 2024).

This imbalance is further reinforced by the typical characteristics of projects, which, as Turnhout et al. (2020: 16f.) point out, are shaped by time limits and internal organization. Such project frameworks provide clear procedural boundaries, define goals, and facilitate evaluation and documentation. They content that, when risks of depoliticization and disempowerment are mitigated, projects offer manageable spaces for experimentation, where failure is permissible and learning processes can unfold. In the case study, bureaucratic structures at times constrained stakeholder engagement. At the same time, the project-based approach created opportunities for new collaborative practices, which could, in the long term, enhance innovative capacities within municipal administrations- particularly in relation to experimental funding schemes- and thereby strengthen institutional resilience. Nevertheless, Turnhout et al. (2020: 18) point out that project frameworks often struggle to involve groups beyond those already engaged, due to high resource demands and tight time constraints. These challenges were also evident in the empirical data.

According to the interviewees, small-scale socio-cultural initiatives and temporary spatial interventions were considered realistic. However, especially city-makers, questioned whether such short-term efforts could produce lasting socio-spatial transformation beyond the program's funding phase. This reflects a central concern in participation research regarding the uncertain effectiveness of outcomes (Selle, 2013; Watson, 2014; Tribble, 2023). Co-productive approaches, despite aiming for more inclusive and collaborative processes, may reproduce similar limitations when they lack long-term institutional anchoring or when their impacts remain limited and thus difficult to sustain.

CONCLUSION

This paper examined whether and to what extent the concept of co-production is implemented within the national funding program aimed at revitalizing Hamburg's city center. Co-production was conceptualized, drawing on its interdisciplinary roots, as a process that shifts responsibility from public authorities to a broader network of actors, thereby fostering civic engagement and shared responsibility.

Beyond these macro-level constraints, the study also identified risks at the micro-level of local implementation. In particular, the repeated involvement of historically established stakeholders tends to reinforce existing power dynamics and limits the inclusion of new actors. Although civic participants initially engaged with co-productive projects with enthusiasm and high expectations, their emotional investment often turned into frustration as practical challenges arose. At the same time, the study highlights co-production's potential to strengthen spatial identification through collective space-making. It can activate citizens, foster new collaborative practices, and contribute to the formation of socio-cultural urban networks.

Overall, the case study aligns with broader theoretical debates on co-production, particularly concerning the complexity of redistributing responsibilities, balancing diverse knowledge systems, and designing inclusive governance frameworks. In the context of urban resilience, the findings suggest that co-productive approaches can foster more adaptive and socially responsive urban governance—provided they are backed by stable institutional structures, transparent procedures, and the sustained inclusion of diverse societal groups. However, to realize its transformative potential, co-production's practical application must be clearly defined to avoid replicating the limitations of conventional participatory approaches. Looking ahead, ongoing ethnographic research on co-productive processes in urban development and housing cooperatives in Switzerland in the context of my doctoral thesis will offer further insights into the challenges and potentials of institutionalized

co-production and will deepen our understanding of how such processes unfold in practice.

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URBAN PLANNING IN SKOPJE AND THE INCLUSION OF THE COMMUNITY IN THE DECISION MAKING PROCESS CASE STUDIES: MUNICIPALITIES OF CAIR, BUTEL AND KARPOSH

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ABSTRACT

To achieve the goals of sustainable and resilient urban development, beside the top-down governance the inclusion of bottom-up approach is also required in the decision-making process in urban planning. While sustainability aims at achieving a higher quality of life standards, resilience represents the ability to recover from an adverse event. Due to the dynamic nature of the urban environments, it is required to have continuous tracking of the aspects which need improvement. The neighbourhood as the smallest segment of the urban tissue should be taken as the starting point of the bottom-up approach. The residents of a neighbourhood can give the most relevant information about the existing conditions and problems in each urban settlement. Inclusion of the opinions of the local level community in the decision-making process of urban planning can help in creation of more sustainable and resilient urban environments.

This research paper focuses on the municipality level urban planning with respect to concepts of sustainability and resilience. The urban planning system of North Macedonia is briefly reviewed with main accent on the Detailed Urban Plans which are prepared at municipality level. As case studies are analysed three different municipalities in the City of Skopje: Cair, Butel and Karposh. To understand the actual status of the bottom-up approach in the urban planning in the case study municipalities the representatives from municipality urban planning sector, local community representatives and urban planners from the private sector engaged in the preparation of the urban plans for municipalities are interviewed. The information obtained from all the entities related to urban planning process is based on qualitative methodology. In this way the collected data is sorted according to the different categories (community representatives, local authority and urban planners) and compared between the different municipalities which are selected as case studies.

Based on the obtained results from the analysis of the status of bottom-up approach in the case study municipalities three aspects are observed that need improvement. First, the awareness about the importance of creating sustainable and resilient urban environments should be increased at the general population and the decision-makers whose scope is regulating the physical aspects of the urban space. Second, communicating the information and needs between the community and local authority should be improved. Third, the community members should be motivated and encouraged to take part in the process of urban planning.

Keywords: bottom-up approach, resilience, sustainability

INTRODUCTION

The term resilience can be defined as the capacity of getting back to normal or initial state after an adverse event occurs. The most broadly accepted definition is by the ecologists who define resilience as the ability to continue functioning also at times when stress is applied to the ecosystem (Menoni, 2020). Resilience can refer to a system, infrastructure, built environment as well as community. In context of urban planning for resilient neighbourhoods it is important to improve the resilience of the community. For this firstly the characteristics and aspects of resilient behaviour should be identified and evaluated. Accordingly, steps should be undertaken to develop the resilience of a community (Menoni, 2020). Resilient neighbourhoods contribute into the sustainable development of the urban environments. According to the Sustainable Development Goals (United Nations, 2015) resilience is one of the key properties required to achieve sustainable cities. Communicating with the residents at neighbourhood level can help in obtaining the required information about evaluating the existing resilience at local level. Neighbourhood community is the most relevant entity that can point out the everyday life problems and difficulties that they are facing in the urban environment. In the planning process of the physical environment considering the opinions and views of the citizens can have positive impact on the decision-making process. At the same time, increasing awareness about resilient neighbourhoods can be achieved by inclusion of the neighbourhood community in the planning process.

The concept of "communicative planning" relies on establishing an environment for genuine dialogue where all relevant stakeholders will participate equitably in discussions and offer ideas. In the communicative planning approach, all the important issues for the society, such as socio-economic and political aspects, should be addressed while the urban planners should act as coordinators (Kivits & Sawang, 2021). Having the feeling of ownership over an urban plan will motivate the community to participate in the process of urban planning. However, it is important to define the boundaries to which extent community can contribute to the decision-making process compared to the official authorities and the urban planners (Kivits & Sawang, 2021).

Community inclusion in the process of urban planning is not a new practice. In the developed countries the inclusion of the community in the decision-making process of urban planning contributes to the sustainable development and improved governance of the urban spaces (Papa et al., 2017). On the other hand, in most of the developing countries the urban planning is governed solely by the authorities. The problem of non-inclusion of the community in the process of urban planning is related to different factors, such as the urban planning laws which do not encourage the community participation, political culture of the country, education and income levels of the community, framework of the institutions regarding urban planning and the individual's willingness to participate (Aldegheishem, 2023).

In the Balkan region countries, the flow of communication between the authorities and the population goes through the public gazettes, while surveying the population to identify their requirements is not a usual practice. On the other hand, the community does not have trust in the participatory process. Recently, the importance of involving the community at the beginning stages of urban planning has been initiated by non-governmental organizations and universities. Public presentations and public surveys which are mandatorily part of the adoption of newly planned urban plans are the existing possible ways of communicating with the citizens of a particular urban area (Papa et al., 2017).

This research paper explores the real-life applicability of community engagement in the urban planning process in North Macedonia. The urban planning system and the urban planning regulations of the country are presented to determine if the inclusion of community in decision-making process is encouraged. Three municipalities, Cair, Butel and Karposh, in the City of Skopje are analyzed to understand the level of community inclusion in the urban planning process while referring to the concepts of sustainability and resilience. Through interviews with representatives of the municipality urban planning sector, local urban communities and urban planners the level of application of the bottom-up approach in the urban planning is analyzed. The findings of this research point out that although regulations encourage participatory planning, there is a significant need for improving community engagement in real-life urban planning practice. At the same time, the study highlights the actions that should be undertaken to trigger citizen initiative to participate in urban planning process as well as to increase awareness about the concept of resilient neighborhoods.

ENCOURAGEMENT OF CITIZEN INCLUSION IN URBAN PLANNING PROCESS BY THE LEGAL FRAMEWORK OF URBAN PLANNING IN NORTH MACEDONIA

In Republic of North Macedonia land-use planning is governed at different administrative levels with use of spatial and urban plans. According to the scale of the area which is subject of planning the following plans are prepared (Official Gazette, nr. 32/2020):

- General Urban Plan (GUP) is prepared for city level
- Detailed Urban Plan (DUP) is prepared for districts at municipality level

- Urban Plan for Village
- Urban Plan for Regions Outside Urban Settlements
- Urban Plan for Areas of National Importance

There are also Spatial Plans which are prepared at country and region levels. The GUP is prepared based on the planning conditions provided within the Spatial Plan. The urban plans from the lower tier should respect the provisions stated in the upper tier plans. The urban planning is regulated by the law for urban planning (Official Gazette, nr. 32/2020) and the process of planning as well as approving plans follows a top-down approach.

Inclusion of the public opinion in the process of urban planning is required by the law for urban planning (Official Gazette, nr. 32/2020). Before the adoption of a new urban plan the municipality mandatorily organizes public presentation and conducts survey on the participants at the time of the public presentation. However, the public presentations and surveys take place at the last stage of the urban plan. Additionally, the regulations for urban planning imply that the municipalities and the Council of the City of Skopje must form participatory bodies. The participatory body functions on voluntarily basis and it consists of urban planning committee members from the municipality, urban planning experts, representatives of the urban community centers and representatives from the non- governmental organizations. The civil servants are appointed by the municipality mayor while the other stakeholders become members of the participatory body on their own initiative. The municipality opens a public call for forming the participatory body at every four years. The main role of the participatory body is to take part in the process of urban planning while supporting the inclusiveness, participation and transparency of the urban planning process. The work of the participatory body is controlled by the committee for urban planning of the municipality (Official Gazette, nr. 32/2020).

CASE STUDIES: MUNICIPALITIES OF CAIR, BUTEL AND KARPOSH IN SKOPJE

Within the borders of the City of Skopje there are ten municipalities. The selected case study municipalities are among the oldest territories of Skopje. Municipality of Cair, officially established in 1976, has a very long history of existence which can be observed by the presence of historical buildings and monuments (Cair, 2025). In 2005 today's territory of Butel was separated from municipality of Cair and it was formed as an independent municipality (Butel, 2025). Municipality of Karposh was established as a municipality officially in 1976, however part of its territory which is close to the city center existed much earlier (Karposh, 2025). Greatest part of Karposh municipality was constructed in the period followed by the Skopje earthquake in 1963 with usage of prefabricated reinforced concrete elements (Mariotti & Baldwin Hess, 2021; United Nations, 1970). The case study municipalities Cair, Butel and Karposh are neighbouring each other (Figure 1). Karposh and Butel extend also to the rural areas which increases their surface area. Compared to its neighbours Cair has much smaller surface area consisting of urbanized area only. The municipalities of Cair and Karposh are positioned close to the city center while greater part of Butel municipality extends to the periphery of the city.

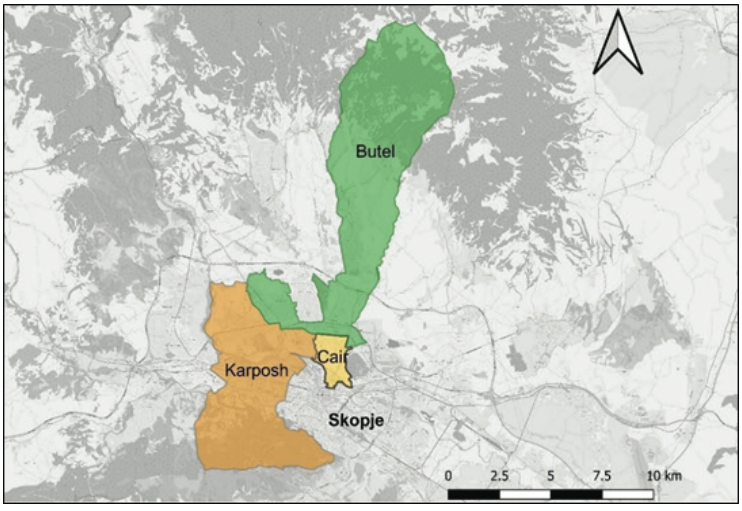


Figure 1: Case study municipalities mapped in QGIS

Based on the data in the General Urban Plan of Skopje with plan period of 2012-2022 (SPA, 2011) all three case study municipalities consist mostly of housing land use followed by other land uses at lower levels of presence. The general information about the case study municipalities, number of population, surface area and density of population, are presented in Table 1. Regarding the surface area, Butel is the largest one (54.71 km2) followed by Karposh (35 km2) while Cair is the smallest one with 3.52 km2 surface area. Based on the most recent census information (Makstat-1, 2025) municipality of Cair has the highest density of population with 17.780 people/km2. The municipalities of Cair and Karposh have similar number of population, 63760 and 62586 respectively, however Karposh has significantly larger surface area compared to Cair which is reflected in the population densities of the two municipalities (Table 1). Due to its large surface area and low number of population, in municipality of Butel the density of population is the smallest compared to its neighbours.

Municipality	**Karposh**	**Cair**	**Butel**
Population	63.760	62.586	37.968
Surface area (km2)	35 km²	3.52 km²	54,71 km²
Density (people/km2)	1.822 people/km²	17780 people/km²	693 people/km²

Table 1: General information about the case study municipalities. Sources: municipality webpages.

he age of the population in the case study municipalities was analysed according to the standard international age classification (United Nations, 1982) by grouping the population into five age categories; children (1-14 years), youth (15-24 years), young adults (25-44 years), middle adults (45-64 years) and seniors (above 65 years). Municipality of Butel has the lowest number of population and consequently the presence of population in age groups is much smaller compared to Cair and Karposh which have similar total number of population (Figure 2). Cair has the greatest number of children and youth while the number of young and middle adults is similar in Cair and Karposh. Compared to other municipalities Karposh has the highest number of seniors.

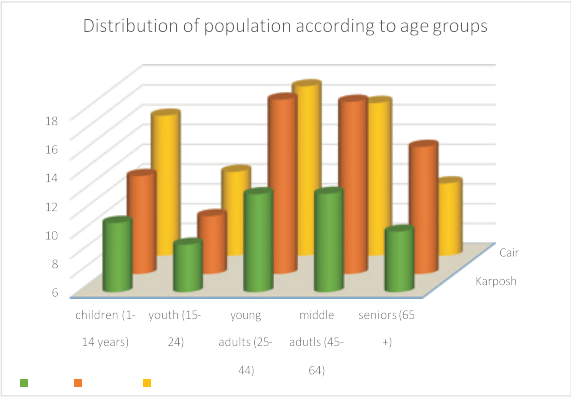
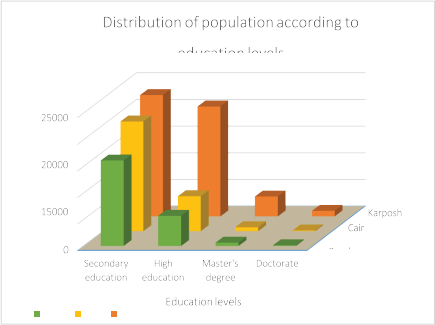


Figure 2: Distribution of the population based on age categories in the case study municipalities. Prepared based on census information (Makstat-1).

To have insight into the education level of the population in the case study municipalities the population older than 15 years was distributed according to education levels categorized as secondary education, high education, master's degree and doctorate (Figure 3). In all three municipalities the number of population with secondary education is the highest. Compared to Cair and Butel the number of population with high level of education in Karposh is significantly higher, approximately 25 thousand. Although at the higher levels of education, such as master's degree and doctorate, the number of population is much lower compared to secondary and high education levels, Karposh has much greater numbers compared to other case study municipalities. The age and education level of the population in the case study municipalities show the potential of increasing the awareness for resilient urban environments. The younger generations which are still within the education system (students) can be introduced to the concepts of sustainability and resilience through the education institutions. On the other hand, citizens who have finished their formal education process can be informed about sustainability and resilience through local community educational activities.

It is highly important to know the different attributes of the neighbourhood for developing a resilient urban

environment for its occupants. Since people are the first-hand users of the built environment, they are the main source of information about the obstacles that they face and what they would like to improve in their daily lives.



igure 3: Education level of population in case study municipalities. Prepared based on census information (Makstat-2).

METHODOLOGY

A qualitative methodology was applied for collecting information regarding community inclusion in urban planning process in the case study municipalities. Municipality urban planning sector representatives, urban community center representatives and urban planners were interviewed at in-person meetings. However, it is important to note that all the interviewees requested to remain anonymous. The questionnaires consisted of questions specifically designed for each group of interviewees. Only the question if they have understanding about "what resilience is" was common in all three groups. The questions addressed to the municipality urban planning sector representatives are presented in Table 2.

1	How are the citizens informed about public survey and presentation?
2	Do you conduct the public survey with digital forms, such as Google form or you use printed questionnaires?
3	Do the citizens show interest in these public surveys and presentations?
4	What are the most common remarks made by the citizens regarding the DUP?
5	Are the remarks made by citizens taken into consideration by the municipality?
6	Does the municipality have a plan for natural or man-made disasters?
7	Do you know what the term "resilience" means?

Table 2: The questionnaire addressed to the urban planning sectors of the municipalities.

Among the case study municipalities urban community centers are present only in Karposh, while in Cair and Butel there are no urban community centers. In the municipality of Karposh there are in total 12 urban community centers which function as sub-branches of the municipality. The second set of questions, referring to urban community centers (Table 3), was addressed to the head of the urban community centers of Karposh and representatives from "Kuzman Josifovski Pitu" urban community center.

1	Is the community center founded by the citizens or the municipality?
2	What are the duties of the community center?
3	Do the citizens visit the community center to report their problems?
4	Do the citizens show initiative as a community?
5	Are there any educational activities organized by the community center?
6	Do the citizens show interest in the activities of the community center?
7	Do you know what the term "resilience" means?

Table 3: The questionnaire addressed to the urban community center.

As the representative of the urban planners a private company from Skopje, whose members have long experience in the preparation of the urban plans for municipalities, was selected for conducting the interview. The questions asked to the urban planners are listed in Table 4.

1	Who initiates a new DUP?
2	Do the urban planners visit the site to survey the actual situation?
3	Do you conduct analysis of the site, including demographic information, the requirements by the citizens and similar aspects before starting the preparation of the DUP?
4	Are the DUPs updated every five years?
5	Are there any educational or training activities organized to enhance the knowledge of the urban planners with the contemporary trends in urban planning applied by developed countries?
6	Do you know what the term "resilience" means?
7	Do the urban plans contain any information about prevention from disasters?

Table 4: The questionnaire addressed to the urban planners

The results obtained through the interviews are presented in the next section. The answers of the municipality urban planning sector representatives were compared. However, for the category of urban community centers there were answers only from the municipality of Karposh, while in the other two municipalities there are no such centers. The insights made by the urban planners from a private company in Skopje are presented together with suggestions for improvement of the communication system between the decision-making authorities and the citizens.

ANALYSIS OF THE RESULTS

The interviews within the case study municipalities as well as urban planners represent the current status of citizen inclusion in the process of urban planning which is an important indicator about the resilience of the municipality. The answers obtained through the interviews with the urban planning sector representatives from case study municipalities, urban community center and urban planners are presented in Tables 5, 6 and 7 respectively.

Questions:	Karposh	Cair	Butel
How are the citizens informed about public survey and presentation?	Webpage, posters on visible places, social media, daily newspapers	Through local newspapers.	Webpage and social media.
Do you conduct the public survey with digital forms, such as Google form or you use printed questionnaires?	No digital forms are used. Printed questionnaires are delivered to citizens at the time of the public presentations.	No digital forms are used. Printed questionnaires are delivered to citizens at the time of the public presentations.	No digital forms are used. Printed questionnaires are delivered to citizens at the time of the public presentations.
Do the citizens show interest in these public surveys and presentations?	Yes, citizens participate if they have interest.	Part of the citizens show interest.	There is not much interest from citizens.
What are the most common remarks made by the citizens regarding the DUP?	Related to building's height and area. Discrepancies in parcels between DUP and cadastre.	Related to building's height and area. Discrepancies in parcels between DUP and cadastre.	Related to building's height and area. Discrepancies in parcels between DUP and cadastre.
Are the remarks made by citizens taken into consideration by the municipality?	A committee formed by the municipality evaluates the comments and decides for next steps.	A committee formed by the municipality evaluates the comments and decides for next steps	A committee formed by the municipality evaluates the comments and decides for next steps.
Does the municipality have a plan for natural or man-made disasters?	In the textual part of the DUP there is part which refers to different disasters. The municipality does not have a plan but refers to the Directorate for Protection and Rescue.	There is no prevention plan. In case of an emergency, the municipality has appointed a team who will deal with the ad-hoc situation and communicate with the authorities and the citizen services.	No, there is no such plan. In case of an emergency a crisis office is formed to deal with the situation.
Do you know what the term "resilience" means?	No.	Yes, elasticity.	No.

Table 5: Answers obtained from interviewing the municipal urban planning sectors

Among the case study municipalities Karposh is mostly engaged in informing its citizens about new urban plans. However, the public surveys are still conducted in a very old-fashioned way, with handed out forms, while digital surveys are not applied. The citizens show interest to the public surveys and presentations only if they have a property which is subjected to changes.

The most common remarks made by the citizens are related to parcel size, building's height and area. The committee formed by the members of the municipality evaluates the remarks and if accepted the remarks are applied into the DUP.

Resilience as a term is not understood comprehensively. This points out to the need of educating the urban planners at municipalities about what resilience is and how it can be achieved both in physical and societal systems. Preparedness for a natural or man-made disasters is present only in the textual part of the DUPs, and in case of a disaster municipalities refer to the Directorate for Protection and Rescue.

1	Is the community center founded by the citizens or the municipality?	In Karposh the community centers are under control of the municipality and there are employed civil servants.
2	What are the duties of the community center?	The community centers represent a communication link between the citizens of a certain area with the municipality. Additionally, the civil servants do on-site observations to detect problems, for example, accumulated trash, dysfunctional light element and report to the municipality.
3	Do the citizens visit the community center to report their problems?	Yes, on daily basis. Beside this procedure of adopting a new plan citizens report continuously their problems to the urban center by visiting the place and informing in person or by telephoning the center. In such cases the most common problems reported by the citizens are related to hygiene of the public space, drills on the streets, pedestrian paths, streetlights, i.e. problems faced in the daily life activities.
4	Do the citizens show initiative as a community?	Often yes, as an example, youth community has required playground for basketball and the municipality has built one for them.
5	Are there any educational activities organized by the community center?	Not often. Usually there are activities related to first aid, generic education.
6	Do the citizens show interest in the activities of the community center?	Yes, the citizens show great interest. The DUP is presented in time frame of 30 days and people come and see the plan, then they are informed about the day and time of the public presentation and most of the concerned citizens join these debates.
7	Do you know what the term "resilience" means?	No.

Table 6: Answers obtained from interviewing the urban community center representatives.

Among the case study municipalities there are urban community centers only in Karposh which were formed by the municipality itself. Generally, the urban community centers in Karposh are well organized and function as a link between the citizens and the municipality. The public presentations and surveys for new DUPs are conducted in the urban community center. Citizens visit the urban community center for seeing the DUPs. Beside this, citizens also report their everyday life problems related to their built environment to the civil servants employed at the center. The urban community center from time to time provides educational activities.

The urban planners do not have any communication link with the first-hand users of the physical urban space, the residents of a certain municipality. The planning procedure follows the regulations and limitations provided through the urban planning parameters in the upper- tier urban plan, the GUP. The initiatives for new DUPs depend on the budget of the municipality and there are many districts with old DUPs although the time frame for DUP is five years. Among the interviewed people, only the urban planners understand the term "resilience". They suggest that a bridge should be built between the academia and the urban planning system. Having professional journals related only to urban planning would be of great help for informing the professionals from this field and keeping up with the newest trends in the world.

1	Who initiates a new DUP?	The municipality initiates the DUP; however, it can also be financed by a private investor.
2	Do the urban planners visit the site to survey the actual situation?	Usually no, the onsite survey of the built environment and measurements and mapping are done by the geodetic engineers.
3	Do you conduct analysis of the site, including demographic information, the requirements by the citizens and similar aspects before starting the preparation of the DUP?	No, there is no such thing in the procedure. Also, the number of population is obtained with approximations, for example the number of bell rings are counted per building entrance and accordingly the number of residents is estimated.
4	Are the DUPs updated every five years?	No, if there is no new DUP the exiting one continues to be valid.
5	Are there any educational or training activities organized to enhance the knowledge of the urban planners with the contemporary trends in urban planning applied by developed countries?	Urban planners do not get any upgrade of their education; there are no educational or training activities for informing about the current trends in the more developed urban planning systems in the world. There is no link between the academia and the industry of urban planning. The Chamber of Engineers and Architects organizes very few educational activities for upgrading the educational level of the urban planners.
6	Do you know what the term "resilience" means?	Yes, the ability to recover and continue functioning.
7	Do the urban plans contain any information about prevention from disasters?	In the plans there are directions from the Directorate for Safety and Protection. However, analysis is not made specifically for every plan, instead the directions consist of general guidelines for every plan regardless of the natural hazards present in the territory (such as landslides, floods, earthquakes, etc.).

Table 7: Answers obtained from interviewing the urban planners

CONCLUSIONS

One of the key steps to achieve resilience is having access to information which is possible only with well-established communication system. The bottom-up approach offers the option to obtain information from citizens. When shaping up the physical space of our environment the urban planners are expected to know the problems that the citizens face. On one hand, the local authorities should encourage the citizens to express their opinion, while on the other hand, the citizens should show initiatives for taking part in the process of urban planning.

The answers collected through the interviews in the case study municipalities point out that there is a limited two-way communication in the urban planning process. The urban planning law (Official Gazette, nr. 32/2020) does encourage inclusion of citizens through particular procedures, such as public presentations and surveys as well as forming of participatory body.

However, informing of the citizens for a public presentation and conducting the surveys still are done with old-school methods. The only modern method of communication is publishing important information on the web pages and social media platforms of the municipalities. Beside the public presentations and surveys the citizens also communicate their problems to the municipality individually either with in-person communication or in written form with filling out forms provided by the municipality and process of archiving. Digital communication is a less used method. However, in the existing bottom-up communication citizens mostly discuss the problems related to privately or collectively owned parcels or buildings, while there is no initiative for public spaces, such as children playgrounds, sports areas for the youth, recreation and green areas and similar facilities which can improve the quality of life within the municipality.

Among the analysed municipalities only the municipality of Karposh has urban community centers which suggests that Karposh shows better performance in communicating with the citizens compared to municipalities of Cair and Butel. Yet, the urban community centers as places where people gather should have better conditions in terms of building quality. The municipalities should invest in the renovation of the existing urban community centers as well as build new community centers. People belonging to a municipality do not function by default as a community. The feeling of belonging to a neighbourhood community should be developed by forming urban community centers which will function actively. Having community centers with spatial possibilities for gathering activities can attract greater interest at citizens and help in forming the network of neighbourhood community.

For achieving resilient neighbourhoods, it is required to have a good communication between the citizens and the governing local authorities. The regulations for urban planning do encourage citizen inclusion in the process of planning however the local authorities should work more actively to involve the citizens, while on the other hand citizens can show greater interest when they will feel that their voice is heard.

Based on the research work presented in this paper the following urban policy recommendations are proposed:

1) Increasing awareness for resilient urban environments.

Increasing awareness for resilient urban environments is possible through educational activities, both in formal and non-formal education centers.

2) Establishing of neighbourhood based network.

A good networking can create the bond between the citizens belonging to a neighbourhood. Also, networking can increase the feeling of belonging to an urban neighbourhood. In this way the responsibility for shared space will be increased as well.

3) Forming of urban community centers.

Every municipality should form its urban community centers. The community centers can become places of gathering of the people for different activities. Local authorities should inform and motivate the citizens to take part in the activities of community centers.

4) Improving the forms of communication.

The use of modern time digital tools and applications accessible freely to everyone can contribute to the communication between the citizens and municipality.

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HEALTH BEFORE PROFIT: CIVIC ACTION AND THE CONSTRUCTION REFORM IN SKOPJE

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ABSTRACT

In Skopje, the civic initiative Health Before Profit demonstrates the transformative role civic engagement can play in urban policy, particularly in counteracting excessive and unwanted urban growth. Comprised of local residents, activists, and experts in urban planning and environmental protection, this civic movement emerged to address widespread concerns about rapid and uncoordinated construction and public space degradation in Debar Maalo neighbourhood. Through their advocacy, Health Before Profit successfully influenced the local government to implement a construction moratorium in 2017, a temporary halt on new construction. This pause provided space for community priorities to be better representedd in the process of urban planning and in collaboration with experts, the local government was also able to strengthen institutional capacity aiming for long-term urban resilience.

This paper adopts a qualitative methodology, analysing the data trough analytical approaches including stakeholder and discourse analysis at the time. The study focuses on relevant research on civic engagement and urban resilience, the case study in Skopje and the moratorium as an outcome and a tool for sustainable city planning.

In conclusion, this paper argues that civic engagement initiatives like Health Before Profit can empower communities and local governments to advance resilient, sustainable urban growth. The case provides valuable insights into how grassroots efforts, combined with expert collaboration, can foster institutional capacity and community driven urban planning, offering a model for addressing urban challenges in other contexts. Moreover, the construction moratorium initiated through civic advocacy, served as a platform for broader stakeholder engagement, enabling residents, community leaders, and policymakers to contribute to defining urban growth priorities and reinforcing resilience.

Skopje's experience suggests that when residents, community leaders, and policymakers collaborate, they can create an urban future that reflects shared values. However, challenges such as politicization and economic impacts highlight the need for transparent, inclusive processes that genuinely reflect community interests.

Keywords: civic engagement, building moratoria, urban resilience, institutional capacity building, Skopje

INTRODUCTION

Unregulated urban expansion is a persistent challenge in cities worldwide, particularly in contexts where governance structures are weak, and planning mechanisms fail to balance growth with sustainability. When construction is driven primarily by market forces and speculative investment, rather than by carefully structured urban policies, cities experience a range of negative consequences. Over construction often leads to the degradation of public spaces, overcrowding, and the overburdening of infrastructure that was never designed to accommodate such rapid densification. The lack of strategic, long-term planning results in uneven development, where some areas become overbuilt while others remain neglected, creating spatial inequalities and diminishing the overall quality of life. Without clear regulatory frameworks, unchecked construction transforms the urban landscape into a fragmented and chaotic environment, where profit-driven decision-making outweighs considerations of liveability, environmental sustainability, and community well-being.

Skopje, like many post-socialist cities undergoing transition, experienced these challenges severely in the years leading up to the building moratorium in 2018. The city's urban growth was shaped by weak planning structures, ineffective governance, and the absence of civic participation in decision-making. Weak and corrupted governance and regulatory loopholes further exacerbated the problem. The processes for developing and enforcing urban plans were neither transparent nor effective. Municipal authorities lacked both the institutional capacity and the political will to regulate construction activities, allowing deviations from approved urban plans to go unchecked. Developers were often able to bypass restrictions or proceed without proper oversight, leading to the construction of buildings that violated zoning regulations or exceeded allowable densities. Additionally, urban planners were to some extent absent from on-site assessments, meaning that decisions made in planning documents rarely translated effectively into the built environment. The lack of enforcement mechanisms allowed construction to proceed with minimal accountability, contributing to a landscape where investor interests dictated the form and function of urban growth.

Another critical issue was the absence of civic engagement in the planning process. Decisions about urban development were often made behind closed doors, without input from the very communities most affected by these changes. As a result, the needs and priorities of residents were consistently overlooked. Neighborhoods became denser without corresponding investments in infrastructure, leading to worsening conditions for those already living there. Sidewalks disappeared under the pressure of increasing vehicle numbers (illegally parked), green spaces (governmental land sold to private developers) were replaced by high-rise apartments, and public services failed to expand to meet the growing demand. In areas like Debar Maalo, a neighbourhood in Centar Municipality in Skopje, which became a focal point for investor-driven urbanization, the unchecked pace of construction led to severe overcrowding and a deterioration in living conditions. Despite high real estate demand, the lack of comprehensive urban planning meant that new residents were moving into environments that were already under strain, perpetuating a cycle of declining livability.

The influence of private investors in shaping Skopje's urban landscape was perhaps the most defining characteristic of this period. Real estate developers held significant control over urban decision-making, often acting as the primary mediators between residents and local authorities. With inadequate municipal oversight, the logic of profit maximization dictated the pace and nature of development. The consequences of this approach were visible across the city where buildings were constructed with little regard for their impact on surrounding areas, infrastructure remained underdeveloped, and the balance between private and public interests tilted heavily in favor of investors. In some cases, even when community members raised concerns, they had little recourse, as institutional mechanisms for citizen participation were either weak or entirely absent.

Skopje's urban growth model, especially its central part, had become unsustainable, threatening residents' quality of life. This has led to halting the construction for the central area in the city. This implementation was not spontaneous but the result of persistent civic advocacy, specifically by the platform Health Before Profit (HBP). Their efforts created the momentum needed for institutional change, demonstrating that civic engagement was not only a reaction to urban crises but a proactive force shaping policy decisions. The moratorium was not just a halt on construction but an opportunity to rethink the future of the city and to restore a balance between development and liveability. The following chapters explore how civic engagement, led by HBP, played a crucial role in bringing about this shift and how the moratorium served as a turning point in Skopje's urban trajectory.

THEORETICAL FRAMEWORK

The recognition of civic engagement as a key part of shaping shared spaces is not new. In early urban settlements, decision-making was often rooted in collective negotiation. People gathered in village squares, assembly halls, and marketplaces to talk through shared concerns and make agreements about land, resources, or public infrastructure . These early practices of self-governance took different forms depending on context, but they offered a foundation for participatory urban decision-making long before planning became a formal

discipline. The idea of the settlement as both a spatial and social unit has been a recurring topic in urban studies, especially since the Industrial Revolution . In this context and across different periods, numerous planning approaches have attempted to 'build community' through design interventions. However, while the built environment undoubtedly shapes patterns of social interaction, community relations are also deeply influenced by broader cultural, economic, and political dynamics that extend beyond physical form.

As industrialization advanced and urban governance became more centralized, these grassroots forms of participation were often pushed aside in favour of top-down, technocratic models. In the twentieth century, modernist planning tended to prioritize large-scale interventions driven by professional expertise, often without the involvement of those most affected . This shift contributed to widespread critiques of urban governance models that prioritize efficiency, growth, and profit at the expense of social equity and collective well-being. In response, scholars such as David Harvey have advanced the concept of the right to the city, emphasizing the imperative for urban inhabitants to reclaim agency in shaping the environments they inhabit.

In the contemporary era, cities are confronted by a multiplicity of complex and interconnected challenges like climate adaptation, extreme weather events, social inequality, gentrification, and the implications of artificial intelligence and smart city governance. In this context, participatory approaches have gained new relevance. More and more they are seen not only as a democratic requirement, but also to work towards more inclusive, resilient, and sustainable urban futures.

CIVIC ENGAGEMENT AND THE RESILIENT COMMUNITY IN URBAN GOVERNANCE

The role of civic engagement in shaping urban governance has long been a subject of research, gaining renewed urgency in the face of contemporary urban challenges. From climate crises to unchecked speculative development, cities today require governance models that are not only participatory but also resilient. Civic engagement, whether through institutionalized public consultations or grassroots activism, has proven to be a crucial mechanism for ensuring that urban policies reflect the needs and aspirations of those who inhabit the city.

Scholars such as Patsy Healey argue that planning should not be a rigid, top-down process dictated by governments or market forces but rather a continuous negotiation among diverse stakeholders. She argues that governance structures must evolve through active public participation, ensuring that urban development is shaped collectively rather than imposed. This view builds upon earlier critiques by Jane Jacobs , who famously opposed large-scale redevelopment projects that disregarded the organic networks of urban life. For Jacobs, cities function best when they grow incrementally, in response to the lived experiences of their communities. Similarly, John Friedmann introduces the idea of "empowered participatory governance," emphasizing that urban planning should not simply inform communities but be co-created by them.

While participatory planning has been widely embraced in theory, its implementation is often full of contradictions. Mark Purcell critiques how such frameworks are frequently co-opted, giving the illusion of inclusivity while maintaining decision-making power in the hands of a few. Farzaneh Miraftab offers a useful distinction between "invited" and "invented" spaces of participation, the former referring to state-sanctioned mechanisms that limit public action, and the latter to grassroots-driven movements that emerge as a response to top-down governance.

The idea of the resilient community has gained prominence in urban discourse, evolving from an ecological concept into a broader social and institutional framewor . A resilient community is not simply one that withstands crises but one that actively adapts, recovers, and transforms in response to socio-economic and environmental disruptions. This perspective ties directly to urban governance, where resilience is increasingly understood as a function of civic engagement and participatory decision-making. David Harvey argues that resilience, when divorced from justice and equity, risks becoming a tool for maintaining the status quo rather than fostering meaningful change. For cities to be truly resilient, they must empower communities to shape their environments rather than merely endure structural challenges.

Elinor Ostrom further expands on this by demonstrating that collective action and local governance are essential for sustainable urban management. Her work highlights how community-driven initiatives, rather than centralized institutions, often provide the most effective responses to urban challenges. Healey reinforces this argument, linking resilience to collaborative planning, where diverse stakeholders engage in decision-making that strengthens a city's ability to navigate crises. In this sense, resilience is not just about enduring shocks, it is about continuously shaping urban development through democratic and participatory means.

These insights are particularly relevant in the case of Skopje, where civic initiatives arose in direct response to an exclusionary, investor-driven urban model. Faced with aggressive over-construction and a lack of meaningful public consultation, those initiatives stimulated local stakeholders to demand transparency, accountability, and a more democratic approach to urban governance. Rather than waiting for institutional spaces of participation to open, they created their own, proving that civic engagement is most transformative when it challenges, not just adapts to, the prevailing system.

CASE STUDY: THE HEALTH BEFORE PROFIT INITIATIVE IN SKOPJE

Skopje's urban development has long been shaped by structural inefficiencies, weak regulatory oversight, and a lack of systematic planning. Decision-making processes often rely on outdated, inaccurate, or low-quality and quantity data, making urban policies reactive rather than strategic. There is no established system for monitoring spatial changes or assessing the effectiveness of urban measures, which leads to unchecked development and an increasingly fragmented cityscape.

Governance mechanisms meant to regulate urban growth are largely ineffective. Internal procedures for drafting and implementing urban plans are poorly structured, and municipal authorities often lack either the capacity or the political will to enforce legal measures. Urban planners are rarely present on-site to assess how their designs materialize, creating a disconnect between planning and the lived experience of residents and construction inspections are nearly non-existent, allowing developers to bypass regulations with little consequence.

One of the greater issues is the absence of meaningful civic engagement in urban decision-making, a shortfall that has been present from the outset. Communication between local authorities and residents is minimal, often limited to bureaucratic formalities rather than genuine consultation. As a result, the city's development has failed to address fundamental public needs. This has led to severe urban deficiencies related to the increasing density like the lack of green spaces, kindergartens, and schools; overcrowded neighbourhoods with overloaded infrastructure; persistent traffic congestion caused by fragmented and uncoordinated transportation planning; and a critical shortage of parking spaces, forcing cars onto sidewalks, further reducing pedestrian accessibility.

At the core of Skopje's urban crisis is the unchecked influence of investors. Developers have largely dictated the pace and nature of urban expansion, often with minimal intervention from municipal authorities. In many cases, they are the only ones engaging with residents, on their own terms, leading to urbanization patterns driven by profit rather than public interest. This investor-led growth model has eroded any aspect of balanced urban development, prioritizing short-term financial gain over long-term quality and liveability.

EMERGENCE OF HEALTH BEFORE PROFIT PLATFORM

The rising discontent with the way the neighborhood was growing has led to increased civic engagement in response to urban development policies, particularly concerning the Detailed Urban Plans (DUP).

One of the earliest organized civic responses to the urban chaos in Center Municipality was In Defence of Debar Maalo (IDDM) formed in 2015, asking for more participatory oriented approaches and inclusion. This initiative comprised approximately 20-30 local residents from diverse professional backgrounds. The mayor at the time demonstrated a willingness to engage with the public, organizing meetings with urban planners, the urban planning commission, municipal officials, and residents. Public presentations and hearings were conducted, accompanied by surveys that addressed key concerns such as the legal compliance of the proposed plan and the extent of opportunities for citizen input. These surveys also contained specific remarks and comments on the plan itself, including questions regarding the legal basis for its development and identification of the relevant articles of the Law on Planning under which it was prepared.

In Skopje, a stark example of this trend was and still is the urban neighbourhood Debar Maalo, one of the most sought-after central areas, where rapid and investor-driven development led to an imbalance between growth and liveability. Despite its high housing demand and escalating real estate prices, the quality of life in the neighbourhood suffered largely. Many residents were unaware of these urban challenges when purchasing property, leading to continued demand despite worsening living conditions.



Figure 1: Health Before Profit public gathering under the motto "Choose a better quality of life in Centar!"

Building on the momentum generated by the In Defense of Debar Maalo initiative, a new civic platform HBP was formed in September 2017, prompted by a tragic traffic accident near Kole Nedelkovski Elementary School. Initially created as an advocacy platform just before the local elections, its primary objective was to introduce urgent urban and environmental concerns into political discourse. The platform aimed to engage political candidates in discussions about pressing urban issues and potential solutions.

POLITICAL INFLUENCE AND THE CONSTRUCTION MORATORIUM

As stated on the group's official Facebook page, the initiative was "created in September 2017, just before the local elections," with the aim of serving as "a pre-election political discourse for potential candidates, to draw attention and spark debate about the pressing issues and potential solutions outlined in it."

One of the platform's main goals was to stop excessive and unregulated construction in Centar Municipality by introducing a construction moratorium. The local elections of 2017 had already marked a turning point, with HBP drafting a list of 43 demands and urging political parties to adopt them . This idea gained public support, and the opposition party Social Democratic Union of Macedonia (SDSM) integrated these demands in their program and subsequently won the elections. Jana Belcheva, a member of IDDM and the creator of the platform HBP was offered a leading candidate position on the list of the coalition led by SDSM and become the president of the municipal council in 2017. With the implementation of the moratorium, several members of HBP were subsequently contracted by the municipality to help oversee urban planning policies. Among these positions, two roles were established within the Urban Planning Department to prepare special reports on controversial DUPs to ensuring greater transparency and oversight.

In March 2019, the initiative In Defence for Debar Maalo has launched a forum named 'A Chance for Skopje', supported by the Institute for Communication Studies in Macedonia (ICS). The forum gathered residents from across the city to discuss urban challenges. In this way other neighbourhoods throughout the city were engaged and informed on the work of the initiative. In the same year, Prince Edward, Earl of Wessex, visited Skopje and attended meetings and exhibitions, called 'Visions for Debar Maalo' and 'Don't ignore, react!', both related to urban activism .

In 2020, Belcheva resigned due to municipality's failure to fulfil its core promises.

ELECTORAL PARTICIPATION AND INSTITUTIONAL ACHIEVEMENTS

As civic engagement deepened, the platform evolved into a more structured political actor. In the lead-up to the 2021 local elections, the initiative formalized into the independent civic list 'A Chance for Centar'. Within just a month of mobilization, the group secured approximately 2,506 votes (6% of all residents, or 12.18% of those who voted in Centar Municipality) winning three seats in the local council and two positions in the municipal public enterprise POC (Parking lots of the Municipality of Centar).

The platform organized itself into thematic working groups covering areas such as urban planning, environmental and communal issues, energy efficiency, education, and municipal transparency. Their representatives, unlike traditional political actors, operated on a voluntary basis, focusing on monitoring municipal programs, proposing amendments, and intervening in matters affecting public interest.

Activities included organizing thematic citizen meetings, mapping pollution sources and cultural assets, and assessing construction projects—all supported by active use of social media.

In the 2021 local elections, 'A Chance for Centar 'was one of more than 30 independent citizen initiatives across the country. Together, they received over 56,000 votes, positioning these lists as the third political force nationwide . This marked a significant shift from civic activism toward broader political participation.

KEY OUTCOME: THE CONSTRUCTION MORATORIUM IN CENTAR MUNICIPALITY

On December 27, 2017, the Council of Centar Municipality in Skopje voted in favour of the decision to halt construction within its legal borders and declared that the urban plans are invalid until their legitimacy is being confirmed. Meaning, they will not be implemented until the actual situation on the ground is assessed, the spatial capacity is examined, and compliance with higher-level planning documents, such as the General Urban Plan (GUP), is verified.

The moratorium on DUPs in Centar Municipality was introduced as a response to widespread irregularities and systemic failures in urban planning. Covering an area of 4.5 km² (of a total of 7.52 km² of the entire municipality), this measure aimed to halt inappropriate urbanization, ensuring a balanced approach to development that prioritizes the public interest . The moratorium serves not only to analyse but also to develop new and improved DUPs. It was expected to improve urban infrastructure planning, resolve governance inefficiencies, and reintroduce transparency into municipal decision-making.

Initial reactions to the moratorium were mixed. While civic initiatives and urban experts welcomed it as a necessary intervention, investors and construction companies expressed concerns over financial losses and project delays. The municipality faced pressure from various stakeholders, necessitating careful navigation of economic, legal, and political challenges.

IMPLEMENTATION OF THE MORATORIUM AND CHALLENGES DURING THE PROCESS

The introduction of the construction moratorium in Centar Municipality was a turning point in local urban governance, yet its implementation was met with considerable resistance and structural challenges. While the initiative aimed to correct longstanding issues, it quickly became clear that both institutional and economic pressures would shape its trajectory.

No municipal decision was made without prior examination of development plans and discussion among the municipal administration, planning professionals, and the mayor, grounded in reasoned argument and evidence-based discussion. Working commissions ware tasked with reviewing the proposed new DUPs before they were submitted for voting in the municipal council. It was crucial in that process that all problems of the urban plan are publicly addressed, with explanations of why a proposal is beneficial or problematic, as well as its financial implications.

One of the key obstacles was the very system responsible for producing the problematic urban plans in the first place. The same planning firms that had previously approved irregularities were now tasked with revising them, raising serious concerns about accountability and the potential for superficial corrections rather than genuine reform.

Budget constraints further complicated the process, as the necessary revisions had to be carried out using already allocated municipal funds, leaving little room for a more comprehensive restructuring. While some urban planners engaged with the process in good faith, others deliberately obstructed the reforms, resisting stricter oversight. In response, the municipality committed to rigorous monitoring, ensuring that the revisions adhered to the principles outlined in the moratorium.

The economic impact of the moratorium quickly became a controversial issue. The halt in new construction directly affected municipal revenue, which had been heavily reliant on construction fees. Local government funding was reduced, placing additional pressure on other municipal services. At the same time, construction companies voiced strong opposition, as stalled projects led to financial losses and uncertainty within the industry.

Despite the moratorium, the enforcement of construction laws remained a serious limitation. There were no systematic inspections to ensure that built structures matched approved plans, allowing developers to bypass regulations with little consequence. Legal gaps continued to enable unauthorized modifications, further contributing to the lack of order in urban development.

Parking and mobility issues also remained unresolved, despite efforts to introduce stricter regulations. Many newly constructed buildings, originally planned with multi-level parking, failed to implement these solutions, exacerbating congestion and reducing public space. The municipality proposed a series of measures, including the enforcement of mandatory garage use, higher parking fees, and a structured timeline for eliminating illegal sidewalk parking within 18 months. However, without a robust enforcement mechanism, the success of these initiatives remained uncertain.

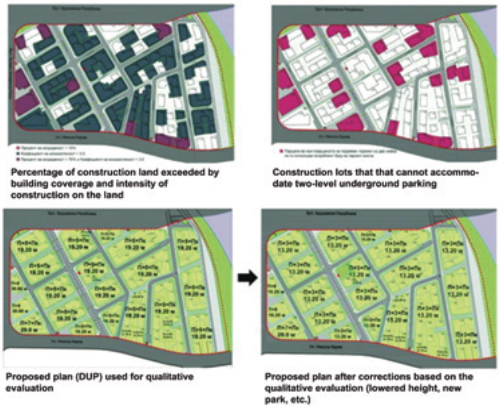


Figure 2: Example of one Detailed Urban Plan (DUP) evaluation and revision

POLITICAL IMPLICATIONS

Contrary to criticism from the construction sector, the moratorium was never intended as an absolute opposition to development but rather as a necessary intervention to shift towards sustainable urbanism. It brought urban planning reform to the forefront of national discussions, particularly concerning how municipalities finance themselves and the long-term implications of unchecked construction. Additionally, the debate over the legalization of illegal buildings gained momentum, exposing the deep-rooted consequences of years of unregulated development. The moratorium served as a precedent for transparency, civic engagement, and responsible governance, reinforcing the idea that urban planning must serve the public interest rather than private profit.

However, the legal and institutional resistance to the reform became evident when the Constitutional Court overturned the moratorium twice, once in March 2019 and then again in December 2020 . The court ruled in favour of the Chamber of Construction that filed charges on the Municipality of Centar based on the argument that the category of moratorium is not recognized in the constitutional system.

Despite efforts to align urban plans with the General Urban Plan (GUP), new DUPs faced obstacles from key institutional actors, including the City of Skopje, the Ministry of Transport and Communications, and segments of the urban planning profession. Nevertheless, during this period, four new DUPs were successfully adopted, based on extensive technical assessments.

METHOD: QUALITATIVE ANALYSIS OF THE URBAN PLANS

Throughout the first three months of the implementation of moratorium the municipality established a working group comprised of two HBP members with urban development backgrounds to evaluate the DUPs. The group intended to establish a methodology for optimal qualitative analysis of the plans based on the building standard law and the masterplan regulations. The group's crucial role was to show its results to the planners and the municipal administration. The group came as a mediator between those two actors and was also involved in the decision-making process by giving recommendations for future legislation on planning regulation.

The methodology adopted for analysing the DUPs that the working group provided was:

1. Analysis of the Existing Situation: Through Spatial Mapping
   - o Inventory Mapping: Conducted a comprehensive survey of the existing building stock and street network, addressing the lack of an updated or reliable GIS database.
   - o Assessment of Plan Implementation: Evaluated the extent to which the provisions of the previous urban plan had been realized, both in terms of constructed buildings and implemented infrastructure.
   - o Ownership Analysis of Vacant Plots: Mapped and categorized empty or undeveloped parcels of land to identify ownership patterns, uncover potential conflicts, and assess development pressures, especially in areas vulnerable to speculative investment.
2. Comparative Evaluation through Visualization and Quantitative Methods
   - o 3D Visualization of Existing vs. Planned Structures: Utilized digital modeling to juxtapose the current built environment with the proposed urban form, enabling stakeholders to visualize spatial transformations and potential impacts on the surrounding context.
   - o Shadow Analysis:
     - I. Duration of Shadow Exposure: Measured the number of hours individual residential units would remain in shadow under the proposed development.
     - II. Shadow Coverage: Assessed the spatial extent of shadows cast by planned structures on adjacent public and private spaces.
   - o Comparison of Quantifiable Urban Indicators: Conducted a side-by-side comparison of key numerical indicators between existing conditions and planned proposals to assess proportionality, density, and compliance with planning standards.
3. Analysis of Planned Urban Conditions in DUPs
   - o Discrepancy Analysis between GUP and DUP: Compared numerical indicators between the GUP and the DUP under review to identify deviations in density, land use, and spatial allocation.
   - o Construction Scope and Intensity: Analyzed the total area designated for construction and the proposed building intensity (e.g., floor-area ratio, building height), evaluating alignment with urban capacity and infrastructural support.
   - o Public Facility Requirements: Assessed the projected demand for educational, health, and social protection facilities, such as kindergartens, schools, and health centers, based on increased population and density.
   - o Green and Open Space Provisioning: Evaluated the distribution and sufficiency of:
     - I. Public green areas: Parks, playgrounds, and accessible open spaces.

through four distinct analytical approaches, examining geological, spatial, ownership, and infrastructural constraints.

- Public Parking Inventory and Street Profile Analysis: Quantified the number of existing and planned public parking spaces & Reviewed Street cross-sections to determine the feasibility of accommodating new traffic and parking demands.
- Compliance of Built Form with Spatial Parameters: Mapped and documented buildings that fail to comply with minimum spatial requirements related to height, depth, and distance between structures, compromising urban form and livability.
- Population Estimation, Density, and Demographic Challenges: Projected population growth and residential density despite the absence of a recent national census (last conducted in 2000), relying on proxy data and local observations to approximate demographic trends.

II. Private green areas: Yards, gardens, and other non-public vegetation.

- Assessment of Parcels Incompatible with Underground Parking (-2 Levels): Identified and mapped plots unable to accommodate two levels of underground parking

CONCLUSION

The construction moratorium led by Health Before Profit in Skopje's Centar Municipality offers critical reflections on the interplay between civic engagement and urban governance in post-socialist contexts. It reveals how grassroots initiatives can interrupt unsustainable development practices and create opportunities to rethink planning priorities amid institutional weaknesses.

This case highlights the fragmented nature of Skopje's planning system and the dominance of investor-driven agendas, showing the moratorium's role as a crucial pause to reconsider urban futures. The initiative also illustrates how organized civic action can challenge entrenched governance, fostering accountability despite political resistance and systemic opacity.

However, the experience also exposes the fragility of reforms tied to individual political actors and the difficulty of sustaining participatory governance over time. Yet, the expanding network of civic organizations advocating for spatial justice signals a resilient, collective form of urban activism rooted in solidarity and shared knowledge.

Finally, the moratorium points to the need for systemic reforms in urban financing, as reliance on construction revenues drives pressures for overdevelopment. Overall, this case demonstrates that civic resilience encompasses both resistance and the capacity to propose and implement alternative urban practices, offering valuable insights for cities facing similar governance challenges and debates about democratic urbanism.

List of Abbreviations:
HBP - Health Before Profit
IDDM - In Defence of Debar Maalo
DUP - Detailed Urban Plan
GUP- General Urban Plan
SDSM - Social Democratic Union of Macedonia
ICS - Institute for Communication Studies

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TRANSFORMATIVE ENGAGEMENT
RETHINKING PUBLIC SPACE AS A COLLABORATIVE PLATFORM FOR COMMUNITY INTERACTION

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ABSTRACT

This paper introduces the concept of Minimally Intrusive Interventions (MII) as a complementary approach to existing participatory urban design methods. Rather than prescribing fixed or predefined solutions, MII creates opportunities for open-ended interaction by implementing small, mobile, and deliberately abstract objects in public spaces. These elements encourage people to physically interact with and adapt them freely. They support participation through everyday acts like moving, rearranging, or engaging with space. MII is not intended to replace established frameworks but to add an experimental layer that can respond to overlooked opportunities in civic engagement, particularly within underused urban spaces.

The conceptual framework is built on four interrelated theories: self-organization, adaptive planning, temporal dynamics, and tangible interaction. These frameworks share the perspective that views cities as evolving systems shaped by local actions, lived rhythms, and material experiences. In this context, participation is viewed not as a singular event but as an ongoing process—emerging over time through touch, presence, and adaptation.

To explore how these ideas might function in practice, the paper examines two illustrative precedents—Imagination Playground and Cut.Join.Play—which demonstrate how adaptable, user-oriented design can foster interaction and spatial transformation, even with limited resources and short timeframes. It then outlines a speculative design proposal for a seven-month intervention in Germany's Ruhr region, testing the MII concept in a neglected public space. The methodology includes fabrication, implementation, observation, and feedback-driven refinement, supported by qualitative tools such as behavioural mapping, visual documentation, and surveys. The paper also addresses key challenges—such as sparking engagement without prescription, navigating observation ethics, and managing material vulnerability.

Rather than aiming for prescriptive solutions, MII invites ongoing experimentation—treating public space as an open canvas shaped by interaction, adaptation, and shared presence.

Keywords: participatory urban transformation, minimally intrusive interventions, dynamic public spaces

INTRODUCTION

In many cases, urban public spaces are confronted with interventions that prioritize predefined outcomes over adaptive processes, limiting opportunities for real-time user participation. Such projects often fail to respond to the evolving needs of communities, exposing a gap between design intentions and lived urban experiences. This paper addresses how this gap might be approached through a speculative urban design proposal referred to here as Minimally Intrusive Interventions (MII) —tactical, mobile, and deliberately abstract design elements that invite citizens to physically engage with, reinterpret space, and actively shape their environment. It focuses specifically on exploring the theoretical grounding for this concept, and how direct, hands-on interaction with public space elements can foster civic engagement, adaptability, and a deeper sense of belonging as a complementary approach to conventional urban design.

Positioned within this broader inquiry into adaptive urbanism, recent literature on urban acupuncture and minimal interventions supports the potential of small-scale, community-aligned design to revitalize overlooked or underused spaces (Naghibi et al., 2020; Enia & Martella, 2019). These approaches suggest a shift in the role of architecture and design—from prescribing use to enabling interpretation (Sanders, 2002). In this view, public space is reframed not as a static product, but as a dynamic, collaborative platform for social interaction, negotiation, and creativity.

If public space is understood as dynamic and participatory, it becomes essential to consider how everyday interactions contribute to its meaning. Street-level interactions—the daily, physical engagements between people and the materiality of urban environments—are particularly crucial in this context. As Sádaba et al. (2024) argue, such interactions occur within the realm of human proxemics, where individuals continuously reinterpret their relationship with public space. These micro-scale interactions offer key opportunities to rethink how public space engagement can be fostered through material and spatial participation.

Direct, tangible interaction with the physical environment plays a crucial role in shaping people's relationship to place. Engaging with spatial elements—through touch, movement, or manipulation—not only helps individuals develop a sense of place, rooted in physical features, memories, and social interactions (Lentini & Decortis, 2010), but also stimulates creativity and playfulness, qualities often overlooked in formal urban planning. Play, understood as collaborative experimentation, enables participants to imagine, test, and reshape alternative ways of inhabiting their environments, turning public spaces into evolving narratives rather than static forms (Poulsen, 2022). This dynamic relationship between physical interaction and reinterpretation also deepens emotional investment: people place greater value on things they help create, a phenomenon aligned with the "IKEA effect" (Norton, Mochon, & Ariely, 2012). Supporting research confirms that tactile engagement—such as touching, assembling, or modifying—enhances feelings of ownership and belonging (Peck & Shu, 2009).

These insights collectively converge in the concept of Minimally Intrusive Interventions (MII)—abstract, mobile, and deliberately incomplete urban objects that invite users to activate and reinterpret them. By avoiding fixed functions, MII allows citizens to decide how to combine, adapt, or transform elements based on their needs. As Cozzolino (2018) notes, the more detailed a design becomes, the less space it leaves for spontaneous behaviours. By embracing openness, MII encourages continuous reinterpretation—like oversized Lego bricks that stimulate curiosity and collaborative construction without relying on prescribed instructions.

Traditionally, designers, architects, and urban planners have shaped public space in ways that guide or dictate user behaviour—deciding where people should walk, pause, or gather. While such spatial control can be necessary, the proposed intervention described in this paper deliberately adopts a different approach. By introducing abstract and flexible elements into public space, the aim is not to direct use but to allow users to generate meaning through interaction. This aligns with the understanding that the outcomes of self-coordinated spatial development cannot be precisely controlled (Moroni et al., 2020) and reflects a broader shift in design thinking, where the roles of designer and user increasingly overlap. As Sanders (2002) emphasizes, participatory design requires new tools that empower people to express themselves directly—not merely react to finished products. In this spirit, co-design emerges as a collaboration between trained designers and non-designers, aiming to build systems that support creativity at all levels (Sanders & Stappers, 2008).

While the concept of MII is still in its early stages, it offers a speculative yet grounded framework for exploring new forms of participation in public space. This paper does not aim to validate outcomes through empirical data at this stage; instead, it focuses on building a theoretical foundation that supports and contextualizes the key assumptions behind the concept. The following section introduces a set of interrelated theoretical frameworks that help explain why this type of open-ended intervention might offer a meaningful contribution to participatory urban design, complemented by illustrative examples of similar approaches in practice. The paper's aim is to conceptually define MII and position it within established theory, while also outlining a speculative design proposal and drawing insights from precedent cases to illustrate its potential in real-world contexts.

THEORETICAL FOUNDATIONS

This paper draws on four interconnected theoretical frameworks—self-organization, adaptive planning, temporal dynamics, and tangible interaction—to provide a conceptual foundation for the proposed design approach. These frameworks challenge top-down planning by emphasizing complexity, emergence, and user agency. They recognize cities as dynamic and evolving systems, not fully plannable. As urban theory has progressed, the metaphor of the city as a machine has given way to that of the city as an organism—responsive, decentralized, and often surprising in its patterns of change (Batty, 2012; 2022). Urban form, within this conceptual lens, emerges from the interaction of physical infrastructure with social motivation, perception, and everyday use (Sengupta et al., 2016).

Self-Organization

Focusing on self-coordination—the most challenging case within the broader concept of self-organization—this paper addresses how unpredictable, localized decisions and interactions, driven by individuals acting independently rather than through top-down or group-directed processes, influence the development of urban environments. As Moroni et al. (2020) explain, self-coordination is a process in which "place-based actions, interactions, and chain reactions produce certain patterns," ultimately leading to the spontaneous alignment of independent agents. Such dynamics challenge conventional planning approaches by showing that outcomes cannot be predetermined; interventions like MII must be treated as open-ended, evolving systems rather than singular events with fixed phases.

Such interventions are inherently provisional. They embrace uncertainty, explore alternative routines, and serve as temporary “laboratories” for spatial and social testing. Their incompleteness lowers barriers to engagement and invites broader participation (Moroni et al., 2020). With exploration prioritized over control, failure is accepted, and design structures remain open to adaptation. This ethos underpins MII, where elements are deliberately abstract and reconfigurable, encouraging users to reinterpret their function through direct interaction.

As Jane Jacobs (1961) emphasized, cities are complex systems shaped by place-based processes of self-organization. The more planners seek to control and design from the top down, the less room there is for spontaneous adaptations and improvements. Although there is ongoing debate about how spontaneity can or should be enabled, there is broad agreement among scholars that cities must be seen as self-organizing and complex, rather than predictable and fully plannable systems (Cozzolino, 2018). Design, in this view, benefits from a trial-and-error approach—allowing cities to adapt to uncertainty through modest, iterative interventions.

Temporal Dynamics

As living organisms, cities are dynamic, evolving systems shaped through time, not just by physical form. When design interventions are static, inflexible, and unresponsive, they fail to resonate with the temporal rhythms that define urban experience. Sengupta et al. (2016) argue that traditional planning—both technical and communicative—needs to incorporate the dimension of time to allow a more nonlinear, adaptive rationale to emerge.

Typical urban projects are often framed in binary terms: there is a "before" the intervention and an "after," with little attention to the transitional period when a project could respond to lived realities and feedback. This paper proposes working within that in-between—during, not before or after—allowing urban space to evolve as a system responsive to real-time dynamics rather than as a finished product. Without transitional engagement, interventions risk becoming abrupt, rigid insertions into dynamic systems. As Taleb (2012) argues, we often mistake complex systems for mechanical ones, expecting man-made environments to function like predictable inputs and outputs, leading to static forms and fixed intentions that ignore the evolving nature of public space. Urban life is anything but detached—it is adaptive, layered, and continually unfolding in response to use (Wunderlich, 2023).

MII avoids the assumption that transformation must happen all at once. As a temporal intervention, it is not a finished solution, but a soft, intentionally fluid one—open-ended and responsive, evolving as people engage with it. It does not aim to transform space in a single act but instead enables gradual change, guided by use, adaptation, and time itself.

This understanding reinforces the idea that design should operate in sync with, rather than outside of, the temporal rhythms and uniqueness of place. Rather than interrupting these rhythms, MII seeks to embed itself within them, contributing to the unfolding of local experience through minimalist intervention and temporal adaptability. In doing so, MII contributes to the evolving identity of space without overwhelming it—an approach aligned with recent thinking on temporality and place-making (Wunderlich, 2023).

Adaptive Planning

Adaptive planning is a necessary response to the understanding of cities as complex systems. If cities are

inherently dynamic, interventions must not only be flexible and open to change, but also capable of integrating ongoing feedback from their environments. An intervention that changes but ignores its context is not adaptive; it is disruptive. This logic is reflected in planning literature, where scholars have increasingly acknowledged the limits of predictability and the need for approaches that can co-evolve with urban dynamics. Adaptive planning supports a range of possible futures by establishing flexible conditions for development rather than fixed endpoints (Rauws & De Roo, 2016).

In many traditional planning processes, making feedback meaningful remains a challenge. As Wang and Lin (2023) point out, the tools and methods used in most processes are too abstract: citizens are asked to respond to diagrams, ratios, or projected futures they can't fully grasp. This makes feedback either premature or delayed, disconnected from lived experience.

MII addresses this challenge through its capacity to change based on real-time interaction. Unlike conventional approaches that gather feedback only before or after implementation, MII is designed to collect it during use. It provides citizens with tangible, real-time tools of communication—interventions they can physically interact with, shape, and respond to. Feedback is not abstract, but embodied in action. Its physical flexibility—being mobile, reconfigurable, and non-final—allows it to evolve based on how people engage with it. Observation plays a crucial role here: the layout and shape of the intervention are not frozen but shaped by user behaviour. This is what makes MII relational—not only do citizens adapt to the space, but the space also adapts to them.

Real-time interaction in MII functions as a form of live testing. Through observation and engagement, designers can understand how the interventions are used, adapted, and interpreted in situ. This is fundamentally different from asking people to react to drawings or comment after implementation—it is feedback built into the moment. This kind of co-evolution is supported not by master plans, but by conditions for development. Rather than defining one fixed urban configuration, MII creates space for modular, incremental adaptation. It aligns with the logic of Organic Development Strategies (ODS), which focus on flexibility, openness, and supporting the mechanisms of self-organization (Rauws & De Roo, 2016). In this way, MII becomes less a design and more a framework for possibility—one that evolves alongside its context.

Tangible Interaction

Urban space is experienced not only through sight and thought, but through touch, movement, and bodily presence. As McDonnell (2010) highlights, "before audience members can interpret an object, they must first interact with that object" (Griswold, 1987, as cited in McDonnell, 2010). This highlights the potential importance of physical interaction in shaping meaningful engagement with urban space.

Bodily engagement, especially through touch, is central to how people form relationships with places. According to Lentini and Decortis (2010), experiencing physical space through movement and interaction conditions our emotional and spatial understanding. It enables people to associate settings with specific experiences—building personal meaning and memory in the process.

Physical presence in space—simply being within it, moving through it, and experiencing it with the body—can deepen spatial awareness. Some argue that our perception of space emerges from this immersive engagement, that our body is not merely a vessel in space but a perceptual center through which space becomes meaningful (Naghizadeh & Ostadi, 2014). Whether through full-body presence or direct touch, our relationship with the built environment is shaped by how we inhabit and interact with it.

This interaction, however subtle, can be seen as a kind of dialogue between body and object. Salingaros (2006, cited in Naghizadeh & Ostadi, 2014) speaks of a "mutual speech" between human beings and the microstructures of built form—a dialogue often mediated by tactile experience and scale. In this view, architecture and urban space are not neutral backdrops, but participants in ongoing, embodied communication.

In the case of MII, these ideas take physical form. The intervention invites people to move, touch, and reshape its elements—not for functionality alone, but for engagement. In doing so, it opens up a space where material interaction may generate emotional and spatial connection. While the degree of attachment may vary, what matters is that people are invited to act, and through action, to take part in shaping the space they inhabit.

ILLUSTRATIVE CASE STUDIES

The theoretical frameworks outlined above position MII as a viable approach to participatory design—one that supports decentralized action, invites reinterpretation, and evolves over time. MII draws strength from its open-endedness: its abstract, mobile elements are designed to be touched, moved, and reshaped, allowing meaning to emerge through engagement. Rather than prescribing fixed outcomes, the intervention remains reversible and adaptive, guided by lived use and feedback.

To illustrate how such principles might work in practice, this section highlights two relevant precedents: Imagination Playground and Cut.Join.Play. While these cases do not fully align with the MII concept, they offer valuable insight into related strategies of minimal, participatory intervention.

Imagination Playground

Imagination Playground, designed by the Rockwell Group and led by architect David Rockwell, is a reconfigurable play environment launched at Burling Slip in Manhattan in 2010. Developed in partnership with the New York City Department of Parks and Recreation, the project was part of a broader effort to redefine play as a more open-ended, user-driven experience (ArchDaily, 2010; Rockwell Group, n.d.). It features large, lightweight blue foam blocks that invite children to stack, connect, move, and reshape their play space.

These modular elements are intentionally abstract, meaning their function remains deliberately undefined. They embody the principle of tangible interaction, encouraging users to form meaning through direct engagement. As a result, the spatial composition of the playground shifts constantly based on children's input, reflecting a dynamic, evolving environment.

While the playground is designed for children, its success hinges on qualities that transcend age: physical curiosity, open-ended engagement, and a willingness to reimagine space. As Stevens (2004) notes, people often engage in simulative play "not just as a display to others, but to test their own bodily skills… or for the pleasure of the bodily experience" (as cited in Donoff & Bridgman). Henricks (2015) describes play as a "laboratory for social interaction," a space where models for living can be tested and co-created (as cited in Poulsen, 2022).

Although MII targets a broader urban demographic than children, Imagination Playground offers a compelling parallel: it shows how simple, movable, and abstract objects can foster participation, spatial awareness, and even ownership through interaction. Its relevance lies not only in the context of play, but in how design can serve as an open framework for people to shape their environment collaboratively.



Figure 1: Children playing with modular foam blocks in an open playground setting. (Source: Imagination Playground, n.d.-a)

Cut. Join. Play.

The second illustrative example is Cut. Join. Play., a temporary installation designed by MAS Studio as part of the Activate! Chicago initiative, which sought to activate underused spaces across the city through small-scale interventions. The project was coordinated by architect Katherine Darnstadt, and operated with a notably modest budget of just $1,000 (MAS Studio, n.d.; Next City, 2014).

Cut. Join. Play. transformed a vacant lot into a vibrant community space using only sheets of plywood, assembled into modular urban objects that could function as benches, planters, recycling bins, or display platforms. These elements were lightweight, easy to fabricate, and required no heavy machinery or major demolition—qualities that made the intervention minimally intrusive and highly adaptable.

While the blocks used here were less abstract, playful, or physically reconfigurable than those in Imagination Playground, the project still demonstrated the power of small, programmatically flexible interventions to reframe public space and support civic engagement. The elements were functional, scalable, and responsive to different community needs—shifting from garden plots to gathering spaces as needed.

More importantly, the installation emphasized immediacy over policy, showing that meaningful change can begin through low-cost, physical action: "It makes a difference by building something small with an immediate impact rather than trying to direct policy… Your investment is minimum, but your return could be huge" (SOM, 2023).



Figure 2: Community members participating in the Cut. Join. Play. by MAS Studio in a vacant lot in Chicago. (Source: MAS Studio, n.d.)

The above case studies offer preliminary illustrations in support of the conceptual approach proposed in this research—particularly the potential of small-scale, flexible interventions to inspire social interaction, creativity, and local transformation. Both projects demonstrate how minimally intrusive design strategies, grounded in principles of self-organization and adaptability, can activate underutilized spaces and empower users to shape their environment.

While the precedents illustrate adaptable, user-driven interventions, MII advances this logic by removing fixed functions and embracing abstraction. Its modular elements are not prescriptive but open-ended, inviting interaction and reinterpretation. In MII, form follows interaction—space evolves through use, not predefined intent.

MII: DESIGN PROPOSAL AND ANTICIPATED CHALLENGES

This research proposes a small-scale intervention to be implemented in an underused, publicly accessible space within Germany's Ruhr region—an area undergoing a significant transition from post-industrial decline toward socio-ecological experimentation. The site aligns with the concept of an urban crack (Loukaitou-Sideris, 1996): a neglected, in-between space that emerges where formal urban planning breaks down. Though often overlooked, such spaces possess high potential for adaptive reuse and participatory transformation. Their ambiguous and residual nature makes them ideal testbeds for temporary, mobile interventions like MII, which prioritize openness, improvisation, and user interaction over fixed function.

The intervention will consist of a group of lightweight, human-scale elements made from movable materials, potentially including upcycled components. While their exact form remains flexible, the objects are envisioned as modular or loosely connectable—similar to oversized Lego pieces. They will be designed to accommodate multiple modes of engagement: sitting, leaning, rearranging, laying on, or simply walking past. The elements will remain deliberately abstract and visually open-ended, encouraging interpretation and interaction without prescribing specific uses.

The selected site will be publicly accessible, allowing passersby, local residents, children, students, and elderly individuals to interact freely with the intervention. Users may choose to engage physically, alter the configuration, or ignore it altogether. This open-ended dynamic supports MII's broader objective of allowing meaning to emerge through interaction over time. However, this ambiguity also introduces a fundamental challenge: how can curiosity be sparked without dictating behaviour?

Rather than acting as a top-down provider of form, the designer's role shifts to that of a mediator who subtly scaffolds opportunities for action (Sanders & Stappers, 2008). Encouraging participation may require spatial cues, sensory appeal, or placement in social hotspots. Gamification or symbolic provocations could serve as soft invitations—guiding, without instructing. At the same time, MII must navigate the challenge of rules. Even in the most flexible systems, design does not operate in a vacuum. Rules—whether formal (signage, policies) or informal (norms, expectations)—function as meta-conditions that shape how space is interpreted and used (Cozzolino, 2018). Rather than restricting spontaneity, simple and enabling rules can support creative engagement (Moroni, 2015; Zywicki, 1998).

Empirical data will be collected through field surveys, behavioural mapping, and visual documentation. These methods will track patterns of engagement throughout the day and across different user groups. Observational findings will inform real-time adjustments to the layout or composition of the elements, supporting an iterative and feedback-driven design process. Yet evaluating engagement in public space raises ethical considerations. Overt observation may influence behaviour (the Hawthorne effect), while discreet observation raises concerns around consent and transparency. Balancing authentic insight with ethical duties of transparency, anonymity,

and autonomy is a complex challenge that the project will approach with attentiveness and adaptability.

Finally, practical questions around durability and maintenance must be acknowledged. In any urban context, public installations are vulnerable to weathering, misuse, vandalism, or neglect. Should MII objects be protected—anchored, repaired, or monitored—or should their vulnerability be part of the experiment? Allowing for deterioration may reflect the transience of public interest and the lifecycle of participatory artifacts. Alternatively, lightweight maintenance protocols, periodic check-ins, or community-led stewardship could help keep the elements functional without undermining their spontaneity.

Ultimately, this proposal aims not to test a finished solution, but to initiate an unfolding process of spatial experimentation. By inserting deliberately incomplete, mobile elements into a neglected site, the project invites the public to reimagine and reconfigure their environment—using everyday interaction as a tool for civic activation and shared authorship.

CONCLUSION AND WAYS FORWARD

This paper proposes Minimally Intrusive Interventions (MII) not as a replacement for established participatory design methods, but as a complementary strategy—one that highlights dimensions often overlooked in conventional planning: ambiguity, material interaction, and temporality. By focusing on small-scale, open-ended, and user-activated elements, MII reframes public space as a shared, evolving platform shaped through everyday use.

What distinguishes this approach is its commitment to process over product. The aim is not to impose a predefined vision, but to create conditions for participation to unfold—through interaction, feedback, and change. The intervention does not seek permanence or aesthetic resolution. Instead, it values informality, adaptability, and the potential for failure as a source of learning about place, people, and participation.

When people touch, move, ignore, or alter these objects, they are not just responding to space—they are participating in its making. Even minimal engagement becomes meaningful, as it materializes agency and signals what kinds of interactions public space can support when design invites, rather than instructs.

As the project moves into its implementation phase, key questions remain open: How will people engage with ambiguity? What forms of spatial authorship will emerge? And what can we learn from what does not work? Rather than delivering answers, MII offers a prompt—to planners, designers, and communities—to experiment, adapt, and stay attuned to the quiet dynamics of interaction over time.

In that spirit, this work advocates for a slower, more situated approach to urban participation—one that welcomes uncertainty, values reversibility, and treats time not as a constraint, but as a co-creator of meaningful public space.

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DECIDING ON THE MEASURES IMPLEMENTATION FOR RIVERFRONT FLOOD RESILIENCE ACTOR MAPPING AND NETWORK ANALYSIS

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ABSTRACT

Riverfront redevelopments pose significant challenges in achieving effective flood resilience. The success of riverfront design relies on a strategic combination of measures. Levees, floodwalls, and drainage systems are known as structural measures and help mitigate immediate flood risks, while non-structural approaches, such as land-use planning, policy frameworks, and community engagement, focus on offering long-term, adaptive strategies. Over the past three decades, developments in Hamburg, Germany, have integrated structural and non-structural measures into their flood management strategies. Even though there are exemplary models of effective riverfront design in Germany, there is a lack of research regarding the specific design decisions that contribute to their success. Additionally, the roles and influences of human and non-human actors in shaping flood-resilient designs are insufficiently researched.

This paper investigates the actors involved in the implementation of either structural or non-structural interventions for flood resilience in the riverfront redevelopment in HafenCity in Hamburg. Using actor mapping and visual network analysis, the research identifies key human and non-human actors involved in the process. Furthermore, the mapping examined their influence on decision-making in the redevelopment of the riverfront. Actor mapping and visual network analysis provide valuable insights into the strength and type of relationships that shape the development and implementation of flood resilience strategies. Data planning documents, project documentation, and regulatory frameworks was used to construct an actor-network map.

The analysis points out that HafenCity's flood strategy relies on a three-part core: the City of Hamburg, which sets the rules; HafenCity Hamburg GmbH enforces the rules in every land sale; and the Warft (elevated ground) model that translates law into concrete defence works. This paper provides a comprehensive framework for understanding the interplay of actors that influence the use of structural or non-structural measures for flood resilience in riverfront redevelopment in HafenCity.

Keywords: flood resilience, HafenCity, riverfront redevelopment, urban waterfronts, visual network analysis

INTRODUCTION

In response to sea level rise, fluvial floods and storm surges governments are experimenting with hybrid governance models that mix public regulation, private finance of projects, and involvement of the community (Restemeyer et al., 2018). With the rise of climate-induced risks, such as floods, riverfront redevelopment projects must find the balance between becoming resilient and following their economic and urban development aspirations. This paper investigates how flood resilience measures are conceptualized, negotiated, and implemented in HafenCity redevelopment project in Hamburg. Resilience can be framed in terms of infrastructure or robustness (Ahern, 2011). However, this paper adopts a sociotechnical perspective that understands resilience as an evolving and relational process (Folke, 2006).

Existing research on HafenCity is rich in design narratives and governance mechanisms. This paper fills the gap by mapping the full actor network behind flood-risk protection mechanisms, including all human and non-human actors (such as engineering solutions) and examining how ties evolve from design through operation and maintenance. The research draws on Actor-Network Theory (Latour, 2005; Yaneva & Heaphy, 2012) to trace how decisions about flood protection are shaped by assemblages between human and non-human actors. The HafenCity case is unique for exploring how resilience is embedded both in built forms and institutional decisions, planning, and urban image. This paper contributes to the discussion on urban resilience by focusing on the process of implementing resilience.

HAFENCITY PROJECT

A model for living with the water

The rise of neoliberal urbanism has brought a shift in European flood risk management from State centric towards mixed public private models. Cases like Rotterdam, London, and Copenhagen show that governments sustain their legal authority, but they progressively rely on private resources and expertise for flood management (Klein et al., 2017; Mees et al., 2014; Restemeyer et al., 2018). HafenCity is the largest inner-city development in Europe, which transforms 157 hectares of former port infrastructure into a new urban district on the banks of the River Elbe. HafenCity is one of the precedents of this shift as it requires that developers finance on parcel protection and develop it.

Site and flood-risk setting

HafenCity occupies the former free-port islands in Hamburg, which are directly exposed to Elbe storm surges that can reach +6 m NN. The 1962 flood still influences local safety culture (Mees et al., 2014). The HafenCity area is exposed to tides as well, so flood resilience was prioritized from the beginning of the project. After the flood in 1962, the city increased its flood protection levels through several dike improvement programs. Today, the LSBG (Roads, Bridges and Waterways Agency) designs the flood protection for a water level rise of +8.3 m NN by 2100. However, the achievement of flood resilience in HafenCity was never understood as purely engineering resilience; socio-ecological resilience is also given significant importance.

Structural and non-structural measures for flood protection

HafenCity occupies the area outside Hamburg's main dike line. The city rejected a perimeter dike for the area and decided to use the "Warft" approach: In the Sandtorkai/Dalmankai district, every plot and public street is raised to ≥ +7.5 m NN (now +8.3 m NN for new phases (Freie und Hansestadt Hamburg, 2024). The lower quay promenades are floodable (Figures 1, 2, 6, and 7). The new ground surfaces to ≥ +7.5 m NN enable phased, plot-by-plot development without delay (Infrastructure, n.d.). Utilities and evacuation bridges (Figure 3) remain operable when quays, streets, and public spaces are inundated.



Figure 1: Floodable promenades and buildings using waterproof membranes



Figure 2: Flood Gates



Figure 3: Evacuation bridges



Figure 4: In-between public spaces



Figure 5: Plinth structures



Figure 6: Floodable public spaces

Furthermore, each of the buildings add site-specific defences in form of structural measures. These measures, besides the raised plinths (Figure 5), include escape routes with pre-defined minimum elevation (Figure 5), dry-proof façades (Figure 1), flood gates and water-tight service penetrations (Figure 2) that are sealable. Part of the flood responsibility has been transferred to the private sector as developers were required to build plinths for the buildings at a minimum of 7.50 meters.

Non-structural measures include maintenance and operational plans, flood protection officers per property or building group, yearly testing of closures and technical systems, and notifying the residents of possible storm surges. For this purpose, as inscribed in 2002 Flood Protection Ordinance (Flutschutzverordnung-HafenCity, 2002), each condominium block forms a “collective flood-protection association” (Flutschutzgemeinschaften) which is responsible for annual drills, door maintenance, and closing of the flood gates during events - these tasks are often outsourced to security firms. A real-life test for flood protection came in 2007 when a storm surge overtopped the quay parapet (+5.1 m NN). Minor garage flooding revealed two malfunctioning flood doors. Finally, HafenCity residents are notified of imminent storm surges through printed storm-surge information leaflets and online/app-based warning services (Storm Surge Information for Residents of the HafenCity and the Speicherstadt, 2024).

Flood-Risk Governance Architecture, Legal and Policy Instruments

There are a few legal instruments that organise the HafenCity flood protection process. Its governance is deliberately hierarchical. The decision-making process is publicly led but is privately implemented. Three institutional pillars organise HafenCity’s flood governance:

(i) the State Agency for Roads, Bridges and Waterways (Landesbetrieb Straßen, Brücken und Gewässer - LSBG), which oversees city-wide flood defences.

(ii) HafenCity Hamburg GmbH, which coordinates planning and land sales.

(iii) Private investors and developers, which are important after the building completion. They are obliged to form the condominium associations that bear the maintenance duties.

Hamburg’s Ministry for Urban Development and Environment (BSU) and its agency the LSBG set the safety standards, which are embedded in the 2002 Ordinance (Flutschutzverordnung HafenCity, 2002), check if developers complied to the standards and approve the plans and give building permits at completion stages of building implementation. The LSBG provides technical input on flood levels and minimum implementation standards according to flood levels. First, the 2002 Ordinance codifies minimum plinth height and the duties of the Flood Protection Associations in the maintenance stage of the project. The Local Development plans (Bebauungspläne) for each neighbourhood in HafenCity embed plinth rules in zoning. Finally, the Letters of Intent (Anhandgabe) protocol ensures the building meets the standard.

HafenCity Hamburg GmbH is a completely city-owned developer established in 1997, which coordinates plot sales and ensures designs meet the flood codes using its bargaining power to mediate between the Municipality and the developers. HafenCity Hamburg GmbH works iteratively with each developer. The land sale is executed only after flood-design compliance, aligning market incentives with safety. Flood protection is legally enforced by public authorities, but the operational responsibility (the design, maintenance, and alert systems) is decentralized to property owners. Private property owners are responsible for implementing and financing flood protection measures on their buildings, forming legally mandated Flood Protection Associations. However, there are no direct subsidies or tax rebates to HafenCity property owners – costs for flood protection are viewed as paying for the privilege of waterfront living. While private actors carry the cost and execution of the "Warft" model elevation and the other specific building measures, BSU manages risk communication and emergency planning (Mees et al., 2014).

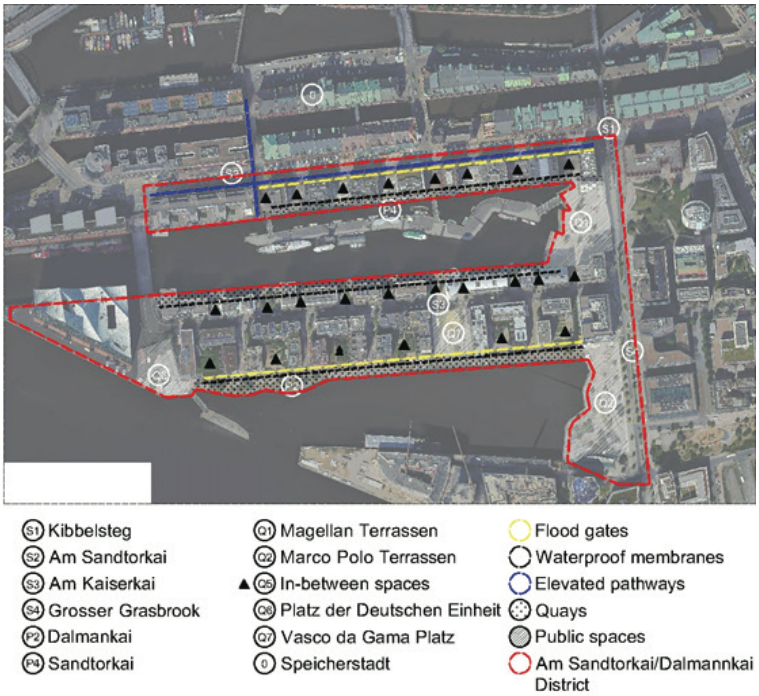


Figure 7: Area being studied. S2, P2, P4 are floodable streets beneath the water level

METHODOLOGY AND THEORETICAL FRAMEWORK

HafenCity was selected as a case study for its prominence, data availability, and advanced project stage: by 2025, roughly two-thirds of its floor area will be complete, which provides insight into both construction and maintenance phases. Data was collected through review of the project website, planning documents, policy reports, scientific literature, and design guidelines. At the explorative stage of the research experts from ASTOC and KCAP were interviewed to gain knowledge on the process of urban planning and how it involved flood protection. The focus of the research was the Am Sandtorkai / Dalmankai District (Figure 7).

This research applies a qualitative, Actor-Network Theory (ANT) informed methodological approach. The first step of the research was actor mapping to identify important institutional, technical, material, and environmental actors (Latour, 2005) through processes of negotiation and translation. This method reveals resilience not as a static goal, but as a situated, socio-material outcome of continuous reconfiguration (Latour, 2005; Yaneva and Heaphy, 2012). The second step was to trace the networks and see how their relationships shaped decision-making. Each mention of interaction relevant to flood-risk management generated an edge linking a source actor to a target actor. The coded edge types are regulation, authority, resource-flow, partnership, conflict, and expertise. The process mapping covers the period from the project's start year to the present and is drawn syn¬chro¬ni¬cally—that is, not all actants (nodes) appear or are active at the same time. Around 62 nodes (public bodies, private developers/owners, legal instruments, infrastructural elements, civic groups, and non-human/environmental actants) were coded and are represented on the map. The Multi Gravity ForceAtlas2 algorithm was used to

generate the network (Figure 8). The node size is determined by its betweenness value.

ACTOR–NETWORK ANALYSIS

The network map immediately points to three dominant actants or actant groups: the City of Hamburg + HafenCity Hamburg GmbH, the non-human "Warft Model", and the Flood Protection Ordinance. The density of links radiating from them towards other actants illustrates that they sit on most of the shortest paths across the network. This makes them very important mediators, or even translators between policy, capital, and concrete flood-protection measures (structural or non-structural). HafenCity Hamburg GmbH connects outwards to developers, engineers, residents, and legal instruments. This illustrates its role as a node that every other actor must pass through when moving between the public-law arena and the implementation of projects. The Warft Model, although it is a non-human actor, operates as an "obligatory passage point" (OPP) in Latour's sense. This shows that every technical component - plinth structures, flood doors, sump pumps - relies on this elevated-ground concept, which in turn links up to modelled water levels and the 2002 Ordinance (Flutschutzverordnung HafenCity 2002). The 2002 Ordinance's high betweenness value shows how the legal text itself channels regulatory authority toward plot-level developers.

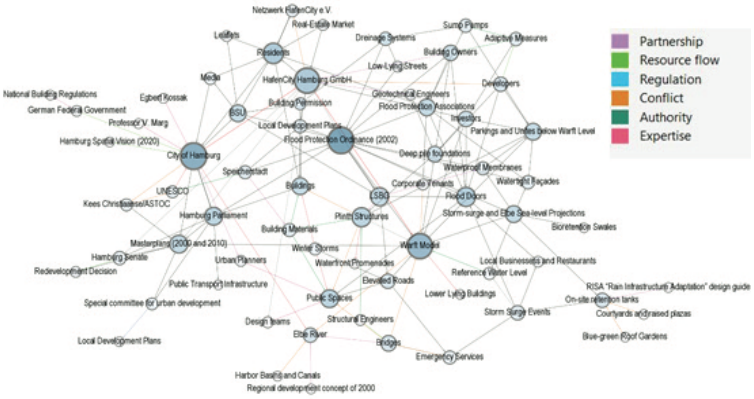


Figure 8: Actor-network map of flood management in HafenCity

There is a second ring of influential but slightly less central nodes visible on the network. The LSBG acts as a mediator between engineering knowledge and power. It is connected through

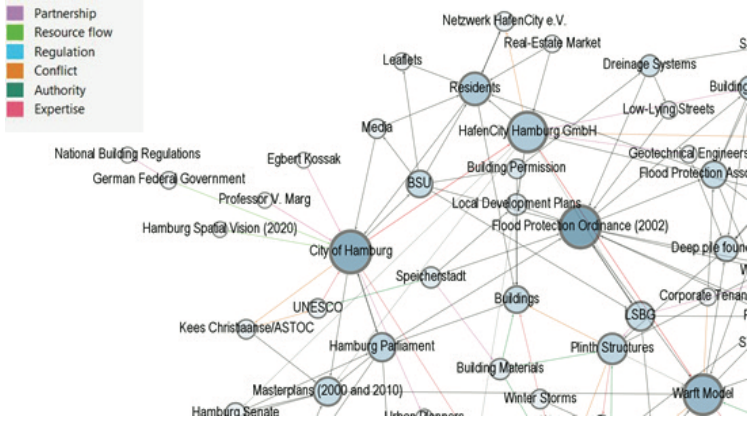


Figure 9: Fragment of the actor-network map showing the policy cluster

purple edges (which represent partnership) to nodes that are of a technical nature, while green edges (representing regulation) link it back to the City of Hamburg. This illustrates LSBG's dual mandate as an expert and supervisor. Two non-human actants: buildings and public spaces, betweenness indicates how many individual measures and actors are routed
through these physical domains.

Beyond the core actors, the network map shows three modular clusters. At the upper-right, there is a policy cluster (Figure 9) that includes the Masterplan, local development plans (Bebauungspläne), the Hamburg Parliament, and the Hamburg Senate. This cluster is dominated by authority edges, which illustrates the formal planning hierarchy. Around the Warft Model node (Figure 10) sits a densely wired implementation cluster of structural defense elements and specialist contractors. There is also a third, more fragile civic cluster—Residents, "Netzwerk HafenCity" e.V., Flood Protection Associations, that connects to the core

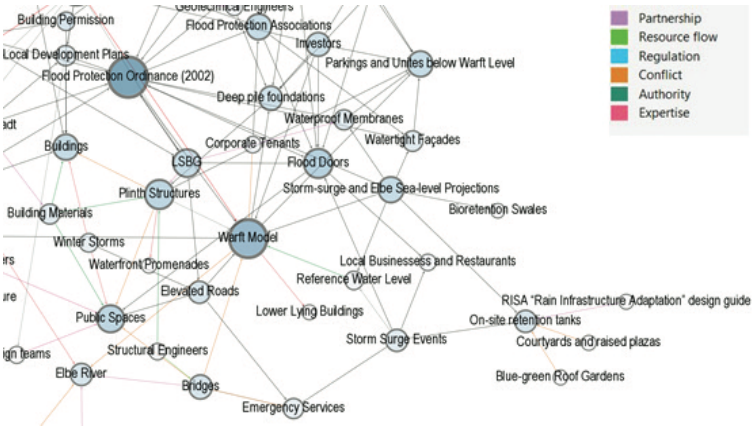


Figure 10: Fragment of the actor-network map showing the structural flood protection nodes

In the actor-network, the structural flood-defence measures form a belt wrapped around the Warft Model and the Buildings nodes. Plinth Structures, Deep-Pile Foundations, Watertight Façade, Flood Gates, Underground Parking, Sump Pumps, Drainage Systems and the small satellite of On-site Retention Tanks/Bioretention Swales all radiate from, or sit one step away from, the Warft Model node and occupy the inner-periphery (Figure 10) they are closer to the part of the cluster of the policy cluster and the Warft model than the civic cluster or the outlying planning documents. That shows that these measures are functionally central but relationally dependent as they rely on the Warft Model node to reach the rest of the network. The Flood Gates bridge two clusters, they connect to the technical belt and, also, to Flood Protection Associations, which shows how certain structural devices also depend on civic action for operation. Finally, Retention Tanks and Bioretention Swales nodes sit further out on the right side of the network, tied to the Warft and Elbe River and Climate-Change influenced water reference level that shows their dual identity as both engineering and ecological measures.

DISCUSSION

The actor–network map of HafenCity's flood governance shows a tri-centric arrangement in which the political authority (Senate and the City of Hamburg), the development mediator (HafenCity Hamburg GmbH), and the material structural measures (Warft Model) form the backbone of the actor-network. Unlike the conventional public-private relationships described in much of the neoliberal-urbanism literature, decision-making in the case of HafenCity must go through an obligatory passage point that is neither purely institutional nor purely technical: raising every parcel to a prescribed level higher than the reference flood risk water level. The network also shows the power of legal artefacts like the 2002 Ordinance, which is an active actant that shapes the flow of money, authority, and technical details in the area. The 2002 Ordinance is second only to the Municipality and HafenCity Hamburg GmbH in its betweenness value. Because the ordinance codifies the Warft height and obliges developers to form Flood Protection Associations, it connects through both authority and partnership, edges into the "structural" ring of nodes (plinths, sump pumps, and flood doors) which include both structural and non-structural measures for flood protection. The law thus behaves as a mediator. By contrast, the technical nodes exhibit low mediating power, but collectively they constitute the material backbone of the flood-risk strategy. In ANT

they are “inscriptions” of safety. The structural measures are dependent actants whose connectivity and their capacity to protect collapse if the Warft Model node is removed. The system’s engineering resilience is therefore represented by a single-point-of-failure risk - the Warft concept is the obligatory passage point that activates each structural element. This means that, should future sea-level scenarios demand a further plinth upgrade, the Warft concept - and the ordinance behind it - must be reopened, which will create a moment of potential contestation. Finally, the position of other structural measures’ nodes, like on-site retention tanks, bioretention swales, shows they remain peripheral to the flood-safety strategy.

Developers bear the entire expense of building the plinth structures on their plots and building-level defences and emerge as a second strategic pillar. This market mechanism that frees municipal budgets is accepted as the “price of admission” to a waterfront location. The ANT map also exposes the downside of the distribution - the civic actors and small businesses connect to the core almost exclusively via HafenCity Hamburg GmbH. The scarcity of direct links from civic actors into the regulatory core makes visible the lack of participatory input in HafenCity’s flood-risk management. This shows its top-down character in the planning phase and the important mediator, HafenCity Hamburg GmbH. The ANT map also points out the debate on public–private partnerships. Although the private sector finances and operates most structural measures, the City of Hamburg retains agenda-setting power through the 2002 Ordinance and through its complete ownership of HafenCity Hamburg GmbH. This hybrid allows rapid decision cycles. If HafenCity Hamburg GmbH were ever dissolved, the number of paths between clusters would lengthen, which would reduce the adaptive speed of the whole flood protection system.

There are possible ways to include participation and civic engagement in the process of flood management. A co-production inside tendering is one possibility. This means actively involving residents or civic groups before the formal submission of a project proposal from the developer. It could be co-designing parts of the project and sharing power and knowledge early inside the competitive tendering process itself. Furthermore, HafenCity already rewards ‘inclusive building design’ (Interreg Europe, 2023). Therefore, a possible model of increasing participation could be projects to get higher scores if they include citizens in early stages of project design and include design features that support accessibility, mixed-use, social cohesion, etc.

CONCLUSION

HafenCity’s flood strategy relies on a tight, three-part core. This arrangement delivers clear duties while shifting all construction and maintenance costs to private developers who profit from the waterfront location. Governance and funding of the project are highly centralised: if either the 2002 Ordinance or HafenCity GmbH dissolved, the actor-network would lose its main bridge between public authority and technical structural measures for flood protection. Civic actors remain peripheral, and are consulted mainly after decisions are made, and green-blue engineering solutions that are supposed to mitigate storm surges play a secondary role in the flood protection.

While it is effective now, the network’s lack of participation from civil society may constrain future adaptation cycles. Resident participation mechanisms can be implemented before the eastern phases reach the implementation phase and before plinth heights require another upgrade because of sea level rise. This would strengthen social acceptance and long-term adaptive capacity of the HafenCity area redevelopment. Furthermore, green–blue infrastructure integration would diversify structural measures for flood resilience and would distribute responsibility beyond the Warft monoculture. To stay relevant as the sea levels rise, Hamburg should embed periodic reviews of the flood code and weave ecological measures more tightly into the formal flood protection system.

Finally, HafenCity’s network shows high technical robustness, but its social robustness is dependant on a narrow corridor – the HafenCity Hamburg GmbH and limited civic voice. Future research should test whether more polycentric governance could achieve comparable robustness without sacrificing inclusivity of the residents in earlier stages of projects’ implementation.

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DIGITAL CIVIC ENGAGEMENT IN THE ERA OF MISINFORMATION: LEVERAGING TECHNOLOGY FOR RESILIENT COMMUNITIES

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ABSTRACT

The main challenges we are facing recently is having misinformation in different processes of community participation, which has become a concern in different aspects. As digital platforms increasingly shape public discourse, misinformation has emerged as an inescapable challenge, undermining trust, and weakening civic engagement. This contributes to several problematic issues in the civic engagement process, while fragmenting it. Through an analysis of the mechanisms by which misinformation spreads online and its effects on public trust and community engagement, this study highlights the need for innovative approaches that promote digital literacy, transparent communication, and inclusive dialogue. This approach is needed to be reflected on different policies in local level. Some key strategies within these policies, will emerge the development of community-centric digital platforms, the integration of fact-checking tools, and the role of AI-driven algorithms in promoting credible information. Drawing from global case studies and policy frameworks, the paper outlines practical recommendations for designing digital civic engagement initiatives that reinforce community resilience, enhance public trust, and empower citizens to engage meaningfully in local decision-making processes. By establishing a more accurate and ethical digital public communication, communities can not only conflict the impacts of misinformation but also strengthen and highlight more the foundations of democratic participation in the digital and communication age. This research contributes to the understanding of how digital engagement, supported by responsible technology use, can be completed to build resilient, informed, and actively engaged communities. Using a mixed-methods approach, the study integrates quantitative analysis of online engagement patterns with qualitative case studies from community-led initiatives. In this case study will be explored two stages of digital and civic evolution, such as emerging, chaotic and advanced. Therefore, through an integration of empirical data and interdisciplinary analysis, this research offers a roadmap of civic engagement in the era of misinformation, contributing novel insights to the advancement of knowledge in digital democracy and community resilience.

INTRODUCTION

Community-oriented co-design workshops serve as a significant platform for the active involvement of marginalized populations in collaborative design initiatives, particularly within health-related frameworks (Harrington et al., 2019a). These workshops possess the capacity to empower participants and elevate the voices of those who are marginalized; however, they also introduce various challenges pertaining to cultural norms, linguistic heterogeneity, and geographic disparities (Till et al., 2022). Scholars have investigated the implementation of co-design workshops across diverse contexts, including rural locales, thereby underscoring the imperative for cultural awareness and adaptability in the design of these workshops (Till et al., 2022; Koch Kapuire et al., 2014). Nevertheless, it is essential to acknowledge that participatory design workshops are fundamentally privileged endeavors and may inadvertently reinforce existing inequalities (Harrington et al., 2019b). When gathering personal data, researchers have to carefully evaluate the historical background, community accessibility, and opinions on materials and activities if they are to properly face these issues. Dealing with this complexity will help the discipline move towards more inclusive co-design approaches (Harrington et al., 2019b). In spite of these obstacles, there is an increasing acknowledgment of the potential of digital tools to facilitate connections among diverse community members, particularly by surmounting challenges related to geographic and technological disparities. This transformation in co-design methodology could be pivotal in fostering design outcomes that are more inclusive and representative, especially within underserved or digitally marginalized populations.

IMPORTANCE OF CO-DESIGN COMMUNITY-BASED WORKSHOP APPROACH

In urban design, co-design has certain challenges even if it helps to enhance participatory democracy. Collaborative tactics, which try to increase efficiency and better fit users' needs, are progressively replacing traditional top-down approaches (Antonini, 2021). Still, making decisions in participatory settings is still somewhat difficult, especially in digital media (Stelzlea et al., 2012). While involving individuals can highlight local problems, challenges in balancing scale with personal interests, process management, guaranteed varied participation, and merging citizen-led projects with local government still exist (Gooch et al., 2017). Furthermore, the dynamics of co-design could accidentally create new paths for the exercise of power that would be taken advantage of by players opposing the ideas of participatory democracy (Del Gaudio et al., 2018). Researchers support the creation of theoretical frameworks, the adaptation of successful non-digital decision-making models into digital formats, and the inclusion of informality and tactics as possible elements of co-design practices to counter anti-democratic influences in order to address these challenges.

In this regard, digital tools are seen as having great potential to advance diversity in many spheres. Digital channels are being progressively used by economic authorities for citizen involvement, so improving accessibility and the information flow (Townley & Koop, 2024). Digital technologies do, however, also present challenges including ones of adoption and accessibility for specific groups (Caon et al., 2021). In order to overcome these challenges, academics stress the importance of "design for all" techniques to provide more inclusive digital products and services (Caon et al., 2021). Developments in artificial intelligence, machine learning, and bioinformatics (Eze et al., 2021) offer still other routes for attaining digital inclusion as technology advances. By supporting inclusive surroundings and chances that challenge racism and gender inequity, digital resources are also extending the diversity landscape (Eze et al., 2021).

De Siqueira et al. (2022) claim that the degree of interaction usually reduces when participation involves a big number of people. Co-design community-centered workshops should be confined to a smaller number of participants if one is to clearly define each person's input or answer. Though not with a large number of participants, community-based co-design workshops are essential in promoting inclusive design that reflects the requirements of the society. Many supporters of the integration of digital tools so aim to increase the participant count while preserving the same degree of participation. These seminars can be very helpful to communities with limited access by following best standards stressing cultural sensitivity, community leadership, and participatory feedback.

On one side, ethical co-design methods investigated with communities draw attention on the need of removing communication obstacles and cooperatively building a rural community participation framework. Such systems improve continuous cooperation among stakeholders so that initiatives always satisfy community requirements throughout time.

Conversely, in the framework of participatory design seminars, some people doubt their ability to handle the complexity of fair design solutions, particularly for rural areas. While co-design seminars try to involve consumers actively in the design process, they could unintentionally ignore important issues. Del Gaudio et al. (2018) describe that participatory design seminars can fail to sufficiently address the issues related with imagining equitable design solutions among underprivileged people. Furthermore, essential for scepticism is the intrinsic

power dynamics of co-design techniques. Ignoring power differences lets individuals with more influence dominate conversations, therefore marginalizing the voices of underrepresented groups. This can lead to answers that fall short in really meeting the needs or goals of underprivileged populations. Reaching consensus on fair solutions can be challenging when different points of view across a wide range of stakeholders are difficultly reconciled (Dodero et al., 2014). This will complicate the decision-making process.

Digital tools in co-design workshops

Many studies agree that these tools are absolutely essential for the co-creation process since they provide venues for visualization, engagement, and feedback—all of which are vital in many different fields, including urban planning, student welfare, and nature-oriented activities. As Slingerland et al. (2024) point out, digital tools in urban co-creation projects provide platforms that allow different degrees of engagement across the design process, therefore fostering successful collaboration by means of which urban environments address social concerns.

Although the inclusion of digital technologies in co-design seminars generates certain questions despite the generally acknowledged advantages. Critics of digital tools have noted that depending too much on them could slow down workshops generally, especially in areas struggling with language difficulties or low digital literacy (Björgvinsson et al., 2010). These technological obstacles can extend the co-design process, thus inadvertently alienating participants from underprivileged groups with limited access to technology or those inexperienced with digital technologies.

The effectiveness of these tools depends mostly on their efficient integration into the design process, therefore guaranteeing that participants are actually involved and their particular demands are met (Sanders & Stappers, 2008). Digital tools might unintentionally reinforce existing power structures if not used carefully, therefore boosting just some voices while marginalizing others. Technologies seen as inclusive could unwittingly exclude people without the tools, knowledge, or means required to participate fully. For example, communities with restricted access to technology or the internet could suffer in seminars mostly depending on digital resources, therefore accentuating differences in the design process (Eubanks, 2018). Therefore, even although digital technologies provide various advantages for enhancing cooperation and creativity, they must be properly built and used to guarantee true inclusiveness and accessibility for every participant.

INCLUSIVITY CHALLENGES IN CO-DESIGN WORKSHOPS

Inclusivity in co-design workshops is a complex topic with elements including fair participation, cultural understanding, and accessibility. While many writers emphasize the need of making sure every person of the community has a voice and is valued, others draw attention to the basic challenges in reaching actual inclusiveness. These challenges not only show pragmatic limitations but also more fundamental problems with power relations and institutional support.

Inclusivity in co-design seminars depends critically on the need to interact with many communities in a way that recognizes all participants as equal partners. Simpson and Hoover (2024) argue that co-design workshops should focus on developing culturally robust interventions in which community members significantly influence the design process so guaranteeing that the solutions are both creative and sustainable within their particular settings. They underline the need of cultural knowledge in the approaches applied to stop what is sometimes termed as "design tourism," in which programs disproportionately help designers rather than the people they are meant to help. Managing the delicate balance between community involvement and honoring the cultural intricacies that define each group's needs and goals presents the fundamental problem for Simpson and Hoover.

On the other hand, other authors claim that the application of these techniques in co-design seminars usually reflects more aspirational than practical goals even with the intention of cultural awareness. As Toorn (2024) shows, the real challenge is that unequal power structures and institutional systems sometimes prevent the real involvement of underprivileged groups. Meanwhile Benz et al. (2024) advocate sites where persons with disabilities could actively contribute to design. Still, they also highlight the challenges in developing such settings, particularly in trying to balance aspirational inclusivity with the pragmatic constraints of building accessible spaces. They underline the need of seminars offering opportunities for skill development and actively try to remove obstacles in participation to help this. The shift to online co-design seminars during the COVID-19 epidemic has also highlighted the weaknesses of digital inclusiveness. Bandukda et al. (2022) emphasize a digital gap that aggravates current accessibility issues by noting the difficulties disabled researchers and participants faced in accessing and completely interacting with digital platforms. They support the development of sensible policies and rules to support disability-inclusive online research methods, therefore guaranteeing that digital tools do not add still another level of exclusion. These difficulties are somewhat significant, but the co-design process also provides creative opportunities.

THE ROLE OF TECHNOLOGY IN BRIDGING KNOWLEDGE ASYMMETRIES

Technology is indispensable in closing knowledge gaps by means of enhanced information access, better communication, and knowledge application across many spheres. The constant development of digital technologies and the growing worldwide interconnection pushed by the internet reflects this capacity. Still, the efficacy of technology in addressing these inequalities depends on a number of factors, including equitable allocation of technological resources and matching of organizational methods with technological capabilities.

Proponents of technology argue that it is essential for democratizing knowledge access and tearing down previously impediments to knowledge exchange. Modern communication technologies, especially those connected to Industry 4.0, have great potential to close the information gap as Morganti and Valdes (2023) underline. They suggest that these technologies can open new paths for people and companies to access real-time data, improve teamwork, and apply knowledge across many disciplines. This connectedness generates platforms for equitable growth and speeds innovation. For example, digital platforms and information technology systems have been hailed for greatly narrowing the knowledge generation and application gap and for helping knowledge management inside companies. As Haamann and Basten (2019) underline, by enabling methodical knowledge processes, information technology helps to close the knowledge-doing gap.

Conversely, others who doubt the influence of technology in reducing knowledge gaps argue that the digital divide could aggravate already existing inequities, especially in cases of unequal distribution of access to modern technologies. This gap relates to the capacity to properly use technology as much as it does to access. Higher educated people with past technical knowledge often gain from the digital shift, so underprivileged folks are deprived. This produces a productivity divide whereby only a small portion of the population benefits from modern technologies, therefore hindering more general social and economic sustainability.

Although technology could help to close knowledge gaps, its benefits are clearly not always assured. As both supporters and opponents agree, the larger sociopolitical context in which technology is used determines how successful it is in addressing knowledge disparities. Policymakers and companies should take a sophisticated view that balances the possibilities of technology with strategies addressing its drawbacks. Morganti and Valdes (2023), for example, suggest that narrowing the productivity difference calls for proactive policy actions including retraining programs and easily available educational opportunities to guarantee that every person has the skills needed to properly apply new technology.

Ultimately, the debate on how technology could help to bridge knowledge asymmetries shows that, although having transforming power, it also poses significant difficulties. Ensuring that technology really serves as an enabler of knowledge equity depends on an intentional and contextualized strategy including inclusive policies, suitable incentives, and education. Examining the future calls for us to face the promises as well as the negative effects of technology on knowledge networks and inequality reduction.

METHODOLOGY

This part explains the approach used for the literature study meant to look at the integration of digital instruments inside community-based co-design sessions, therefore fostering improved inclusivity in participation. Analyzing the shift from traditional community workshops to digitally enhanced co-design techniques is rather important. Using the search phrases "community-based design„" "digital tools„" and "inclusive participation," Semantic Scholar's relevant scholarly publications were chosen for a comprehensive review. These particular words were purposefully selected to enable a focused research of the function of digital tools inside the framework of community co-design. Research Rabbit, an adjunct to Semantic Scholar, was used to help to improve the literature selection process for a more thorough investigation of the interrelations between traditional and digital community workshops. We used VOSviewer program to assess the relevance and links among the keywords among the several papers. This tool helped us to create bibliometric visualizations showing the interactions among the chosen articles, keywords, authors, and sources, so improving our understanding of the strength of connections between important ideas in the literature. Emphasizing studies relevant to "community design/participation/digital tools" and "co-design workshops/inclusive design/community engagement," the literature search was conducted using Semantic Scholar and Research Rabbit. The findings were then examined closely using VOSviewer to examine the title and abstract of every selected publication, therefore enabling an investigation of the relationships among the most often used terms. Using VOSviewer gave important new perspectives on the interactions among keywords, therefore enabling a better understanding of the changing discourse on the use of digital technologies in community-based design seminars and their consequences for participatory processes.

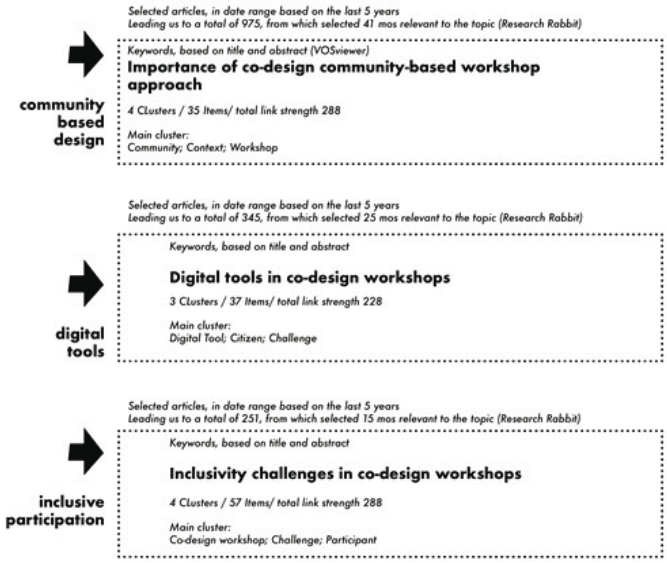


Figure 1: Conceptual diagram, explaining the implemented methodology / Source: Author

RESULTS & DISCUSSIONS

Bibliographic Analysis / Importance of co-design community-based workshop

Designed to study the relevance of digital instruments in community-centered co-design workshops, this part provides the results acquired from the network visualization created using VOSviewer. With a clear focus on the integration of digital technology inside urban co-design processes, the visualization highlights main topics linked to participatory engagement, accessibility, and inclusivity. We examine the possibilities of digital tools to increase cooperation and support a more inclusive participatory framework by defining the links among important terms and concepts; concurrently, we find challenges and shortcomings in accessibility experienced by underprivileged groups.

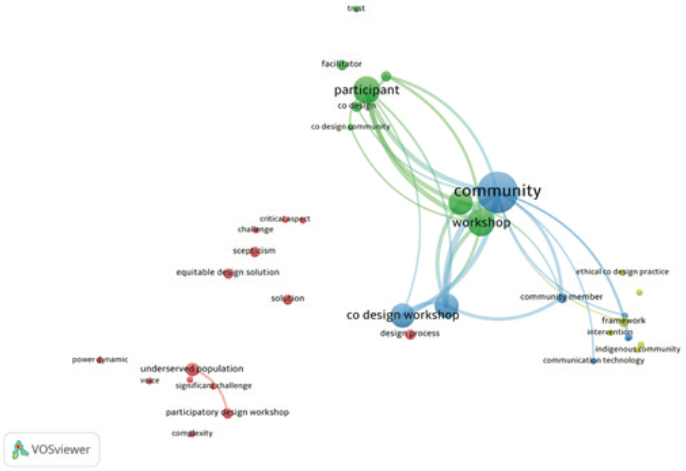


Figure 2: Network Visualization & Overlay Visualization / Source: Author

This work focused on assessing the degree of relationships among the main keywords used in the titles of papers relevant to a given topic. To clarify the links among the keywords and other characteristics, the researchers collected data from a selected platform and then loaded it into VOS viewer, an analytical tool. They found three different clusters altogether, with different terms, showing a connection strength of 65%.

Source		**Properties**	
Selection Field		Title and Abstract	
Counting method		Full counting	
Minimum number of occurrences of a term:		2	
From 103 terms in total, are selected 19 which do meet the threshold. For each of the 19 terms, a relevance score will be calculated. Based on this score, the most relevant terms will be selected. The default choice is to select the 60% most relevant terms.			
Clusters:	**Items:**	**Links:**	**Total link strength:**
4	35	288	625

Table 1: Data input in VOSviewer

The visualization emphasizes how community workshops help to create co-design and participatory engagement frameworks. With a heavy focus on design processes and co-creation, the central cluster (green and yellow nodes) implies that these seminars significantly help to build cooperation among participants, facilitators, and community members. Terms like "framework," "relevant technologies," and "communication technology" help to underline even more the way digital tools are included into these seminars to improve participatory design. The network does, however, also expose a distinct disparity in accessibility for underprivileged groups. Separately from the primary network, the red and purple clusters point to major obstacles, mistrust, and complexity that impede efforts at participatory design in these communities. Keywords like "underserved population," "significant challenge," and "complexity" imply that while digital tools and co-design seminars are beneficial in some urban and well-connected locations, they are not as accessible or impactful in rural or underdeveloped places. This division in the network supports research by academics like Falco & Kleinhans (2018), who contend that infrastructural restrictions, digital illiteracy, and lack of access to required technology sometimes prevent digital participation tools from reaching socio-economically challenged groups.

Cluster	**Keyword**	**Links**	**Occurance**	**Toral Strength link**
3	Community	25	121	12
3	Context	31	101	7
2	Workshop	26	85	8
3	Co-design workshop	32	69	7
2	Participant	18	68	8
1	Approach	23	68	7

Table 2: Data Processing / Clusters Core Keyword

By means of the analysis of the strength of keywords as defined in Table 2, one gains important understanding of the main themes and focal points clearly present in the body of current literature, therefore clarifying the important areas of emphasis and significance related to the discipline. By means of VOSviewer, we effectively extracted and visualized the basic links and patterns inherent in the dataset, so enhancing the understanding of the underlying linkages between the keywords and the main theme. One can see the main terms in the next chart, more especially, "community" and "context," which form the main center around which the research were focused.

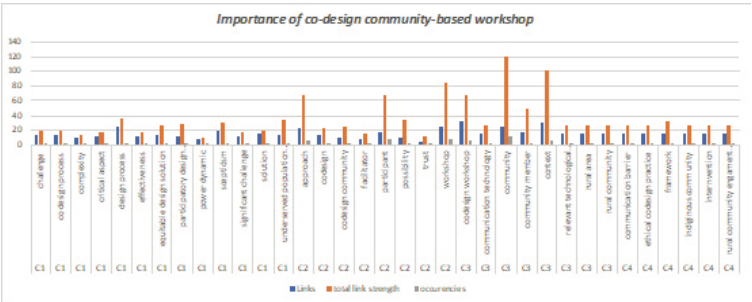


Chart 1. Overview of the keyword's strength link

BIBLIOGRAPHIC ANALYSIS / DIGITAL TOOLS IN CO-DESIGN WORKSHOP

Emphasizing the need of accessibility, inclusion, and ethical participation, the network visualization created with VOSviewer shows important topics connected to community-based co-design workshops. Strongly related to "accessibility" and "diverse community," the basic idea of "co-design workshop" emphasizes the importance of participatory strategies allowing a wide spectrum of stakeholders. Term clustering indicates that by guaranteeing accessibility and raising community knowledge, digital tools can assist to remove obstacles to fair participation. Still, the existence of phrases like "ethical engagement" and "ongoing process failure" points to ongoing difficulties, especially with regard to properly and ethically using digital platforms. Digitalization offers chances to improve communication and cooperation, but it also calls for rules to correct disparities in knowledge and trust-building among users. This is consistent with earlier studies stressing the need of co-design frameworks that combine social inclusiveness ideas with technology developments (Bannon & Ehn, 2012; Björgvinsson, Ehn, & Hillgren, 2012). Therefore, even while digital technologies can greatly improve the participatory process, their success relies on addressing accessibility issues, building confidence, and guaranteeing ethical application in projects driven by communities.

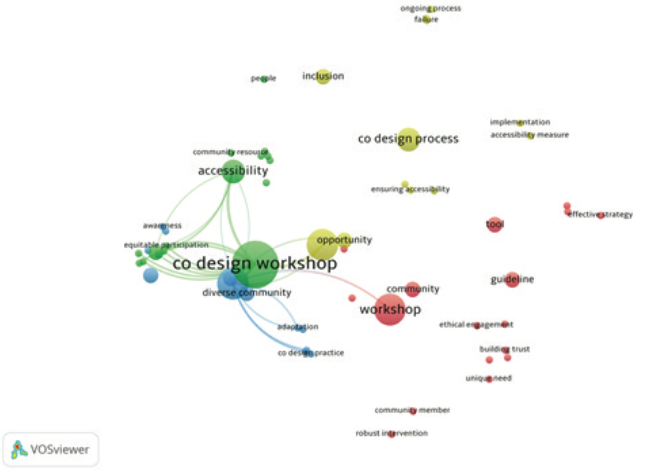


Figure 3: Network Visualization & Overlay Visualization / Source: Author

Source	**Properties**		
Selection Field	Abstract		
Counting method	Full counting		
Minimum number of occurrences of a term:	2		
From 167 terms in total, are selected 49 which do meet the threshold For each of the 49 terms, a relevance score will be calculated. Based on this score, the most relevant terms will be selected. The default choice is to select the 60% most relevant terms.			
Clusters:	**Items:**	**Links:**	**Total link strength:**
3	37	228	249

Table 3: Data input in VOSviewer

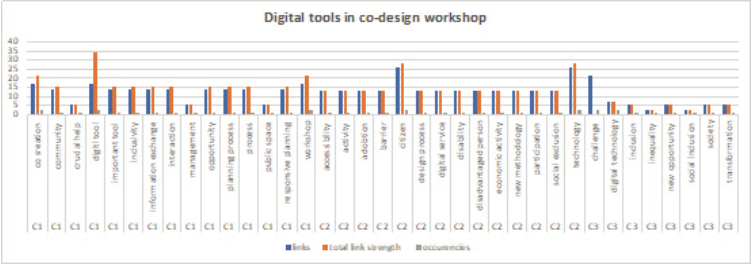


Chart 2. Overview of the keyword's strength link

BIBLIOGRAPHIC ANALYSIS / INCLUSIVITY CHALLENGES IN CO-DESIGN WORKSHOP

The visualization emphasizes how digital tools support urban inclusiveness and active involvement. Emphasizing "digital tools," the red cluster shows how they may assist co-creation, community-building, and information exchange, therefore establishing them as major enablers of citizen involvement. But the existence of "challenge" as a linked node implies that, in spite of their promise, digital instruments encounter difficulties reaching general accessibility and efficacy. These difficulties could result from disparities in digital literacy, socioeconomic constraints, or weak institutional systems for digital government.

On the other hand, the green cluster connects "citizen" and "technology," linking them to themes like "accessibility," "economic activity," and "adoption." This indicates that digital tools can facilitate economic inclusion and engagement in urban decision-making, but structural barriers, such as technological inequality and limited access, still hinder their full impact. The presence of "barrier" within the network suggests that certain groups remain excluded from digital participation due to economic or infrastructural constraints.

Source	**Properties**		
Selection Field	Abstract		
Counting method	Full counting		
Minimum number of occurrences of a term:	2		
From 360 terms in total, are selected 73 which do meet the threshold For each of the 73 terms, a relevance score will be calculated. Based on this score, the most relevant terms will be selected. The default choice is to select the 60% most relevant terms.			
Clusters:	**Items:**	**Links:**	**Total link strength:**
4	57	230	262

Table 4: Data input in VOSviewer

Following the establishment of parameters for the analysis of the data extracted from the abstracts of the scholarly articles, we arrived at a total of four clusters, encompassing fifty-seven keywords that exhibited a cumulative link strength of 262. In the table presented below, one can readily discern the principal keywords, which demonstrate the highest degree of connectivity to other keywords.

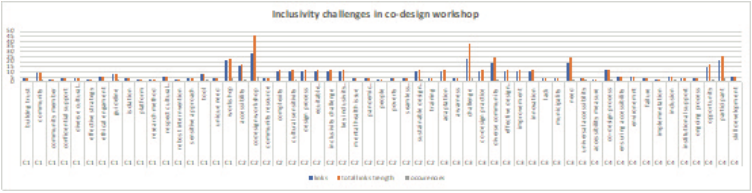


Chart 3. Overview of the keyword's strength link

Cluster	Items	Keyword	Links	Occurance	Toral Strength link
1		Co-design Workshop	28	46	6
5		Challenge	23	38	4
3		Diverse Community	19	24	2
2		Need	19	24	2
5		Participant	21	25	4
4		Workshop	22	23	4

TABLE 5. DATA PROCESSING / CLUSTERS CORE KEYWORD

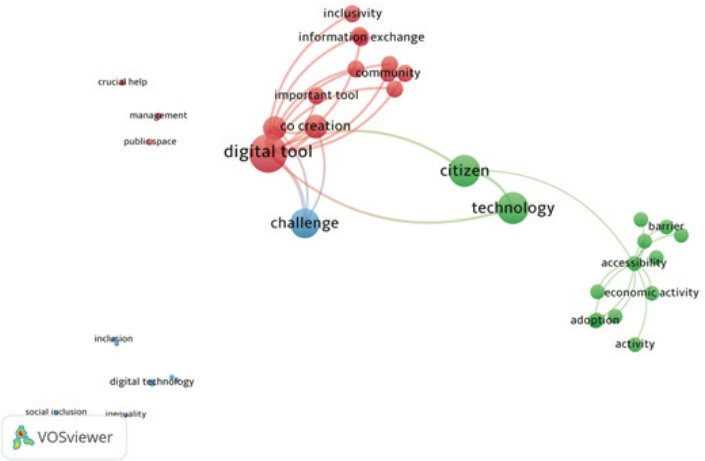


Figure 4: Network Visualization & Overlay Visualization / Source: Author

This network visualizing supports current scholarly debates stressing the need of more inclusive and easily available digital solutions. Digital tools should be created with inclusion at their core, guaranteeing they are accessible across all socioeconomic levels, as advised by experts such as Falco & Kleinhans (2018) and Barns (2018). To close current digital gaps, urban designers and legislators also have to give investments in digital literacy initiatives top priority. By tackling these issues, digital technologies can transcend their present exploratory stage and become completely included into inclusive urban governance plans.

The outcomes of the network visualization show how well digital instruments could improve the inclusiveness and effectiveness of community-centered co-design projects. While these tools can enhance participatory processes, the results show significant challenges to their effectiveness especially in underprivileged areas. Digital illiteracy, inadequate infrastructure, and socioeconomic inequalities all affect the general acceptance and accessibility of these tools, therefore limiting the whole potential of digital platforms. The graphic emphasizes the need of inclusive design approaches and the great relevance of ethical involvement, trust-building, and accessibility.

CONCLUSIONS

This study clarifies the ongoing difficulty of including digital instruments into co-design sessions defined on community involvement, especially in rural areas and disadvantaged populations. Although frameworks for digital engagement have attracted interest in metropolitan settings, their application is still irregular and underdeveloped in underprivileged localities, where the accessibility of technology and degrees of digital literacy are much reduced (Falco & Kleinhans, 2018). Even with the growing body of research on participatory design and digital inclusion, there is clearly a dearth of a thorough framework that methodically includes digital tools into co-design approaches meant for underprivileged populations. Although practical applications remain disconnected, the bibliometric analysis and network visualization reinforce the theoretical focus on active involvement. While most studies agree that digital platforms have great power to improve group decision-making (Bannon & Ehn, 2012; Björgvinsson, Ehn, & Hillgren, 2012); they also highlight major shortcomings in handling infrastructure and socioeconomic issues. The findings line with studies implying that barriers such digital illiteracy, limited internet connection, and inadequate institutional support often prevent digital engagement tools from reaching socio-economically underprivileged cohorts (Barns, 2018). Furthermore, the study shows that although digital tools can encourage more involvement, they can not guarantee inclusivity by themselves. Many community-driven seminars still struggle to properly involve people from rural areas who might lack the necessary knowledge to use these tools (DiSalvo et al., 2012). This digital divide increases the possibility of maintaining rather than reducing pre-existing socio-spatial inequalities (Gurstein, 2011). Future studies should focus on the development of a structured framework combining digital literacy programs, localized digital infrastructure, and co-design approaches especially intended for rural and underprivileged areas in order to meet these challenges. Policymakers, urban designers, and technology developers working together will help to create flexible and contextually relevant digital participation models (Van Dijk, 2020).

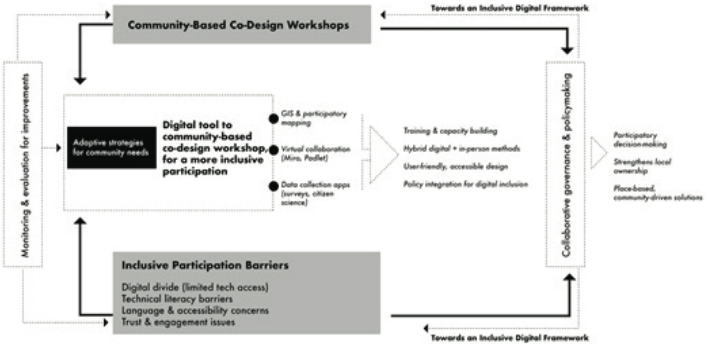


Figure 5: A conceptual framework on integrating digital tools in community-based co-design workshop. / Source: Author

Moreover, as the fig. 4. governance support mechanisms and projects aiming at increasing community capacity illustrate, the viability of digital co-design approaches depends on them. In the end, this research emphasizes the need of an inclusive, technologically advanced co-design framework that fairly takes into account the socioeconomic and infrastructure settings of many different communities. Digital tools can develop from experimental implementations into important aspects of community-based participatory planning by increasing scholarly research in this field and tackling the pervasive digital divide, therefore ensuring fair and significant involvement for all stakeholders.

Author Contributions: S.M. —data analysis, concept, writing draft and final manuscript;.E.K.—data collection, concept, writing draft and final manuscript; F.K.—concept, writing draft and final manuscript. All authors have read and agreed to the published version of the manuscript.
Conflicts of Interest: The authors declare no conflict of interest.

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URBAN RESILIENCE AND PEOPLE´S ENGAGEMENT

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ABSTRACT

Current crises prompt a renewed discussion about the social resilience of communities. In this study, we examine the factors influencing perceptions of resilience at the local level across nine European countries. We recognize that different factors hold varying significance for individuals' perceptions of resilient communities. Utilizing data from an online survey with 586 respondents, we explore how resilience is perceived and identify the factors that can enhance it. Our findings underscore the importance of environmental issues in shaping perceived local resilience, followed by social relationships and community activities. Economic conditions have a comparatively lesser impact on perceptions of resilience; however, all three dimensions – environmental, social, and economic – positively contribute to perceived resilience. Interestingly, our analysis indicates that collaboration across the public, business, and nonprofit sectors does not significantly enhance perceived resilience.

Keywords: social resilience, individual perception, local development, engagement, stakeholders

INTRODUCTION

Resilience in urban areas is a multifaceted phenomenon that can be examined from various perspectives within complex systems (Meerow, Newell, & Stults, 2016). This complexity necessitates strengthened collaboration among diverse stakeholders, including local administrations and civil society. Numerous case studies have investigated resilience in the context of disasters and shocks, such as earthquakes (Song, Pandey, Dong, Sharifi, & Subedi, 2022), floods (Lwin, Pal, Shrestha, & Warnitchai, 2020), and climate change (Yazar, York, & Larson, 2022). These studies consider geographical factors alongside technical solutions and urban planning. However, it is important to recognize that resilience is also subjectively assessed based on individuals' knowledge and experiences (Maxwell, Constas, Frankenberger, Klaus, & Mock, 2015); subjective assessments reduce reliance on predetermined indicators and reveal unique relationships residents have with local resources and environments (Harangody et al., 2022).

Our contribution aims to investigate how individuals perceive and act to enhance resilience. Specifically, we seek to understand the subjective dimensions of resilience by examining individual perceptions and behaviors that contribute to a perceived high level of resilience within local contexts. We will also explore how these perceptions vary depending on specific places and situations (Collinge & Gibney, 2010; Mehmood, 2016; Vale, 2014), as well as the complexities inherent in social and ecological systems (Shafiei Dastjerdi et al., 2021). Up to now, only a few studies have emphasized subjective methods for assessing resilience, highlighting individuals' understanding of their resilience and its influencing factors (Maxwell et al., 2015).

By incorporating the perceptions of those facing resilience challenges into our analysis of urban environments' adaptability strategies at both individual and collective levels, we will provide insights that standardized frameworks may have overlooked (Jones, 2018). This focus on individual behaviour underscores the need to explore not only technical aspects but also the social micro-level of resilience. To further explore this topic, we have identified several research gaps that have been transformed into research questions: How do local conditions influence resilience? What factors affect resilience? To address these questions, we will investigate the role of social, economic, and environmental factors in shaping perceived local resilience.

The article is structured into four main sections. In the first section, we provide a conceptual outline of social resilience, examining the role of local context, trust, and social capital, and how these elements relate to subjective assessments of resilience. Following this, Section 2 details the methodology employed in our research before presenting the results in Section 3. Finally, we conclude with a discussion that synthesizes our findings and emphasizes their implications for understanding resilience in urban contexts.

SOCIAL RESILIENCE

Social resilience refers to the capacity of individuals and communities to respond to unexpected events and adapt to social, economic, or environmental challenges. It encompasses the ability to withstand disruptions while maintaining essential functions and fostering social cohesion. Key factors such as strong social networks, effective communication, and community engagement are crucial in enhancing social resilience. Ultimately, it reflects how well a community can navigate change and uncertainty while promoting collective well-being.

In our case, we focus on resilience at the local level, where it is easier to study the roles of social capital, empowerment, and civil society activities within neighborhoods (Maclean, Cuthill, & Ross, 2013; Saja, Teo, Goonetilleke, & Ziyath, 2021). Moreover, at the local level, the concept of social resilience is more readily measurable (Asadzadeh, Kötter, Salehi, & Birkmann, 2017), although it cannot be easily transferred to other contexts due to the variety of factors influencing resilience that depend on social and spatial contexts as well as specific sudden risks (Nguyen & Akerkar, 2020).

Interactions among stakeholders—such as learning opportunities, trust-building efforts, social ties (and social capital), and cohesion—are vital aspects of social resilience. These elements contribute to building capacity for adapting to new situations and crises. Effective multi-level collaboration is also required because of the interconnectedness between social and ecological systems. Maclean et al. (2013) highlight several key components that shape partnerships and collaboration: (i) knowledge acquisition and skills development; (ii) community networks; (iii) connections between people and places; (iv) community infrastructure (basic services and facilities); (v) diverse and innovative economies; and (vi) engaged governance. Citizen participation is perceived as essential for enhancing capacity to address various issues—including disaster alleviation (Burnside-Lawry & Carvalho, 2016).

Similar to social cohesion, trust serves as a cornerstone of resilience by facilitating network formation and reducing the consequences of various crises. Communities with higher levels of cohesion and trust are more likely to engage in recovery initiatives that help them overcome obstacles through reduced transaction costs. Additionally, such societies can rapidly restore their pre-disaster status or achieve new equilibrium after a crisis

(Oh & Lee, 2022). As resilience capacities evolve over time through social innovations – defined as collaborative efforts utilizing multidisciplinary approaches to tackle complex urban challenges – communities can better address their needs (Horgan & Dimitrijević, 2018). This approach fosters collaboration among multiple stakeholders rather than relying on traditional disciplinary silos that lead to fragmented knowledge.
The perception of the social context by individuals plays a critical role in shaping community resilience – a vital factor for disaster risk reduction and adaptation strategies (Liu et al., 2022). Building community resilience hinges on fostering social capital while ensuring equity and prioritizing well-being along with public health considerations. Social capital – defined as the collective resources embedded within social networks – has emerged as an important indicator in frameworks assessing resilience (Liu et al., 2022).

DATA AND METHODS

We analyse data from an international survey organized within the Erasmus+ Cooperation Partnership UPRUN – "Urban Planning for Social Resilience in Urban Neighborhoods. Transformative Change through Civic Engagement" (project number 2023-1-DE01-KA220-HED-000167004). This survey was organized during summer 2024 (June to September) and collected 586 responses from nine countries in Europe, viewing Europe as a distinct cultural realm separate from other major cultural regions worldwide. This perspective encompasses traits such as European institutions, the influence of Christianity, Enlightenment philosophy, and an economic system characterized by commercial-industrial society (Ostergreen & Rice, 2004). Consequently, we analyse this data within an aggregated framework for our research.
The questionnaire was distributed among various stakeholders, including urban planners, architects, development projects managers, members of citizens' initiatives and local politicians. It was conducted anonymously, and in all instances, responses were analysed solely in aggregate form. Consequently, neither the answers nor the results of the data analysis allowed for the identification of the respondents' identities.
In general, the survey focused on perceptions regarding the economic situation, environmental conditions, and social relationships within communities. It examined the perceived roles of various stakeholders from different sectors, allowing us to compare formal and informal tasks among them. We recognize that individual perspectives on resilience within one community may not necessarily produce positive outcomes for other communities. This variability could be seen as a limitation of our study, as the unique characteristics and dynamics of each community can affect how resilience is perceived and implemented. However, we consider this limitation acceptable in the context of our research, especially when taking into account the principles of collective choice theory. As noted by Mueller (2003), collective choice processes often encompass diverse viewpoints that can result in varying outcomes across different contexts. Therefore, while our findings may not have universal applicability, they provide valuable insights into the intricate ways communities approach resilience and underscore the significance of understanding local dynamics in shaping collective action.
To examine how residents' activities and their perceptions of the economic, environmental, and social conditions in their communities influence local resilience, we use structural equation modeling in its partial least squares form (PLS-SEM). The model is built on data collected through the survey. PLS-SEM is well-suited for estimating relationships within complex constructs and identifying indirect effects, which fits the goals of our study. It is commonly used to explore theoretical constructs and causal pathways, including mediation and moderation effects (Hair, Hult, Ringle, & Sarstedt, 2014; Mehmetoglu & Venturini, 2021).

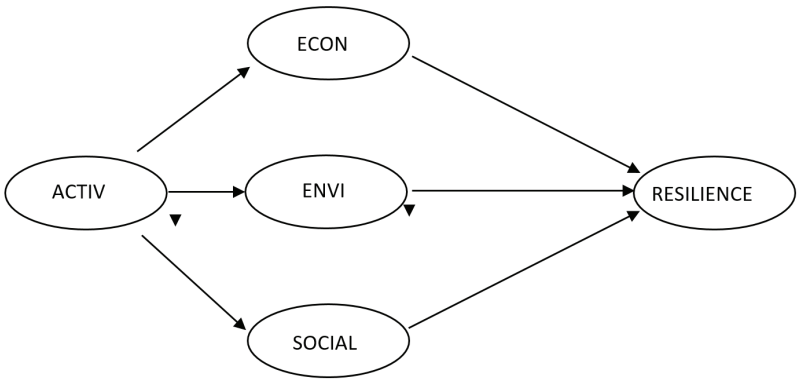


Figure 1: Tested model

In our analysis, we evaluate the model presented in Figure 1. First, we establish the latent variable ACTIV, which reflects the extent of active participation in planning processes, the capacity for engagement, and whether individual proposals are taken seriously within this framework see also variables in table 1). Next, we assess the impact of the latent variable ACTIV on the community's economic situation (ECON), characterized by economic diversity, stability, and household financial resources; environmental or spatial quality (ENVIR), defined by available green spaces and their perceived quality; and social factors (SOCIAL), which include social cohesion, frequency of community meetings, and feelings of safety. Finally, we define RESILIENCE as the perceived level of resilience within the community. The variable ACTIV exerts an indirect effect on RESILIENCE, whereas ECON, ENVIR, and SOCIAL have direct effects on it.

Our analysis utilized the plssem package in STATA 17 SE (Mehmetoglu and Venturini, 2021). This package standardizes variables for estimating latent constructs to ensure comparability. The estimation process unfolds in three steps. First, latent variable scores for each construct are estimated using bootstrapping with 2,500 iterations applied to each latent variable. Second, regression analysis is conducted to estimate relationships among the variables in the model. Lastly, we implement a moderation model that incorporates interaction terms related to economic, environmental, and social aspects while collaborating with municipal authorities, businesses, and civil society (as illustrated by the dotted arrows in Figure 1).

RESULTS

Our study reveals that individuals engage in the examined areas – economic, social and environmental. However, the findings indicate that two dimensions are particularly more important to them: the social and environmental aspects (see the estimations in table 1).

Variable	path coefficients Economic issues	Social issues	Environmental issues	Perceived resilience
ACTIVE	0.176 (0.000)	0.431 (0.000)	0.312 (0.000)	
Economic issues				0.119 (0.002)
Social issues				0.264 (0.000)
Environmental issues				0.328 (0.000)
Municipality participation				-0.093 (0.066)
Business participation				0.004 (0.957)
Civil society participation				0.041 (0.574)
Interaction term between economic issues and municipality participation				-0.043 (0.428)
Interaction term between social issues and municipality participation				-0.056 (0.273)
Interaction term between environmental issues and municipality participation				-0.047 (0.428)
Interaction term between economic issues and business participation				-0.073 (0.325)
Interaction term between social issues and business participation				0.037 (0.577)
Interaction term between environmental issues and business participation				0.025 (0.734)
Interaction term between economic issues and civil society participation				-0.019 (0.789)
Interaction term between social issues and civil society participation				0.062 (0.357)
Interaction term between environmental issues and civil society participation				-0.008 (0.912)
Interaction term between economic issues and participation of all sectors				0.057 (0.579)
Interaction term between social issues and participation of all sectors				0.002 (0.984)
Interaction term between environmental issues and participation of all sectors				0.065 (0.516)

Table 1: Structural model - Standardized path coefficients

Our results indicate a negative assessment of the municipality's role in fostering resilience. This suggests a disconnect between how municipalities (as representatives of the public sector) define resilience and how it is perceived by local communities. It is important to note that none of these estimates reached statistical significance. In contrast, when comparing the results for the business sector and civil society, we observe that all estimates related to municipalities are negative, while those for the business and nonprofit sectors exhibit more variability – some being positive and others negative; however, again none achieve statistical significance.

Perceptions of living conditions serve as a fundamental link between individuals and their built environment. These perceptions shape how people understand and engage with their surroundings, influencing behavior and decision-making processes that support collective resilience. This perspective plays a crucial role in designing urban forms that foster resilience. A place-based approach emphasizes the importance of images, narratives, and interpretations of urban space to uncover its values and meanings. It encourages integrating people with place by promoting shared understandings grounded in collective memory and cultural context (Shafiei Dastjerdi et al., 2021).

In this context, our findings indicate that perceived community resilience increases with both the quality of the surrounding environment and the strength of social connections. Specifically, perceptions of resilience are primarily shaped by environmental conditions alongside robust social networks. This outcome highlights self-organizing processes where citizens who feel a shared connection – through interests, place, lifestyle, culture, or practices (Celata, Dinnie, & Holsten, 2019) – mobilize resources to create the kind of community they desire. Such efforts often manifest as collective actions or initiatives aimed at addressing community needs – examples include co-creating public spaces or delivering shared goods and services within neighborhoods.

Climate change adaptation and green infrastructure are central themes in urban resilience research (Buzasi & Csizovszky, 2023). Our findings show that public spaces and green infrastructure significantly influence how people perceive resilience. Enhancing the quality of green spaces contributes not only to physical aspects of resilience – - such as improving thermal comfort (Sodoudi et al., 2018) – but also to subjective experiences associated with feeling resilient. This connection is particularly relevant given that green areas provide urban residents with restorative spaces during high-stress periods – a point underscored during the COVID-19 pandemic (Pamukcu-Albers et al., 2021; Ugolini et al., 2020).

Additionally, our results highlight the critical role of social capital in fostering resilience through strong social networks, cohesion, and trust. Robust community networks provide vital support during crises by increasing capacity for collective responses (Maclean et al., 2013). Trust enhances collaboration efforts while encouraging participation; it also increases the likelihood of proactive risk-reduction behaviors (Feinberg et al., 2020). Social cohesion – closely linked to volunteering and collective action – further reinforces resilience by promoting shared efforts toward common goals. Therefore, building social capital through strengthened networks fosters trust and cohesion; this strategy is essential for enhancing community-level resilience (Kirby, Stasiak, & von Schneidemesser, 2024).

Cooperation and co-production are fundamental components for achieving place-based resilience alongside effective governance strategies. These approaches promote collective action while strengthening local knowledge bases that support inclusive decision-making processes. Our findings suggest that cross-sector collaboration yields more favorable outcomes than engagement from individual sectors alone, although these estimated effects on resilience remain statistically insignificant. When communities collaborate with governments, businesses, and other stakeholders to pool diverse perspectives and expertise, they become better equipped to tackle complex challenges such as climate change adaptation and economic volatility.

Co-production fosters trust and shared responsibility while enabling adaptive strategies tailored specifically to local needs – a critical aspect of building sustainable long-term resilience within communities. This collaborative model not only reinforces social fabric but also enhances the equity and effectiveness of governance. Our findings further support the notion that resilience can be enhanced through co-production processes. In this context, co-production involves empowering citizens by actively involving them in the planning and design of their local environments – for instance, in creating and managing public green spaces. The primary objective is to expand citizens' knowledge, capacities, and access to resources. Importantly, this approach is not limited to affluent cities or neighborhoods; it can also be successfully implemented in disadvantaged or marginalized communities.

A compelling example is the '4Crescente' project in Lisbon's Marvila neighborhood, located in the eastern part of the city. While broader planning efforts focus on revitalizing the riverbank and redeveloping surrounding urban areas, initiatives in the core district have proceeded cautiously due to socio-economic constraints – such as a high proportion of households reliant on social transfers and limited private investment stemming from public housing (Falanga et al., 2019). In response, the public sector collaborated with researchers and non-governmental organizations to initiate social engagement activities – including community events and participatory .

workshops throughout the urban regeneration process. These initiatives encouraged residents to take an active role in shaping their neighborhoods while fostering a sense of ownership. Moreover, these collective efforts facilitated social learning, enabling community members and grassroots initiatives to assume strategic roles in addressing social needs and mitigating conflicts (Kirby et al., 2024; Othengrafen, Herrmann, & Lazarevski, 2024).
Our study challenges the conventional perspective that emphasizes a strong positive relationship between resilience and local public sector engagement. Typically, it is assumed that effective public sector involvement significantly contributes to maintaining environmental quality and fostering social relationships within communities. However, our findings suggest a more skeptical assessment of this relationship. One possible explanation for this skepticism is that individuals may overestimate the role of the public sector in ensuring favorable conditions. When they find themselves dissatisfied with their environment or social relations, they often attribute these shortcomings to local public sector failures. While the public sector can provide valuable political and financial support, it is crucial for local communities to actively engage in improving their own circumstances.

CONCLUSIONS

To understand community resilience is difficult. It is a complex issue and requires close attention to place-based and contextual factors. These factors are crucial to shaping how communities prepare for, respond to, and recover from both expected and unexpected disruptions. As our analysis illustrates, resilience is not a universal concept; it must be interpreted within the specific characteristics and conditions of each community. Efforts to enhance resilience are often tied to local assets and capacities, underscoring the deep connection between resilience and place-based approaches. The significance of these contextual elements cannot be overstated, as they fundamentally influence how resilience is expressed within communities. In this context, residents' perceptions play a particularly critical role in assessing and strengthening local resilience.
From our perspective on resilience, it is evident that local perceptions of what resilience should entail – often undefined – along with the experiences and beliefs of residents, are crucial factors. When local residents feel connected to their community, they can effectively engage in efforts to improve conditions and enhance resilience. Contrary to the notion that only property owners foster relationships, trust, and social cohesion (Liu et al., 2022), our findings suggest that tenants can also develop strong connections within their communities. For example, in areas where people live in rented accommodations, those who actively participate in community activities can build meaningful relationships and a sense of belonging. However, when such engagement is lacking, these communities may struggle to respond effectively to disruptions due to a diminished feeling of connection.
Environmental and social dimensions of resilience are especially important in this context. Acknowledging individuals' emotional attachments to their surroundings and involving them in shaping their environments can reinforce both a sense of belonging and overall community resilience. A resilient place, therefore, can be seen as the outcome of collaborative, co-designed efforts that aim to create vibrant, liveable, and secure neighbourhoods (Chand, 2018). Environmental features – particularly the presence and quality of green spaces – significantly influence community well-being. These spaces are valued not only for their ecological functions, such as supporting biodiversity and mitigating climate impacts, but also for their role in promoting social interaction, recreation, and mental health. By offering opportunities for connection with nature and serving as gathering places, green spaces help strengthen social bonds. Similarly, preserving built heritage contributes to a shared sense of identity and community pride, further enhancing cohesion and resilience. Communities that invest in the care and enhancement of green spaces and heritage assets foster environments where people feel a strong connection and mutual support—key elements of resilience in times of crisis and recovery.
Social dimensions – such as interpersonal relationships, community ties, and trust – are equally vital components of resilience. Robust social networks empower communities to share resources, disseminate information, and coordinate their responses during periods of stress. Trust among residents fosters a cooperative atmosphere where individuals are more inclined to collaborate, share responsibilities, and support each other in difficult times (Carmen et al., 2022; Fonseca, Lukosch, & Brazier, 2019; Liu et al., 2022). These social connections form the cornerstones of collective action, which is essential for withstanding and recovering from external shocks. Conversely, communities lacking social cohesion and trust are often less equipped to respond effectively, leaving them more vulnerable in times of crisis.
One of the most significant insights from our analysis is that community resilience can be strengthened across all types of neighborhoods, regardless of economic diversity or income levels. The capacity to build resilience does not depend solely on financial resources or economic status. Instead, it hinges on resident engagement and the development of supportive social and environmental conditions. In essence, community resilience is best understood through a place-based and contextual lens, emphasizing the perceptions and actions of those who live there. While economic factors play a role, it is the social and environmental aspects that are most influential

in shaping resilience. By nurturing social cohesion, building trust, and ensuring access to high-quality environmental spaces, communities can foster resilience regardless of their economic circumstances. Ultimately, the active involvement of residents is the foundation of truly resilient communities.

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UNFOLDING TRANSFORMATIVE POTENTIAL OF URBAN DIGITAL TWINS FOR RESILIENT NEIGHBOURHOODS

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ABSTRACT

Climate change significantly impacts cities, which house over half of the world's population. At the same time, cities contribute substantially to global carbon emissions. However, cities also serve as hubs for future opportunities and developments, particularly in digital technologies. One notable advancement is the rapid development and application of urban digital twins in numerous cities worldwide, expected to address various urban issues. Despite this rapid progress, research on urban digital twins remains in its infancy, leaving many questions to unfold. This study employs a two-step analytical approach, combining a literature review with an empirical case study from Munich, to examine the transformative potential of urban digital twins for resilient neighbourhoods in the context of climate change. Munich is recognised as one of Germany's most advanced "smart cities", having developed and institutionalised an urban digital twin through multiple projects aimed at tackling urban issues. The research concludes that Munich's digital twin offers various functionalities and therefore potentially contributes to enhancing transformative capacity for the transformative change towards resilient neighbourhoods. Among these functionalities, visualisation supported by user interface apps emerges as the most significant enabler of transformative capacity by facilitating people-centric or participatory approaches to foster inclusion and empowerment as the fundamental prerequisite for the urban transformative capacity. Furthermore, the combined visualisation functionality and the user interface apps also foster collaboration across human agency levels and facilitate building a shared vision of the future, as key factors in transformative capacity for sustainable urban transformation and resilient urban neighbourhoods.

Keywords: urban digital twins, climate change, resilient neighbourhood, urban planning, transformative change, sustainable urban transformation

INTRODUCTION

For the past few years, climate change has affected many areas and regions around the world, including cities. Cities are increasingly experiencing the impact of climate change, while also being significant contributors to carbon emissions (IPCC, 2022b). To mitigate climate change, substantial efforts and high ambitions are required at various levels, from local to global. Together with mitigation strategies, adaptation measures in cities are also urgently needed to address unavoidable changes, starting at the community or neighbourhood level. Nevertheless, the rapid development of digital technologies presents significant potential for addressing climate change in cities. These technologies are believed to play crucial roles in shaping the future of cities through a transformation of urban governance, planning, and development (Datta, 2023). Recently, the application of digital technologies in urban planning has expanded to include tools such as digital twins, machine learning, augmented reality, virtual reality, and artificial intelligence (Batty, 2021; Othengrafen et al., 2023, 2024).

Urban digital twins, for example, have been vastly developed and have been commonly implemented in many cities around the world, particularly those that are applying the "smart city" concept. An urban digital twin is a virtual entity or mirrored digital counterpart of a physical city or urban area that is expected to possess a bi-directional relationship between the physical and virtual or digital space, with multiple functionalities (Deren et al., 2021; Shahat et al., 2021; Therias & Rafiee, 2023). Having promised multiple functionalities, many cities around the world incorporate the urban digital twin's development and application as one of their urban development strategies. In this research, particular focus is put on addressing climate change as one of the major urban issues and global concerns that hinder sustainability. To achieve sustainability, a transformative change is needed because current development pathways, coupled with the observed climate change impacts, are leading away from sustainable development (IPCC, 2022a).

Since urban planning is a place-based, multi-scalar, cross-sector field that uses comprehensive approaches, it is viewed as a promising arena for transformative change (Wolfram et al., 2019). However, there is still a knowledge gap on how climate measures are integrated into urban planning and development, as well as it remains limited in mainstream practices (Asarpota & Nadin, 2020). To date, the majority of cities still advocate for the status quo and have not effectively integrated climate change measures into urban planning policies, regulations, and instruments as part of an effort for a transformative change (Hurlimann et al., 2021).

This research aims to unfold the transformative potential of urban digital twins for resilient neighbourhoods in cities by looking at urban planning processes, particularly in processes related to civic engagement. The finding of this research is expected to contribute to the exploration and further development of urban digital twins for climate measures in cities, particularly towards resilient neighbourhoods. By leveraging urban digital twins in urban planning, the acceleration of climate actions is expected to be able to facilitate the desired transformative change against climate change impacts.

SOCIO-ECOLOGICAL RESILIENCE AND TRANSFORMATIVE CHANGE

Resilience theory was founded in different fields, which later also developed and recognised in urban settings, as an attempt to understand how complex urban systems continue to function in the face of multiple crises, such as economic crisis, natural disasters, and climate change (Meerow et al., 2019; Woodruff et al., 2022). Urban resilience and adaptation, particularly in addressing climate change, are often criticised for their limitation in bringing up equity and social vulnerability into the conversation (Meerow et al., 2019; Strange et al., 2022). Therefore, it is important to focus on transformative change, as it is believed to contribute to both sustainable development and socio-ecological resilience. Unlike incremental approaches that seek short-term solutions that maintain business-as-usual (Strange et al., 2022), transformative change aims for long-term alterations in fundamental systems attributes and outcomes, such as reducing inequality in political or socio-economic structures and enhancing well-being (IPCC, 2022a). In their viewpoint, as climate action and sustainable development are interdependent, if pursued in an inclusive and integrated manner, climate action also enhances socio-ecological resilience. Socio-ecological resilience is not only related to the capacity to cope with a hazardous event or disturbance, such as climate change, but also the ability to adapt, learn and transform in ways that maintain socio-ecology's essential function, identity, and structure (IPCC, 2022a).

To achieve transformative change, transformative capacity is required. Urban transformative capacity is defined as "the collective ability of the stakeholders involved in urban development to conceive of, prepare for, initiate and perform path-deviant change towards sustainability within and across multiple complex systems that constitute the cities they relate to" (Wolfram, 2016, p. 126). He identified ten interdependent key components in transformative capacity (see the details in (Wolfram, 2016)). Among those components, inclusivity and empowerment are fundamental requirements for accelerating urban transformative change (Wolfram et al., 2019). According to them, practical measures for this include: 1) actively seek to identify and comprehend all types of viewpoints, perceptions, and ways of life from different groups of people, including those who are often excluded; 2) create

new forms of dialogue and intervention mechanisms; and 3) develop, implement, and evaluate multiple forms of inclusion and empowerment methods (Wolfram et al., 2019).
Furthermore, achieving transformative change toward socio-ecological resilience requires an approach centred on transformative capacity, not only adaptive capacity, which is the most common approach used in ecological resilience (Asadzadeh et al., 2022). They argued that the efforts toward urban resilience in urban planning and governance should emphasise participation and inclusiveness, flexibility and decentralisation, orchestration and leadership, as well as innovation and novelties. These components align with translating climate justice into urban transformation for climate adaptation, especially related to recognition and procedural justice, as agreed upon by scholars focused on climate justice and transformative adaptation (Strange et al., 2022).

RESEARCH DESIGN AND METHODOLOGY

This research combined a literature review and analysis with an empirical case study of Munich, Germany. Munich is particularly relevant for this study because it aims to employ digitalisation as an opportunity to address its urban challenges and is considered one of the most advanced "smart cities" in Germany, as well as internationally. Notably, the city has not only been developing and piloting the implementation of an urban digital twin through various projects over the last few years but has also institutionalised it as a permanent project of its climate-neutrality infrastructure.
The research employed a two-step analytical approach. In the first step, a literature review was conducted to identify urban digital twins' potentials and functionalities, urban planning processes, and urban climate change measures, particularly those that are relevant at a neighbourhood level. This review incorporated both scientific articles and grey literature derived from credible publications by intergovernmental or international organisations. A semi-systematic literature analysis followed to clarify the definition and identify enabling conditions or requirements, approaches, strategies, and tools necessary for transformative change. The analysis drew on the latest IPCC reports in 2022 in combination with scientific articles published between 2022 and 2024, resulting in a selection of 16 articles. The search queries focused on transformative change for urban sustainability and resilience while including aspects related to climate change. Given that urban digital twins research is still relatively in an early stage, the search encompassed journal articles, book chapters, and conference proceedings. All scientific articles were retrieved from Scopus to ensure publication quality.
In the second step, a case study analysis was carried out by gathering data on urban digital twin use cases in Munich based on the findings from the first step. The case study provided answers to what urban digital twin functionalities were developed and implemented in Munich, particularly in urban planning processes and in addressing climate change. Data were collected primarily from the official city websites and their supporting documents, as well as from the Connected Urban Twins (CUT) website, Munich's partner in digital twin development since 2021. Sources included project reports, use case results, and other publicly available publications.

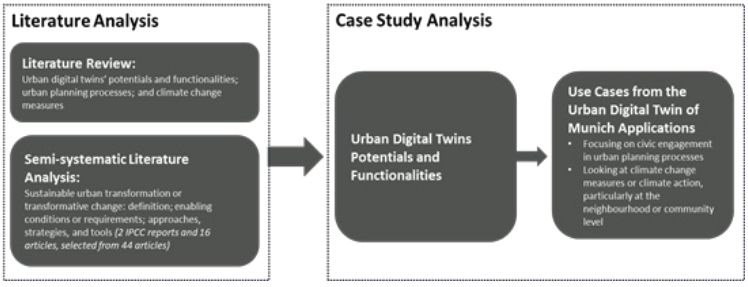


Figure 1: Method (Source: Author's Illustration)

CITY OF MUNICH AND THE DEVELOPMENT OF DIGITAL TWIN MUNICH (DT-M)

The city of Munich is the capital of the Bavarian State and the third largest city in Germany after Berlin and Hamburg. The city aims to use digitalisation as an opportunity for all stakeholders in their urban society. In 2016, Munich committed to implementing the United Nations' Sustainable Development Goals (SDGs) by signing the 2030 Agenda resolution. This commitment is reflected in its digital transformation strategy, which explicitly strives to address climate change. An urban digital twin is one of their measures in the field of data in their digital transformation strategy. They aim for a city-wide digital twin that serves as long-term and regular services for the city administration. Their vision is "Munich is a future-oriented metropolis. We are shaping digitalisation in line with the needs of the people in our city, for a liveable, fair and sustainable community. Our digital services are

inspiring because they make everyday life easier for everyone" (City of Munich, 2024, p.9).
The Digital Twin Munich (DT-M) was developed for the first time as a project in 2019 and continues until today. The project was funded by the Federal Ministry for Digital and Transport (BMDV) as one of the support measures for the digital transformation effort under the framework of the "Digitalisation of Municipal Transport Systems" project. In 2020, the Munich City Council decided to institutionalise the DT-M as a permanent project, as an infrastructure for achieving climate-neutrality. The following year, a joint project between Munich, Hamburg, and Leipzig called the Connected Urban Twins (CUT) began. The project is funded by the Federal Ministry of Interior and Home Affairs (BMI). The project is expected to be completed by the end of 2025. However, since the project has been institutionalised, the city of Munich will continue its development and implementation for more use cases and wider purposes beyond the CUT project. The development of DT-M in chronological order can be seen in the following diagram.



Figure 2: Development of the Digital Twin Munich (DT-M) Project (Source: Author's Illustration based on City of Munich, 2025; CUT (Connected Urban Twins), 2025)

The digital twin of Munich is not just a model, it combines a 3D city model with different urban data that enables realistic analyses, simulations, and visualisations. The DT-M enables the integration of real data in many projects, which allows comprehensive simulations of "what-if" scenarios for many urban development purposes. Its foundation consists of detailed geodata that is available in both 2D and 3D formats. The database is continuously being developed further by the city, including the incorporation of more real-time data collected with sensors. The Urban Data Platform serves as the central hub of the DT-M, connecting diverse data sources into a shared ecosystem for the city. The DT-M operates on a modular system concept, consisting of different building blocks that can be customised to meet specific analytical or application needs across a wide range of purposes (Schubbe et al., 2022).



Figure 3: Modular System of Urban Digital Twin (Source: Schubbe et al., 2022)

URBAN DIGITAL TWINS FUNCTIONALITIES, URBAN PLANNING PROCESSES, AND CLIMATE ADAPTATION MEASURES IN URBAN PLANNING

Many researchers have carried out investigations to identify key technologies, capabilities, functionalities and applications of urban digital twins. Deng et al. (2021) identified key technologies in urban digital twins through conducting a systematic review. Those key technologies are surveying and mapping technology, building information modelling, 5G-enabled Internet of Things, collaborative computing, blockchain technology, and simulation technology. In addition, Deren et al. (2021) have also identified various applications of urban digital

twins in smart cities. However, a rather complete identification of urban digital twins' potential based on different categories of themes and applications has been done by Shahat et al. (2021). According to them, there are five themes of urban digital twins' potentials and functionalities with several different applications that belong to different themes, as shown in Table 1. This list and classification of urban digital twins' potentials will be further used in analysing and discussing the urban digital twin applications in the city of Munich.

Themes	Applications
Data Management	Data processing
	Interoperability
	Software fusion
	Open-source software
Visualisation	Navigation
	3D real-time experience
	Multi-spatial and temporal scales
	Unified platform
	Behaviour modelling
	Network dynamics
	Personalised information systems
Situational Awareness	Monitoring
	Tracking
	Localisation
	Face recognition
	Analysis
Planning and Prediction	Policy evaluation
	Simulation
	"What if" scenarios
Integration and Collaboration	Multiple domains integration
	Stakeholders' participation
	Citizens' engagement
	Open platforms

Table 1: Potentials and Applications of Urban Digital Twins Source: Shahat et al. (2021)

Urban planning processes consist of several main phases, namely exploration and building evidence-based phase, envisioning and planning phase, formal planning phase, implementation phase, and monitoring and evaluation phase (Othengrafen et al., 2024; C40, 2024; Grafakos et al., 2020). Public and stakeholder engagements are part of the exploration and building evidence-based phase, which is important in developing a robust vision, policy, and plan in the following phase. Moreover, in order to enable the transformative change, public and stakeholder engagements should be inclusive and empowering various groups of people in the city. Fostering inclusion and empowerment, as well as reinvigorating urban planning processes, are among the proposed future actions for building or enhancing local transformative capacity (Wolfram et al., 2019). At a neighbourhood or community level, climate change measures mainly focus on adaptation or at least co-benefits between adaptation and mitigation. Moreover, as the city of Munich is an established city, urban planning policies or strategies focusing on adaptation are more relevant because mitigation is mostly carried out at a higher level or in sectoral fields aiming for decarbonisation efforts. Urban planning policies focusing on adaptation, which can be also possess co-benefit with mitigation, include: 1) urban planning for tackling flooding, extreme heat, and drought, for example by developing future-proof flood risk zoning and planning for urban greening; 2) urban planning for nature aiming for not only flood prevention and heat reduction but also at the same time for water purification, air quality regulation, carbon sequestration, and improved physical and mental health; 3) urban planning for mode-shift and transit-oriented development (TOD) aiming for emission reduction, mobility and accessibility improvement, and also broader sustainable development contribution; and 4) urban planning for coping with new climatic conditions (C40, 2024; IPCC, 2022a, 2022b). In the case study analysis, the DT-M applications are also checked to see whether they are directly or indirectly applied for developing or implementing these measures.

CENTRAL COMPONENTS OF THE TRANSFORMATIVE CHANGE TOWARDS RESILIENT URBAN NEIGHBOURHOODS

Based on qualitative coding from the semi-systematic literature analysis of 16 articles published between 2022 and 2024 (see Figure 4), it was confirmed that technology and innovation are enablers of transformative change. From the literature analysis, it was identified that people-centric and inclusivity approaches, and collaboration are the most prominent ones, either seen as enablers or as approaches, strategies, and tools towards transformative change. In addition, the enabling conditions are centred on the transformative capacity. Learning capacities and political and democratic processes are also related to factors or sub-factors in the transformative capacity (Glaas et al., 2019; Wolfram, 2016). As discussed in the aforementioned section, inclusivity and people-centric approaches are the central components and fundamental prerequisite for achieving transformative change towards sustainable and resilient urban neighbourhoods, as they represent the bottom-line fundamental condition that should be prioritised when enhancing transformative capacity (Wolfram et al., 2019).



Figure 4: Method (Source: Author's Qualitative Coding using MAXQDA)

URBAN DIGITAL TWIN MUNICH: USE CASES FOR RESILIENT NEIGHBOURHOODS

This section presents use cases in the DT-M focusing on people-centric and inclusivity approaches, as well as how far the DT-M application can contribute to addressing climate change impacts or represent an effort of the city in achieving climate-neutrality. The DT-M has several functionalities that cover many potentials, even though with different degrees of development stage or applications, starting from data management, visualisation, situational awareness, planning and prediction, and also integration and collaboration, as also identified by Shahat et al. (2021). Based on the use cases in Munich, the visualisation functionality and user interface applications incorporate integration and collaboration features have been observed to directly enhance public and stakeholder engagement in urban planning processes.

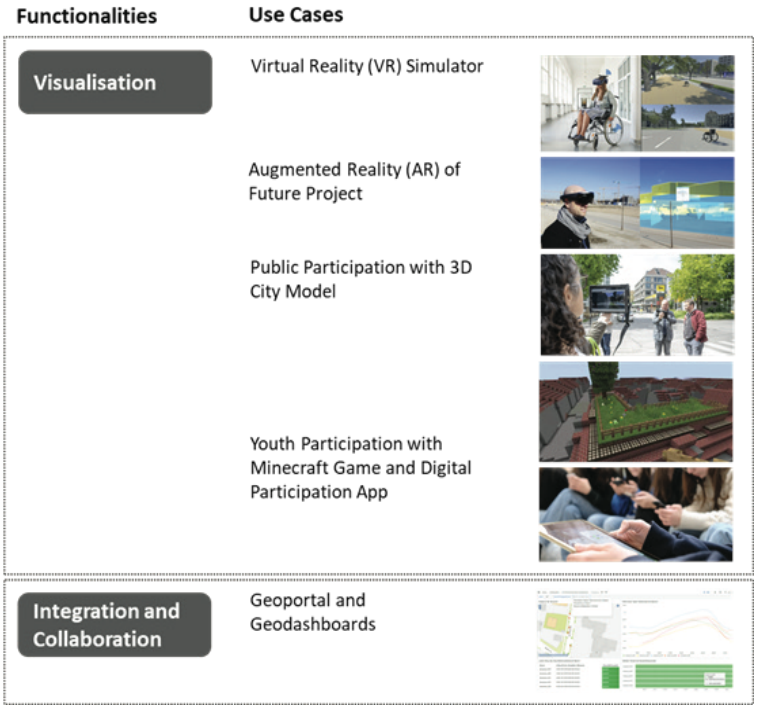


Figure 5: Digital Twin Munich (DT-M) Functionalities and Use Cases in People-centric and Inclusivity Approaches (Sources: City of Munich, 2025)

Barrier-free Development with Virtual Reality (VR) Simulator

Using Virtual Reality (VR) technology, various urban mobility simulations, including bicycle, e-cargo bike, and wheelchair, were carried out. The simulations were conducted in collaboration between the city of Munich and the Chair of Traffic Engineering, Technical University of Munich. These simulations aimed to enhance urban planning processes through more inclusive citizen participation. This use case has the potential to enhance transformative capacity by addressing the needs of underrepresented or marginalised population groups, such as people with disability, in the case of urban mobility and accessibility. With further application in public participation processes, these simulations could also empower these groups to understand a complex urban planning process and together shape a shared vision of the future.

Future Imagination with Augmented Reality (AR)

Augmented Reality (AR) technology was implemented and tested for a construction project in the new district Freiham, Munich. This technology provided all stakeholders with immersive access and a realistic impression of the project, enhancing understanding and imagination of the future. Additionally, AR was found to facilitate more targeted discussions while allowing for the exploration of different future scenarios based on current realities for more informed decision-making. Thus, this use case highlights the potential of the DT-M in facilitating the creation and understanding of a shared vision as well as serving as a tool for evidence-based decision-making.

Improved Participation and Foresight with 3D City Model

The implementation of a 3D city model in the DT-M, also combined with VR panoramic tours, facilitated the improvement of understanding when creating a shared vision by showing the planned scenarios in the current reality. Implemented for public participation in a traffic infrastructure project, this application helped not only the public in understanding the aim of the project but also, most importantly, reduce resistance to the project as people can comprehend the benefits of the project, imagine expected results, and understand fully the processes. The project aims to reduce motorised traffic, which contributes to reducing air pollution. Therefore, this also contributed to air quality regulation and climate mitigation by reducing emissions from the transport sector.

Youth Participation for Increased Inclusivity with the Minecraft Computer Game and Digital Participation App

Youth and children are often underrepresented or excluded from public participation in urban planning processes. However, the government of Munich has sought to involve them through two innovative approaches: transforming the urban digital twin into a Minecraft computer game for children and integrating it into a digital participation app aimed at youth. First, the Minecraft game was developed to bridge the gap between urban planning and public participation, allowing children's perspectives to inform planning processes. It was introduced in selected "gymnasium" schools to engage students with urban development topics, gather their ideas, and incorporate their suggestions into the game, for instance, green roofs and subway station designs. This initiative serves both as an educational tool for urban development and climate action while fostering inclusivity in public participation. In addressing climate change, one of the systemic barriers is behavioural lock-in, where past behaviours hinder future choices. By involving children in a fun way through gaming, we could enhance transformative capacity and encourage sustainable behaviours early on. Behavioural lock-in arises from unsustainable patterns in individual choices related to lifestyle, travel, and consumption (Seto et al., 2016). Furthermore, it is confirmed that children's participation in urban planning processes contributes to building transformative capacity in several ways: by providing new perspectives on the environment as well as by addressing challenges and changes in existing power relations and planning practices (Nordström & Wales, 2019).

The second approach involved using digital maps, images, plans, 3D models, and geodata from the digital twin within a digital participation app called DIPAS. Targeting youth aged 14 to 18 across various school types, this initiative combined multiple digital tools and workshops to identify issues and develop a vision for Munich's inner-city development. DIPAS is an open-source web application originally developed in Hamburg as one of Munich's partners in the CUT project that allows feedback during events as well as from home, enhancing transparency by linking the digital and analogue information with the insights and experiences of the young target group into the urban development.

The implementation of the Minecraft game and DIPAS aims to foster inclusivity, empower communities who are often excluded from public participation during urban planning processes, while creating a shared vision of the future, which is important for transformative change towards a sustainable and resilient neighbourhood. Visual representation significantly improves awareness and memory as one of the key components in building local transformative capacity (Glaas et al., 2019). Additionally, developing urban sustainability foresight is crucial alongside inclusivity and empowerment (Wolfram, 2016).

Better Collaboration with Joint Platform (Geoportal) and Geodashboards

In addition to visualisation functionality within the DT-M, which primarily fosters inclusivity and a shared vision of the future, Geoportal and Geodashboard have significant potential to enhance collaboration. Current use cases demonstrate that these two functionalities facilitate integration and collaboration across different sectors within city administration. With further development, these functionalities could also improve collaboration among different organisations, communities, and the public when more features for access are provided to the public. Working across different levels of human agency is also one of the ten components of transformative capacity (Wolfram, 2016).

UNFOLDING THE URBAN DIGITAL TWIN POTENTIAL FOR RESILIENT NEIGHBOURHOODS

The Potential of Digital Twin to Enhance Transformative Capacity

The digital twin of Munich offers a wide range of functionalities, with data management as its core component. However, the combination of visualisation and user interface apps plays a crucial role in fostering inclusion and empowerment, as key components of transformative capacity (Wolfram et al., 2019). The integration has been implemented for public participation processes, demonstrating its potential to enhance the following transformative capacity factors:

- fostering inclusivity and new forms of governance modes by facilitating various forms of participation, collaboration, and co-creation approaches for a more varied group of people; and
- engaging and empowering more groups of citizens and stakeholders while addressing the social need related to “accessibility for all” and managing resistance or potential conflict for a new project aiming for sustainability.

These combined functionalities also show significant potential for enhancing transformative capacity by creating a shared vision of the future. They enable the co-production of local knowledge, provide a more realistic and explicit future vision, and present future alternative scenarios. The articulation and imagination of collective visions of the future and its alternatives are very important factors in building neighbourhood resilience (Glaas et al., 2019).

Urban Planning and Climate Adaptation for Resilient Neighbourhood

The digital twin of Munich has been explicitly applied in participatory processes to define a vision for the development of the inner city of Munich. The applications of DT-M for climate adaptation measures were not direct evidence, even though this is understandable, as one of the funded projects was under the framework of urban mobility transformation. However, there are already some indirect impacts or co-benefits of the use cases to contribute to climate action in general, such as mitigation or the decarbonisation of the transport sector and avoiding further behavioural lock-in through involving children and youth in urban development processes. Further development related to climate measures by using various visualisation tools within the digital twin is very likely to contribute to enhancing transformation, for example, learning from the application of augmented reality in Vienna to make climate effects visible, see Othengrafen et al., (2023) for more details. The institutionalisation of DT-M as a permanent project for achieving climate neutrality is also viewed as a proactive approach to accelerating city-wide climate action in Munich by embedding innovation into the existing systems and routines.

CONCLUSIONS

The use cases from Munich demonstrate that a digital twin can significantly contribute to transformative change by enhancing various components of transformative capacity. Firstly, it fosters inclusivity and new forms of governance modes in decision-making processes by capturing diverse viewpoints from different groups of people, including those often excluded, through people-centric civic engagement approaches. Secondly, it engages and empowers more groups of citizens and stakeholders by addressing social needs and integrating community empowerment into public participation designs. Thirdly, it helps create a shared vision of the future by co-producing knowledge and envisioning alternative futures.

In terms of climate adaptation or climate action in general, the current potential of the urban digital twin for transformative change is heavily linked to process transformation, whereas targeted outcomes related to coping with climate change impacts have yet to be observed. The urban digital twin has proven to enable comprehending complexity and imagining possible futures, making projects or plans more tangible for decision makers and the public. With further development and wider applications, urban digital twins hold significant potential for addressing climate change through, for example, measures that utilise sensor-based and real-time climate-related data, alongside their visualisation and simulation capabilities. They can also potentially address institutional barriers and lack of awareness as main systemic barriers in climate adaptation (IPCC, 2022a), as they enable

comprehending complexity and imagining climate change impacts, more tangible for decision makers to support in developing and executing measures for addressing climate change impacts or achieving climate-neutrality.
As this research relies on literature and available online sources, several detailed aspects remain uncovered or unknown. Further research, including using different methods such as interviews with key stakeholders in the city of Munich, is needed to further investigate and understand how far the DT-M facilitates and improves urban planning processes, particularly in mainstreaming climate measures beyond business-as-usual towards sustainable urban transformation and resilient urban neighbourhoods.

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HOW INVESTORS CAN CONTRIBUTE TO SOCIAL SUSTAINABILITY AND RESILIENCE THROUGH TRANSFORMATIONS INSPIRED BY CITIZEN PARTICIPATION AND ADAPTIVE PLANNING

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ABSTRACT

Sofia, Bulgaria's capital, has undergone profound changes since the end of socialism. Intensive private investment often outpaces public infrastructure development, primarily supported by EU financial instruments. This lag stems from restitution-driven loss of public property, imprecise public-private partnership mechanisms, corruption, and ineffective planning tools. These issues are most acute in Sofia's southern districts, where investor and buyer demands are highest, creating so-called "elite" neighbourhoods.

The entry of large investors, who consolidate the property structure, creates precedents in the local urban context by planning vast territories dominated by private property. Providing public services and infrastructure faces challenges, including regulatory complexity, multiple owners, lack of institutional coordination, weak civic engagement, and inertia from the centralised management system. In these new developments, the formation of communities that feel unity and belonging faces serious challenges - the territory is fragmented, many new structures are closed and segregated, and there is a lack of public facilities and spaces for community development. Unity among residents typically arises when they feel collectively deceived and seek solutions to their problems together.

Nevertheless, the role of investors is evolving, turning them into key coordinators of civic participation. This evolution happens despite their historically negative image in society, which is associated with a desire for quick profit at the expense of the created environment. In Bulgaria's fragmented and institutionally challenging planning process, projects and investors bring together stakeholders, such as residents, businesses, institutions, and previous property owners. To achieve resilience, flexibility, sustainability, and continuity in developing large multifunctional territories, investors must take the slow but engaging path of a holistic, integrated planning approach, where engagement starts early.

Depending on the case and the investor's bravery, several tools and combinations can ensure socially, environmentally, and economically sustainable and resilient spaces. Urban mediation provides a neutral platform to resolve disputes, prevent escalation, and build stakeholder trust. Fostering dialogue mitigates tensions and avoids costly legal battles while maintaining relationships. Public discussions and forums for joint decision-making lower pressures caused by investments, address common problems and seek mutually acceptable solutions. Interactive maps and platforms stimulate transparency and dialogue, including at community events and territory management. Social mapping helps to understand the local context, especially in areas with strong communities and attitudes towards newcomers. Placemaking is a powerful tool for community building, co-creation, and strengthening ownership and responsibility towards the territory.

The article examines examples from applied mapping of social deficits in Sofia's southern regions, planned placemaking initiatives in southern neighbourhoods, and ongoing approaches to inclusive and sustainable planning in the Hladilnika Industrial Park, Sofia.

Keywords: urban mediation, placemaking, Sofia, inclusive planning, sustainability

NTRODUCTION

Urban development is an arena where the interests of multiple parties meet and often clash. Planning in a democracy rejects the concept of forcing one party's interests on another. Achieving equal interaction requires providing mutually recognised mechanisms for cooperation that ensure transparency and fairness in the relationship between the parties and the decisions they take. Sofia's contemporary development puts their achievement to the test. Dynamic processes driven by the powerful engine of private capital, with existing deficits of clear rules, cause frequent frustrations among urban residents and users, especially in neighbourhoods still developing in the southern urban periphery. These manifestations are often provoked by the difficulty of reaching modern urban amenities such as education, culture, sport, recreation, public transport, etc., as well as by the deprivation of important conditions for physical and psychological health - clean air, light, quiet, etc. The formed picture is a precedent in the history of urban planning in Bulgaria - a concentration of a vast number of dwellings and workplaces without public infrastructure. Working in conditions that do not meet regulatory requirements and standards for modern quality of living, about which users massively express a negative opinion, but at the same time are willing to pay prices for purchase or rent, significantly above the national average. There are no ready-made solutions; working solutions must be sought through joint efforts to lead to mutual benefit for the individual parties and the prospect of providing decent living conditions for future generations. (Healey, 1998)

METHODOLOGICAL APPROACH

The sections representing the historical and spatial context, modern trends in urban development and stakeholder interactions have been developed through a review and analysis of Bulgarian and foreign literature, official geographical and statistical data from institutions, and the professional impressions of the authors. Attention is drawn to publications by researchers who study the post-socialist transformation and the relationships between the different actors in Sofia, as well as the influence they exert. An overview of the framework of adaptive planning and stakeholder engagement is given. Attention is paid to the role of investors in the international context of urban reconstruction.

Challenges, scenarios, approaches, and mechanisms with an abstract model and hierarchy of participation are based on the study and the authors' experience in Sofia spatial planning and stakeholder engagement processes. All proposals stem from the ideas and work of the authors. Their successful implementation should be verified through different case studies. By May 2025, some examples can be found in Sofia that demonstrate innovative approaches. However, these approaches have been partially implemented without a systematic approach, and it is hard to draw an explicit conclusion about the results. The selected examples illustrate individual attempts to engage stakeholders in urban cases, dominated by private ownership and private development initiatives. The principles in these examples are closely related to the authors' efforts to achieve a transparent, inclusive, and equitable planning process. The examples are not exhaustive and can hardly be called 'best practice', but they reflect the city's and stakeholders' real experiences, showing the opportunities and risks that exist and need to be considered in local urban policy.

HISTORICAL AND SPATIAL CONTEXT

Since the liberation of Bulgaria from Ottoman rule in 1878 until 2025, the country has gone through different models of government: monarchy (until 1944), socialism (1944–1989), and democracy (since 1989). The transition between systems brought major transformations in the ownership structure. The "people's power" imposed nationalisation (after the mid-1940s), centralising agriculture, industry, transport, and urban development. The fall of the totalitarian regime in 1989 led to the restitution of property within pre-1944 boundaries, often in areas lacking spatial planning, as well as parks and inter-block spaces (Stoycheva, 2013). This created unfamiliar conditions for urban development. Cities saw private ownership of public-use land, parks, complexes, and industrial zones. This is especially prominent in peri-urban areas with agricultural land slated for urbanisation. The southern parts of Sofia are most affected due to several factors: the 2007 General Spatial Plan allows intensive residential and mixed-use development (Sofia municipality, 2009; Sofproekt, 2018); the area's strategic location between the compact city and Vitosha mountain; and strong interest from investors and residents. Besides unused territories, restored ownership and permission for investment reshape existing urban structures. Intra-block spaces, intended as parks or public uses, are often fragmented and privatised. Private ownership dominates in this part of Sofia (Fig. 1), and many sites have been developed. This brings both positive effects—services and revitalisation—and negatives like overbuilding and congestion. These dynamics reflect widespread fragmentation in construction, planning, and decision-making. After the collapse of centralised governance, a belief emerged that the free market could regulate development. Combined with restitution and ownership transformation, this stalled comprehensive planning. Instead, partial amendments took over, responding to private initiative (Aleksandrov, 2006). Still, some complex plans emerged - like the "Concept of Structural

and Volumetric Spatial Development of the Southern Territories"—but their assumptions faltered in practice. "The mid-1990s saw the first steps towards reforms in the planning system and legislative base, and a renewed interest in strategic planning" (Dimitrova, 2009).

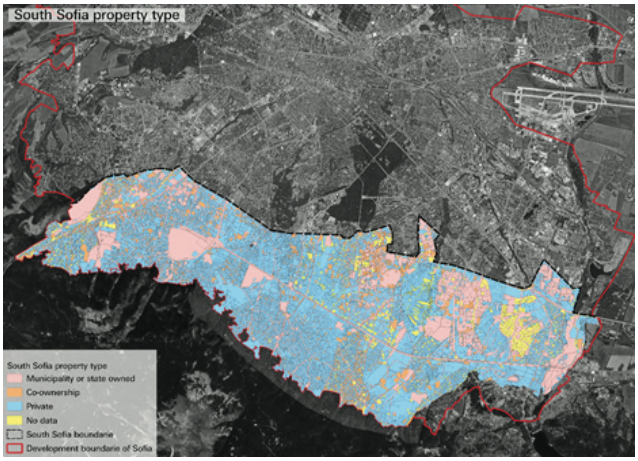


Figure 1: South Sofia property type (author-generated visual, based on data sources: GCCA, 2025; Google Maps, 2025)

The first significant attempt in Sofia to break the fragmentation was made in 2007 with the adoption of the city's General Spatial Plan. The development of detailed spatial plans for some neighbourhoods followed it. In the same year, 2007, national legislation regulated the consolidation process in the areas subject to regulation for the first time in its history. Despite the conditions created, many owners and investors are not satisfied with the conditions the adopted plans provide them and initiate partial amendments for their properties to secure the maximum permissible building parameters that the General Plan allows them. Corrupt practices are not rare - "violation of the provisions of the General Plan and systematically allowing the urban development indicators to be exceeded" (Sofia Municipality, 2025)

As a result, new residential and mixed-use areas remain poorly served by key community facilities and services. A significant challenge is the inability to build main streets in the southern part of the city, depriving the new neighbourhoods of quality mass public transport services. Even if they carry traffic, secondary streets often have serious deficiencies in their elements, most often lacking passable and safe sidewalks, and bicycle infrastructure remains a mirage (Sofiaplan and UBSP, 2021). Thus, new residents become dependent on the private car when they move in, contributing significantly to congestion in and around new neighbourhoods. The lack of green space degrades the quality of life, and dense development without publicly accessible spaces creates social tension, hinders socialisation and increases stress levels in the urban environment. Young families with children are most affected and predominate in these areas. They face acute shortages of kindergartens, nurseries, schools, and medical units, forcing them to seek basic services and goods outside the neighbourhood in which they live. These circumstances are a prerequisite for social exclusion, especially in remote neighbourhoods. This turns them into a kind of urban capsule with limited economic opportunities, a deteriorated social environment and an increased crime risk. Opportunities to overcome the problems and create a fulfilling urban environment in the future appear to be minimised.

TRENDS IN URBAN DEVELOPMENT AND STAKEHOLDER INTERACTIONS

According to the Master Plan of Sofia Municipality, the southern parts of Sofia should connect the central part of the city and Vitosha Mountain. A key element in this concept is the continuation of the green wedges southwards along the rivers coming from the mountain, alongside large-scale development of residential areas, transport infrastructure, and public service facilities. Private ownership dominates the areas in Southern Sofia, where new public facilities are planned. Residential sites are developing rapidly, while public infrastructure remains frozen in time. The role of large developers is growing, as they consolidate sites and their projects impact entire neighbourhoods. This tendency can be paralleled with other European countries, where urban reconstruction takes place when private investors assess the investment as profitable. It is usually they who turn detailed spatial plans into reality. Thus, the need for a transparent and credible negotiating framework between public institutions and private developers, based on mutual trust, is strongly appreciated (Holsen T., 2020).

A popular trend in Sofia is the creation of gated communities accessible only to residents and guests. This leads to further fragmentation of the environment, disconnection between separate islands, and adverse social effects such as segregation. In neighbourhoods like Vitosha and Krastova Vada-East, where these structures exist, residents describe social life as unsatisfactory due to the lack of public space. Opportunities to spend leisure time outside, play sports, and raise children are limited. Other problems noted by locals include difficulty moving around, cramped buildings, and poor sunlight (Sofiaplan and USBP, 2021).

Acts of confrontation between private and public interests accompany investment processes. Contemporary scholars of the early stages of the period define private interests as "centered, identified, clear, concrete, deposited here and now, aimed at maximising effect, personally and actively defended by various forces and means" and public interests as "fuzzy, unidentified, vague, non-specific, situated in the distant future, moderate, defended ex officio or civilly, with limited forces and means" (Aleksandrov, 2006). Also, "the immanent 'public interest' breaks down into multiple - often conflicting interests of diverse social groups and individuals" (Dimitrova, 1999). This puts on the agenda the question of the right to the city in the contemporary urban context, and in the post-2010 period, its weight in the Sofia agenda has increased (Burov, Madzhirski and Mutafchiiska, 2019). The formation of communities in rapidly developing new neighbourhoods with people who until yesterday lived in other environments usually takes the form of an association to solve common problems or defend against a shared threat.

A precondition for the accumulation of problems is the systemic deficit, persisting over decades, of clearly formulated rules and effective mechanisms for cooperation between public institutions and private investors. The lack of transparent mechanisms. There is no sustainable model for implementing the Public-Private Partnership Law, including constructing public infrastructure such as streets, parks, and social facilities. Mechanisms that transparently regulate allocating responsibilities, contributions, risks, and benefits for each party are missing. This creates conditions for corrupt practices and "arm-twisting" by public institutions. One example is the use of "donations," which, although formally voluntary, become a condition for project approval and create the sense of an informal tax or administrative pressure. In practice, investors are often placed in an informal but real need to build various elements of public infrastructure at their own expense, from technical to social (Ivanova, 2014). This generates ambiguity and legal uncertainty and opens space for corrupt pressure and opaque negotiations. Instead of being part of a transparent public-private partnership framework, such actions remain outside the normative system. They are applied selectively, undermining equity among participants in the investment process and eroding trust in institutions. Establishing workable, trust-based mechanisms is essential for sustainable projects where private investors can make long-term environmental commitments and help compensate for public deficits. Such mechanisms can serve as a basis for adaptive urban planning in Sofia. They contribute to "designing cities that are flexible and responsive to change" (Rauws, W. 2017). By involving community members in planning, planners can build trust, foster a sense of ownership, and ensure that plans reflect community needs and priorities (Sustainable Dictionary, 2025).

An example of a working regulatory mechanism in Bulgaria can be given in Article 16 of the Law on Spatial Planning, which regulates the consolidation and has already been successfully implemented in some areas in Sofia, e.g. in the district "Studentski" and particularly in the "Malinova Dolina". The instrument regulates property relations, but is not a guarantor for the construction of public facilities. An untapped resource that could increase public assets in urban development is the updated calculation of fees for issuing building permits. As of April 2025, fees in Sofia are significantly lower than those in the neighbouring capitals of Belgrade (37 times higher for equivalent zones) and Bucharest (5 times higher) (Belgrade Land Development Public Agency, 2024; Bucharest city hall, 2025; Sofia City Council, 2025).

CHALLENGES, SCENARIOS AND SUSTAINABLE APPROACHES

The conditions described so far create challenges for the planning system and stakeholders, including investors. The implementation of urban policy by the local authority, which has clear, rational and efficient mechanisms based on legal rules, with established public trust, seems to be the most sustainable solution. Alas, in real local conditions, it seems to be wishful thinking. This poses the main challenge of balancing stakeholder interests and creating a functional and vibrant urban environment - how can we achieve these conditions when strong and prosperous public institutions cannot be relied upon in Bulgaria? Can private investors compensate for public deficits with their capital and instruments?

Three general development scenarios can be defined in combination with targeted actions and external factors, in which some balance in the construction of the environment in Sofia can be expected:

- First scenario: The municipal government creates transparent mechanisms where it coordinates the process of securing land and financial resources to construct public facilities in the urban environment. In this scenario, administrative reforms at the national level would be necessary. To accumulate capital, municipalities need to become active participants in the property market, and for this to happen, changes in property, public

finance and spatial planning legislation are required to enable them to acquire, manage and use property strategically, with guaranteed transparency and public interest. This scenario is long-term and sustainable, but in the Bulgarian political, governance, and societal picture, it does not seem realistic and, at best, will yield results far into the future.

- Second scenario: Artificial slowdown of the private investment process. This could happen due to external influences, such as global economic stagnation - an example from the 2007-2012 global economic crisis. It could also happen due to targeted internal factors, such as imposing administrative burdens that reduce the number of building permits issued. A similar phenomenon has been observed in Sofia since 2024. Artificial delays can create conditions for catching up on public investment and relatively balancing the environment, but bring job losses, uncertainty in the sector, staff leakage and price imbalances in the market, thereby creating long-term risks for the sustainability of the economic and social environment.
- Third Scenario: Establish mutually recognised stakeholders and legally sound public-private partnership mechanisms. Investors can be a leading moderator when the process concerns significant private projects that must compensate public deficits with their resources. This requires the involvement and engagement of stakeholders who will be affected by the development and who may be future users, including in the role of clients. A moderated process benefits the parties, where the possible benefits and risks for each are identified and joint actions are taken to achieve specific objectives.

For private urban redevelopment projects and new developments to be workable and profitable, they must be as integrated as possible with their surroundings to provide fulfilling living conditions. This cannot happen in isolation, only within a specific complex, even if it is a large one with a developed set of services. There needs to be integration - social, economic and spatial - so that there are links with major city parks, schools, hospitals, etc., avoiding the creation of gated communities, with isolated individuals. This requires developers to make more original projects that differentiate them in the market, and to apply integrated approaches in planning their investments.

The transition from closed (accessible only to residents and their guests) to open structures that naturally complement and enrich the traditional urban environment is innovative in Sofia's current context. Investors can expect higher profits by creating retail and service outlets that attract consumers from near and far. They will gain better visibility through the rising popularity of community facilities in their complexes and events held there. By opening up, they contribute to residents' and the broader neighbourhood's social life by offering diverse public amenities—green spaces with distinctive features, places to meet and play, and sometimes shops, services, nurseries, gardens, etc. Social facilities can be developed in partnership with the local authority to address shortages of community infrastructure. Culture plays an important role, significantly enriching the environment and urban life. It attracts diverse social and age groups, creates a distinctive identity, sets the place apart, and adds considerable value.

A respectful approach to neighbours, the sites and places they have built and use, through inclusion and inclusiveness, is mutually beneficial and prevents contrasts, conflict, and fragmentation. Rich content can emerge through interconnected business approaches, benefiting the whole city and setting an example of development that does not burden or exploit surrounding or distant areas, while enhancing the investor's image. When developing large territories, private developers become de facto managers of small neighbourhoods, which inevitably requires involvement, feedback gathering, and coordination among various actors. This reflects a shift in the functioning model of Sofia's housing market, where investors no longer remain the majority owners in the complexes they build and rent out sites. This creates conditions for them to become providers of diverse services.

THE MECHANISMS

Private investors can create open and integrated structures by applying different stakeholder engagement mechanisms. To develop their projects sustainably and flexibly, they need to initiate a holistic, integrated planning approach. Implementing the third scenario should be seen in the full context of stakeholders and the groups they form. Three broad groups can be identified—'initiators and strategic players', 'direct stakeholders', and 'general public'. The first group includes those most empowered in decision-making: those who sign administrative acts and manage public budgets (the administration); those who manage private capital capable of significantly impacting the city and society (investors and business associations); and those with knowledge of processes, procedures, and tools who advise decision-makers (experts). The second group consists of those directly affected by investment intentions—land and property owners, tenants, nearby residents, local businesses, and civic organisations (formal and informal). The third group comprises the general public—urban residents, including those from remote areas, urban activists, social movement representatives, media, influencers, etc. Each group lower in the pyramid (Fig. 2) has less formal power but broader representation than the one above.

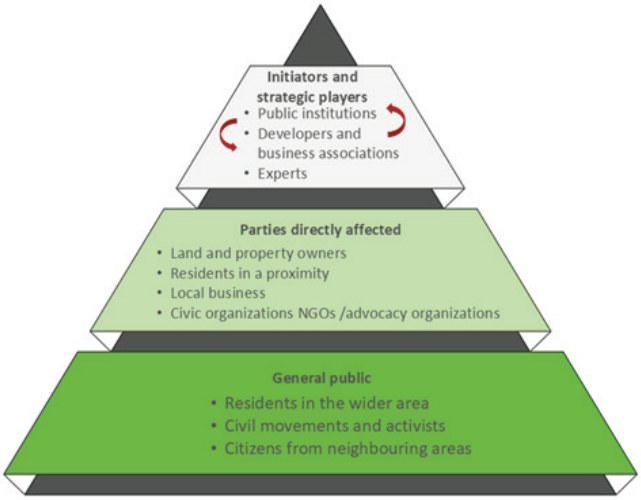


Figure 2: Abstract model of stakeholders' groups (author-generated visual)

The interaction mechanisms form levels linked to the three general stakeholder groups. The interactions between "initiators and strategic players" are characterised by closed-door meetings, contract signing, agreements, etc. The further down the pyramid, the more the door to publicity opens. Interactions between "initiators" and "direct stakeholders" imply meetings in broader formats, the organisation of joint processes, including Placemaking, where the general public is invited to get involved, in some cases passively, but in some cases actively. Classical tools for broad public engagement include open public discussions, opinion sharing (including through submissions), information campaigns, etc (Fig. 3).



Figure 3: Groups of instruments for inclusion and hierarchy of participation (author-generated visual)

The tools for creating a sustainable environment include the inclusion process. An adaptive approach to planning allows strategies and actions to be modified in response to new information, changes in circumstances or feedback from the environment, to achieve sustainable and effective outcomes. The approach is innovative in the Bulgarian context, and its future application holds significant potential. Adaptability can be found in different thematic directions:

• Functional and constructive—adaptive designs serve to change functions in the future and are also a prerequisite for it. The modules allow for future transformations of the rooms in the built objects, depending on changes in needs. This even applies to the car parks, which can be converted into mixed-use buildings.

• Operational—the systematic collection of data on users' consumption, including their activities that affect the system's functioning—e.g., mode of transport, type and quantity of waste disposed of, etc. It is important to balance preserving privacy and behaviour confidentiality with collecting user feedback. Data is

important for managing and adapting the system for better ecological performance and user needs.

• Climate and nature-based - using native species for landscaping and biodiversity maintenance, which have less need for constant maintenance and are significantly more adaptable to various weather conditions. Integrating natural elements of blue-green infrastructure into developments, including planning for a comprehensive energy-efficient system using modern management technologies. (Roy et al., 2018; Kabisch et al., 2017)

The opportunities to apply various stakeholder engagement mechanisms and adaptive approach measures provide investors with a rich toolbox they can—and should—use to create sustainable, high-quality developments with added value. Investor involvement in the life of the development is also essential. Shifting from a "build-sell-and-run" process to long-term engagement is key to creating and maintaining resilient sites. This is a precondition for outcomes familiar from international experience—more housing, commercial, cultural, sporting, and other facilities the developer may lease or manage as part of a broader property strategy, while allowing for diverse ownership structures, especially in housing. The lack of individual ownership, particularly in housing, is often viewed negatively in Bulgaria, but this perspective frequently overlooks the potential for quality environmental management. When managing a large-scale complex, the developer can also take the role of a facility manager and stakeholder coordinator, with a vested interest in gathering user feedback and ensuring the quality of shared space.

CASE STUDIES

Several examples can illustrate a change in how investors, the administration, and other stakeholders interact and lead to results that benefit the public interest. By the public interest in urban investment, we mean ensuring affordable, sustainable, and equitable spatial solutions that respond to society's collective needs, conserve resources, and are shaped through democratic and participatory mechanisms.

In these examples, without a role for investors, desired outcomes for the community cannot be achieved. One of Sofia's most intensively developed southern parts is "Hladilnika" - a former industrial area. This site has long since lost its original function and is now the subject of strong investor interest for housing, office, retail and service development. Its crossroads position between existing and planned greenfield sites makes it even more attractive (Fig. 4).

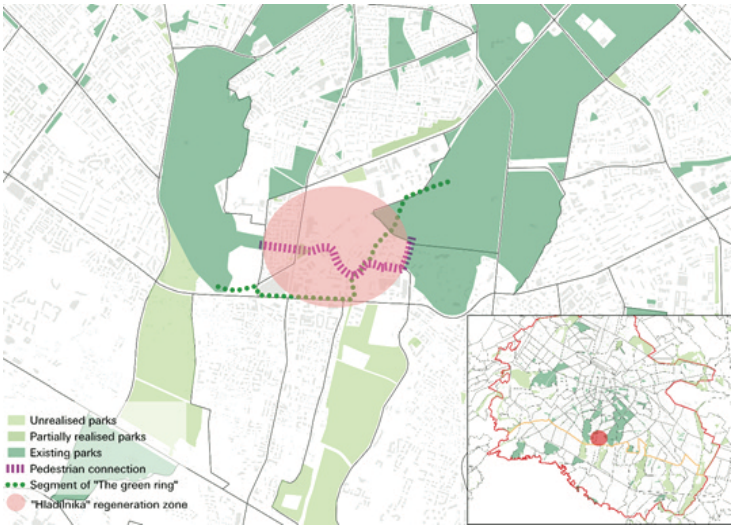


Figure 4: "Hladilnika" urban regeneration area, parks and connections (author-generated visual, based on data source: GCCA, 2025)

In 2015, a comprehensive master plan for the territory was developed, initiated by the chief architect of Sofia (iSofia.bg, 2020). The plan proposes solutions for the transport network, but not for the social infrastructure with facilities for education, health, sports, culture, etc. Such an approach creates an environment where these objects must be made up in other ways, without clear rules and processes, resulting in disadvantaged outcomes. The Chief Architect is introducing rules obligating owners to donate part of their property to make a continuous pedestrian link between the two major city parks nearby. Introducing these rules at a high level can be seen as an innovative mechanism for jointly realising public objectives. However, it also raises concerns about the

voluntariness and investor equality. The mechanism can succeed if supported by a clear planning toolkit, measurable public benefit, and transparent, predictable rules. However, without a regulatory framework and public scrutiny, its implementation risks creating inequities and legitimising informal dependencies between administration and investors. The measure's implementation in the region is phased, with the realisation of individual investment intentions. A landscaped space with a pedestrian promenade has been implemented, which has free access in a part of the property of a software company donated to the Capital Municipality. Another company next door initiated the design of the pedestrian and bicycle connection adjacent to their property. However, the lack of sufficient legitimacy of the process is a prerequisite for one of the owners in the chain to refuse the donation and use the land resource for private interests.

On the agenda is forming communities between investors to build the large urban park "Lozenets" - a public facility on private property, which is essential for the development of the entire area. The municipality does not have the means to acquire the property and build the park on its own. This requires the formation and implementation of innovative mechanisms of cooperation for Bulgaria, through the creation of joint fundraising organisations, securing donations that aim to invest in objects that will have a shared benefit, including by increasing the value of the properties of investors and the services they provide.

Stakeholder involvement in the area is not limited to creating public facilities. It is also relevant to creating private ones, where the placemaking approach is instrumental in attracting interest, forming community, creating the functional prototype of the future finished site, and developing a theme, character and identity before the actual investment is utilised. In this way, new developments can become an incubator for creating communities in their infancy. Applying such an approach, specifically in the "Hladilnika" urban regeneration area, is a prerequisite for breaking the established tendencies in the neighbourhood to create relatively sterile sites that do not form a vibrant and attractive public environment.

Going to the southernmost parts of Sofia, in the low-rise neighbourhoods at the foot of Vitosha, the deficits in social infrastructure, public spaces and technical infrastructure are growing. An important item on the agenda of these neighbourhoods is the laying of a first regulation through the legal instrument of commensuration, whereby up to 25% of the area of each property is taken for public facilities. This proportion can vary, which is a precondition for speculation and pressure from both takers and givers. A detailed plan is being developed for "Malinova dolina" (former cottage area), where a private developer has acquired extensive areas to be zoned for residential and service structures. The portion to be re-conveyed is subject to negotiation. At their core is the need to provide free access to social infrastructure - nurseries, kindergartens, primary schools, cultural facilities, playgrounds, and sports grounds. To conduct a dialogue based on objective circumstances, the investor initiated mapping the current services with their capacity and projected development to support the municipality in determining the communication share, provided that it implements the public infrastructure, including the social service.

These examples lead to several significant findings. In the new districts of Sofia, where private ownership predominates, it seems impossible to implement and provide public services without the substantial contribution of private owners and developers. This strengthens their role considerably. They must be supported and moderated early to create resilient, vibrant, and cohesive communities that inhabit the new neighbourhoods. Spatial studies of territory are essential in informing evidence-based decision-making. The studies benefit the city administration and investors by creating a sound basis for transparent and fair negotiation.

As a result, several recommendations can be derived:

· Policymakers should ensure transparent, legally sound public-private partnerships that foster flexible, locally adapted collaboration. They must also guide inclusive processes that balance risks and benefits for all stakeholders, enabling shared goals.

· Investors should adopt integrated, adaptive planning and engage affected communities as future users and partners. As coordinators, owners of large-scale projects should gather user feedback to inform development.

· Respect for local contexts and communities helps avoid conflict and fragmentation, while adaptive strategies ensure sustainable outcomes through responsiveness to change and new insights.

CONCLUSIONS

Sustainable urban development is a shared responsibility of all stakeholders. The interaction between them must be regulated and carried out transparently, not creating the impression of hidden agreements and leading to satisfied parties. In the case of Sofia and Bulgaria in general, it is necessary to apply innovative mechanisms for the local context, as standard practices are difficult to adapt to the specificities of individual cases. Flexibility of approaches is important. It can be concluded that these approaches are complex as they are tasked with solving complex cases with multiple interests between parties. However, this seems to be the only way to permanently

address the current urban problems and change the image of both new developments and those behind them.

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INNOVATIVE METHODOLOGIES IN URBAN DESIGN STUDIES: TRANSGRESSING BOUNDARIES BETWEEN BUILT ENVIRONMENTS AND URBAN SCENOGRAPHY

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ABSTRACT

This paper explores the integration of urban scenography into urban design education as an innovative pedagogical tool aimed at bridging the gap between technical skills and the socio-cultural complexities of contemporary urban environments. The study focuses on the "Architecture and Space" course, which uses an experiential learning methodology to engage students in direct interaction with urban spaces. By combining visual documentation, spatial analysis, and on-site learning, students are taught to interpret cities as dynamic, evolving narratives shaped by human interactions. The course encourages students to view urban environments not only as physical entities but also as performative spaces that influence behavior, social engagement, and cultural expression. The paper emphasizes the importance of participatory learning, where students collaborate with local communities to co-create urban designs that are inclusive, resilient, and culturally meaningful. The integration of urban scenography into the curriculum fosters critical thinking, creativity, and empathy, helping students design spaces that respond to the complex needs of contemporary urban life. By focusing on the sensory and emotional dimensions of urban space, this approach equips students with the tools to develop urban spaces that are not only functional but also socially engaging and adaptive to future challenges. Ultimately, this paper advocates for a holistic urban design education that prepares students to become active participants in the ongoing transformation of urban environments, contributing to the resilience and sustainability of cities.

Keywords: urban scenography, urban design education, on-site learning, civic engagement, spatial narratives

INTRODUCTION

In various contexts bachelor programs in urban design typically commence with foundational courses that establish essential knowledge and skills. Students are introduced to tools for urban analysis, including site documentation, spatial measurements, and basic design techniques that focus on efficiency and compliance with national planning standards. As well, the approach to teaching and learning Urban Design at prominent faculties in the Western Balkans, reflects a structured progression that introduces students to the fundamental principles of urbanism and urban planning at various stages of their academic journey. The teaching approach at these faculties focuses on building a comprehensive understanding of urban design through both theoretical knowledge and practical skills. The curricula place significant emphasis on context, human needs, and the relationship between architecture and urbanism.

However, despite this essential knowledge, there is a growing realization that current undergraduate urban design programs fail to adequately address the interdisciplinary complexities of urban environments. Core issues such as landscape, ecology, sociology, and the lived experience of citizens are often explored superficially, or not at all, particularly at the undergraduate level. The disconnect between foundational urban design practices and more advanced, research-driven urban theory has created a gap in urban education (Rodwin, 2000).

This gap is particularly noticeable between the technical skills developed during undergraduate programs and the more nuanced, interdisciplinary approaches adopted in master's programs. Bridging this gap requires the integration of innovative teaching methodologies, fostering critical thinking, creativity, and civic engagement among students from the outset of their studies.

This research explores how urban scenography can be used as a pedagogical tool to foster a more holistic understanding of urban spaces, a concept that emphasizes the performative qualities of urban spaces (Certeau, 1984), considers how people mentally navigate urban environments (Lynch, 1960), and treats the urban environment as a lived and dynamic narrative (Lefebvre, 1991). Through this methodology, students engage with cities not just as physical entities, but as evolving, socio-cultural narratives that shape and are shaped by human interactions. By adopting this approach, students develop both the technical and critical thinking skills necessary for engaging with contemporary urban challenges (Harvey, 1973). By practicing this methodology, students become active participants in the transformational processes of urban environments, especially in the context of today's rapidly changing cities. Through on-site learning and engagement with the dynamic realities of urban spaces, students are encouraged to observe and analyze the behaviors of citizens at a 1:1 scale. This process facilitates direct interaction and discussions between students and local communities, fostering a deeper understanding of the role of the citizen in shaping their urban surroundings, which aligns with contemporary practices of participatory urbanism and the emphasis on citizen-led urban design (Healey, 1997).

Urban scenography can bridge the gap between traditional urban design education, which often focuses on theoretical principles and technical exercises, and the interdisciplinary challenges of contemporary urban life. While conventional studio-based teaching emphasizes individual design skills and formal analysis, urban scenography encourages a more participatory, on-the-ground approach, where students engage with communities and understand the socio-cultural dynamics of urban spaces. This approach fosters critical thinking and creativity, enabling students to design spaces that are more inclusive, adaptive, and socially responsive.

One of the fundamental strengths of urban scenography is its emphasis on civic participation, a key component in fostering resilience and promoting transformational change in urban spaces (Lefebvre, 1996). This pedagogical approach places students in direct contact with urban environments, engaging them not just in physical documentation but also in interpersonal exchanges with citizens, and on-site embodied experiences. In doing so, the students move beyond the role of passive learners and become active participants in the civic processes of the city, which is essential for the resilience of urban communities. This method not only prepares them to understand urban environments in a theoretical sense but also enables them to influence the ongoing transformation of these spaces through direct, on-the-ground interactions (Jacobs, 1993).

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This chapter reviews the theoretical underpinnings of urban scenography in urban design education, exploring its origins, development, and intersections with various disciplines. It covers key concepts from historical to contemporary perspectives, examining how urban scenography has evolved, how it influences design practice, and how it can be integrated into educational methodologies. The chapter is subdivided into four main areas: Historical Roots in Urban Scenography, Innovative Pedagogical Approaches, Interdisciplinary Connections, and their implications for urban design education.

Historical Roots of Urban Scenography

The concept of urban scenography, which views the city as a dynamic and performative space, originated during the Renaissance, a period of significant philosophical and artistic changes in urban design. Prior to this, cities were largely seen as fortresses or shelters, with the primary function of protecting their inhabitants. However, the Renaissance introduced a new perspective, viewing the city as a multi-dimensional space for human activities, where public, semi-public, and private domains coexisted and interacted. This period marked the beginning of understanding cities as scenographic compositions—a stage for human interaction, cultural expression, and social engagement.

Urban scenography's theoretical foundation can be traced back to the works of Vitruvius whose principles emphasized harmony and proportion in architecture, providing the basis for designing cities as orchestrated environments (Vitruvius, 1914). During the Renaissance, theorists such as Francesco di Giorgio and Pietro della Francesca expanded Vitruvius' ideas, positioning the city as a unified and harmonious entity where every element, from buildings to streets, contributed to a broader spatial and social narrative. These urbanists saw cities not just as functional entities but as idealized reflections of human values, where urban spaces reflected social aspirations.

The Renaissance "Ideal City" (La città ideale), exemplified by Florence, serves as an early manifestation of urban scenography (Onnibioni, 2014). Here, city design was not only functional but symbolic, creating environments that mirrored social ideals and human experiences. Florence's urban design, with its carefully planned streets, squares, and public spaces, was a dynamic, evolving narrative where each element contributed to a larger social and cultural story. This vision of the city as a scenographic composition significantly influenced later urban design principles, positioning urban space as a stage where human interaction and societal values could be performed.

Sebastiano Serlio (1545) delves into the theoretical aspects of scenography, emphasizing the importance of stage settings tailored to the genre of the play. He outlines how different theatrical genres require distinct visual atmospheres. Tragic scenes, for instance, are depicted with grand, monumental, and formal settings reflecting the seriousness of the genre. Comic scenes, on the other hand, are designed with lighter, more playful settings that mirror the humor and levity of the genre. Satiric scenes, according to Serlio, are portrayed through exaggerated or grotesque settings reflecting the critical nature of satire. Serlio's work on stage design profoundly influenced Renaissance theatre and set design. His guidelines for creating atmospheric effects based on genre have had a lasting impact on scenography.

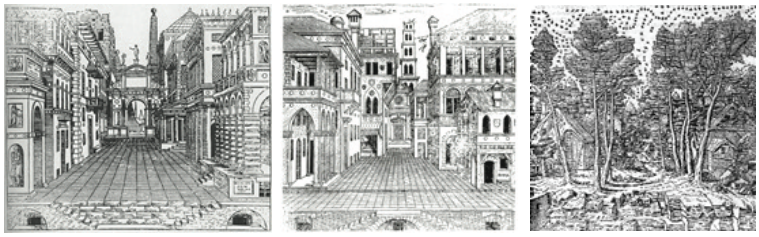


Figure 1: Tragic Scene, Comic Scene, Satirical Scene. Source: Serlio, S. (1545). Tutte l'Opere d'Architettura et Prospetiva [Book IV: On Stage Design].

Following the Renaissance, the vision of cities as scenographic spaces persisted but evolved in response to changing societal needs. The 18th and 19th centuries saw the rise of Enlightenment-era urban planning, where public spaces like streets and boulevards were designed not only for movement and functionality but also as spaces for civic engagement and social interaction, acting as both a backdrop for daily life and a stage for public events.

As cities grew during the Industrial Revolution, urban planning was increasingly dominated by the need to accommodate rapid population expansion and the demands of industrialization. However, this period also saw the recognition that urban spaces played a crucial role in shaping social interactions. The idea of public spaces as performative, as outlined in the Renaissance, found a new manifestation in the development of city plans that sought to make spaces more accessible, organized, and reflective of human activities.

With the dawn of the 20th century, urban design began to incorporate modernist principles, emphasizing functional zoning and the separation of uses. Yet, the Garden City movement, as well as early modernist architects, continued to recognize the importance of human interaction within urban spaces. Cities were not just to serve as efficient machines; they were to provide a stage for social life.

This intersection of function and symbolism paved the way for later urban theorists like Gordon Cullen, whose Townscape (1961) introduced the concept of "serial vision," expanding the Renaissance vision of the city as a dynamic and evolving narrative, which aligns closely with urban scenography. Cullen argued that urban space is not experienced as isolated entities but as a series of interconnected visual moments, or "serial visions," which unfold as people move through the city. These sequences evoke emotional and psychological responses, emphasizing the dynamic nature of urban experiences. Cullen's work significantly influenced how urban spaces were perceived—through sequences that provoke emotional reactions rather than as static objects.

Urban scenography as a concept was further expanded by Bogdan Bogdanović (2004), who argued that "the city is a scenery to which every citizen has the right". This quote reflects the democratic nature of urban space, emphasizing that public space is not just a legal term but a shared, lived space where individuals can engage with and contribute to the environment. According to Bogdanović, urban space is participatory and dynamic, shaped by its inhabitants. This humanistic perspective encourages the design of urban spaces that are both functional and socially inclusive, highlighting the performative aspects of space.

Interdisciplinary Connections

Urban scenography intersects architecture, urbanism, and scenography, with a focus on sensory experiences and social dynamics in the urban environment. Certeau (1984) expanded this concept by emphasizing the importance of sensory and social experiences in the city. Certeau's theories about "spatial practices" highlight the role of individuals in producing urban narratives through movement and behavior, transforming the city into a living, performative scene. His work informs our understanding of urban spaces as being constantly in flux and shaped by the interactions of their inhabitants.

In addition to Certeau, and to explore and understand the urban environment through walking, we learn from its "proto-urban conditions," elaborated in Bunschoten and Hoshino's Urban Flotsam (2001). This concept reflects an early understanding of the city as a complex set of interactions between the built environment, the bodies that traverse it, and the social practices that occur within it. In their "Rhetoric of Walking" urban study of Alexandrov, Russia, they focus on walking as both an act of exploration and production of space, offering an interdisciplinary view of the city that draws from urban design, sociology, psychology, and even philosophy. This approach aligns with the core ideas of urban scenography, where space is understood not just as a physical construct but as an active, lived experience—one in which people engage with their surroundings through movement, interaction, and sensory processing.

Referring to their theoretical manual "Seven Walks," they emphasize that visitors must walk towards, across, along, into, around, through, and about a place. In "Seven Walks," walking is explored as a foundational activity in urban design and a critical method in urban scenography and psychogeography. This approach highlights that the experience of space is not only theoretical but deeply embodied. Walking reveals the "thicks and thins" of urban environments—how space is read and written by the body in motion, uncovering hidden aspects of the city. In their work, the city becomes a "text" that the body both reads and writes, embodying the notion that urban spaces are dynamic, shaped by human actions and perceptions.

Additionally, the work of Ila Bêka and Louise Lemoine, particularly their Laboratory for Sensitive Observers project at the AA School of Architecture (2020), serves as an inspiration for using multiple media (text, drawing, photography, video, and models) to document and interpret urban spaces. Bêka and Lemoine's work emphasizes the importance of sensitivity and personal engagement in urban observation, highlighting the role of media in shaping the way students perceive and engage with cities.

Also, the work of photographers like Jeff Wall (Dufour, 2022) and filmmakers like Wim Wenders (Pina, 2011) provides valuable insight into how the built environment and human activity can be framed and understood.

Innovative Pedagogical Approaches

Larissa Fassler's work offers a significant contribution to the understanding of urban spaces through "critical cartography" and "psychogeography", methods that align well with the urban scenography approach (Cataldo & Fassler, 2021). Fassler uses a detailed, personal exploration of urban landscapes, employing walking as a means of observing and engaging with the city. Her approach to mapping public spaces is not just a technical process, but a deeply subjective one that integrates personal experiences, historical contexts, and the social dynamics of the spaces she documents. Fassler's drawings, often described as "critical maps" offer a layered interpretation of urban environments, challenging traditional views of space (Fassler, 2016). They highlight the marginalization of certain communities and reveal the dysfunctions embedded in urban structures, such as gentrification, social control, and the dysfunction of public spaces. By layering information like crime reports, personal anecdotes, and observations, Fassler creates maps that function as "texts," revealing the hidden socio-political realities within urban spaces (Fassler, 2022). This is particularly relevant in today's urban design education, which often

overlooks these issues in favor of technical, top-down planning approaches.
Instead of focusing purely on physical structures, Fassler's work encourage to integrate a wide range of personal and collective experiences when analyzing urban space. This method fosters a deeper emotional connection to the built environment, emphasizing that urban spaces are not merely static backdrops but are deeply intertwined with the lives and experiences of their inhabitants.

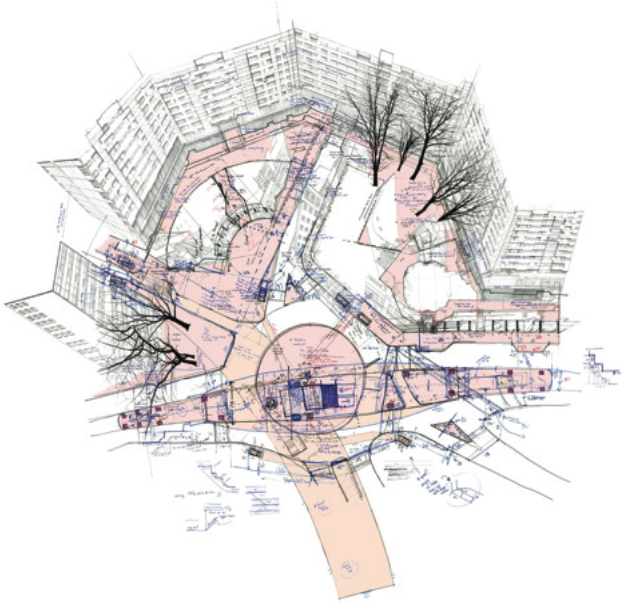


Figure 2: Larissa Fassler's Psychogeographic Cartographies". KOTTBUSSER TOR: 2010

CASE STUDY
Understanding the urban landscape is increasingly vital in the context of today's evolving cities. Skopje's modern image, as described by Minas Bakalchev (2017), reflects a "plural mosaic of potential cities within the city," showcasing a complex layering of urban forms. These layers—traditional, functionalist, and post-socialist—interact to create a dynamic urban fabric. For the purpose of this study, we selected two case studies that offer both similarities and contrasts. Each neighborhood displays distinct structural elements—such as street lines and architectural symbols—that help define their urban identity. Additionally, both neighborhoods exhibit notable community practices, specifically related to street life and public engagement, such as cafés in courtyards and the transitions between public, semi-public, and private spaces. These elements led to the selection of the following two historical fragments from Skopje's urban tissue:

- Čair – An old neighborhood, significantly impacted by modernist interventions in the 1970s.
- Debar Maalo – A well-preserved historical neighborhood, now facing pressure from ongoing transformations driven by market forces and urban development.

Debar Maalo is situated within the Municipality of Centar, along the right bank of the Vardar River. Originally settled by Macedonian exiles from Western Macedonia, it was named after the ethnographic region from which they came. In the early 20th century, Debar Maalo was an area characterized by gardens and fields. The first houses appeared around 1920, and the area was initially part of the village of Dolno Vodno. In the 1930s, the economic crisis prompted many residents from the older parts of Skopje to relocate here. Over time, Debar Maalo evolved from a village-like quarter with urban villas and picturesque yard houses into a rapidly developing urban area. In recent years, the neighborhood has undergone significant transformation, becoming a construction site where multifamily residential buildings dominate, replacing the single-family houses that once characterized the area. The urban changes in Debar Maalo reflect the political and socio-economic shifts of Skopje over the past two decades, resulting in unsustainable growth and a hybrid urban model (Smilevska, 2019; Skopje Raste, 2015).
Čair, located in the northern part of Skopje, is another neighborhood that highlights the complexities of urban transformation. The neighborhood has undergone significant change since the 1970 urban plan aimed to

modernize informal settlements and extend the city's northern boundary. While parts of the plan were implemented, much of the central area diverged from the original vision, leading to the growth of dense informal housing. Originally designated as a recreational zone with green spaces and public amenities, Čair became one of the densest informal settlements in Skopje. The lack of a cohesive urban strategy and the hasty implementation of planning measures contributed to spatial fragmentation. The neighborhood has experienced the blending of informal settlements with surrounding areas, marking a shift from the planned vision. The urban plan creators acknowledged the tension between rapid urban growth and the preservation of the city's cultural identity. The transformation of neighborhoods like Čair, once rich in cultural heritage, reflects a shift toward the erasure of historical names in favor of neutral terms like "housing community," contributing to a loss of identity among residents and reinforcing the fragmentation of urban life (Housing and Communal Management Office - Skopje, 1970). This case study highlights the importance of urban planning that integrates social, environmental, and infrastructural considerations, ensuring that growth does not come at the expense of community cohesion and historical identity.

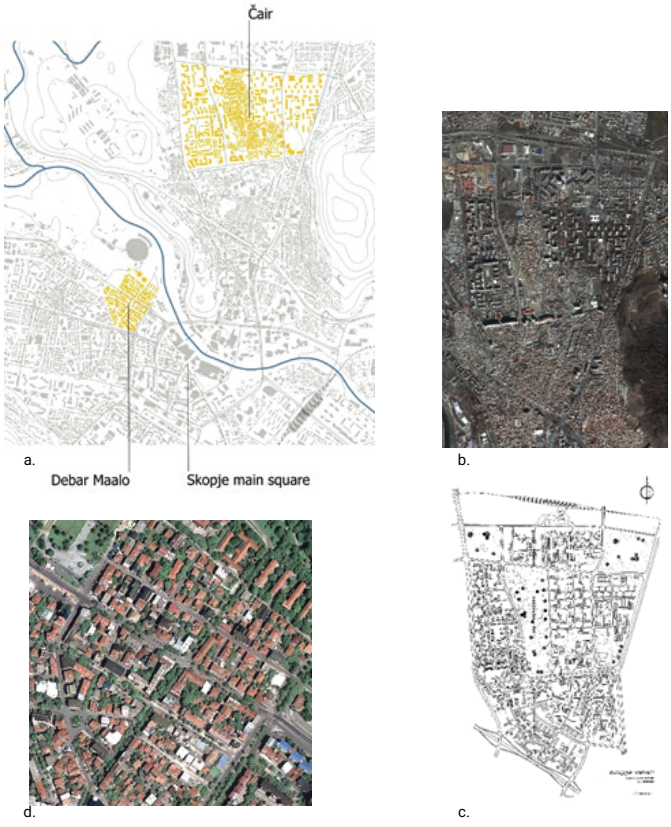


Figure 3: a. Spatial arrangements of the neighborhoods Debar Maalo and Čair in relation to the main square of the city of Skopje b. Čair satellite imagery, 2004. Google Earth Pro. c. Skopje North (Čair) – Compositional plan. Housing and Communal Management Office - Skopje, 1970. d. Debar Maalo satellite imagery, 2009. Google Earth Pro.

From 2019 to 2025, these two case studies were explored in the "Architecture and Space" course, where students engaged in understanding the neighborhoods' urban transformations. The shift from planned urban development to informal settlements underscores the gaps in the city's growth strategy, highlighting the challenges faced in balancing urban planning with the realities of informal urbanization.

APPLIED METHODOLOGY AND RESULTS

The "Architecture and Space" course offers an experiential learning model designed to immerse students in the dynamic and performative qualities of urban space. We advocate for exploring hidden narratives through movement, offering new perspectives on the urban environment. This approach aligns with Richard Serra's view

of painting as a struggle against simplification, emphasising movement as a means of experiencing space and landscape (Bois & Shepley, 1984).

The course methodology is structured around an experiential learning model lead by several key steps that combine diverse disciplines such as anthropology, architecture, art, and urban design, creating a holistic framework for understanding the complexities of urban life. These steps encourage students to see urban spaces not just as static constructs but as evolving narratives shaped by human interactions and experiences.

(1) Preparatory Terms

The course begins by introducing students to the concept of active, embodied observation. This preparatory phase includes discussions on how various interdisciplinary fields, including anthropology and art, intersect with urban design to reveal the "life" of a place. Students are guided to understand the significance of viewing urban spaces as dynamic, multifaceted environments that transcend traditional architectural analysis.

• Objective: Introduce students to the concept of active observation.

• Activities: Discussions on the intersection of anthropology, art, and urban design in understanding urban spaces.

(2) Observation Fieldwork Assignment: "Walking and Feeling the City"

Students' first encounter with urban space is through walking, a foundational exercise for understanding the sensory and emotional qualities of the city. The fieldwork assignment involves documenting and interpreting the space using sensory mapping, path analysis, time-based observations, and personal reflection. Students explore how space feels, sounds, and moves, capturing the complexity of the environment through various media. The assignment culminates in a portfolio that combines sketches, photographs, video recordings, and an essay that synthesizes the observations made during this exercise.

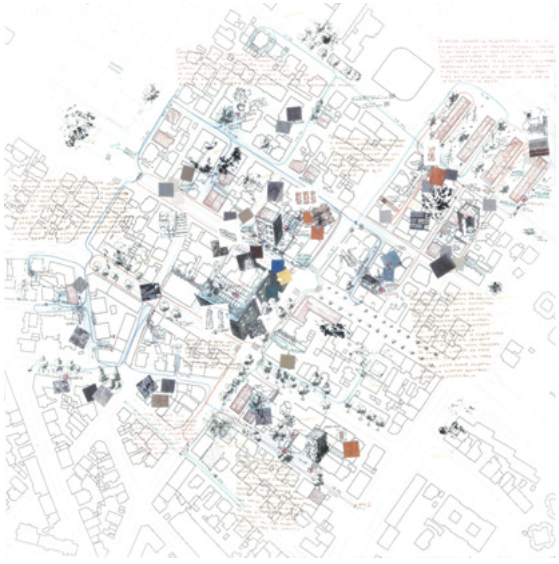


Figure 4: Sensory Map of Debar Maalo. Authors: Zorica Bikova, Andonovska Sandra, Andonovska Elena. 2025

• Key Components:

- Sensory Map: Documenting the sensory experiences of the environment.
- Path and Movement Analysis: Studying how people navigate and engage with the space.
- Time Observations: Documenting how the space changes at different times of day.
- Personal Reflection: A journal to record personal reactions and reflections during the exercise.

Deliverables: Map of socio-spatial and time experiences combining field sketches, photographs, video recordings, and an analytical essay.

(3) Material and Space Analysis: "The Material Trace of Urban Life"

After exploring the space through sensory and emotional lenses, students conduct a material and spatial analysis, focusing on the physical characteristics of the urban environment. This task involves a detailed survey of structures, public spaces, and artifacts that tell the story of the location. Students also investigate the historical and cultural context of these elements to understand how the physical environment reflects the lived experiences of its residents. The deliverables for this task include critical analyses of physical evidence, such as proportions, textures, and materials, as well as broader sociocultural narratives.

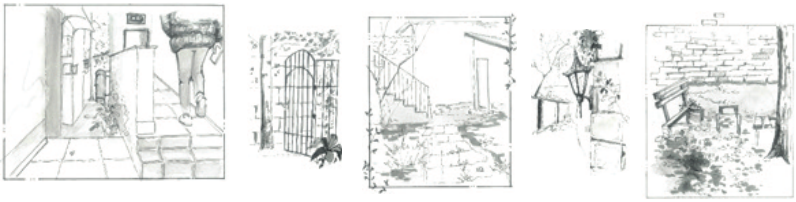


Figure 5: Contextual Investigation of Debar Maalo. Authors: Authors: Zorica Bikova, Andonovska Sandra, Andonovska Elena. 2025

• Key Components:
- Detailed Survey: Documenting physical structures and their materials.
- Contextual Investigation: Investigating the historical and cultural significance of these elements.
• Deliverables: A critical analysis of physical evidence and broader sociocultural narratives.

(4) Interactive Engagement: "Voices and Spaces: Interviews and Storytelling"

A significant aspect of this methodology is the participatory engagement with local residents. Students conduct semi-structured interviews with community members to gain insights into how spaces are used, perceived, and experienced. These interviews, combined with personal and collective stories, form a narrative map that connects the lived experiences of residents with the physical qualities of the urban space.

This participatory approach ensures that the voices of the community are integrated into the students' observations.

• Key Components:
- Semi-structured Interviews: Engaging local residents in conversation about their experiences.
- Narrative Mapping: Connecting personal stories with physical observations.
• Deliverables: A multimedia presentation that illustrates the evolution of urban identity through the integration of personal stories and urban features.

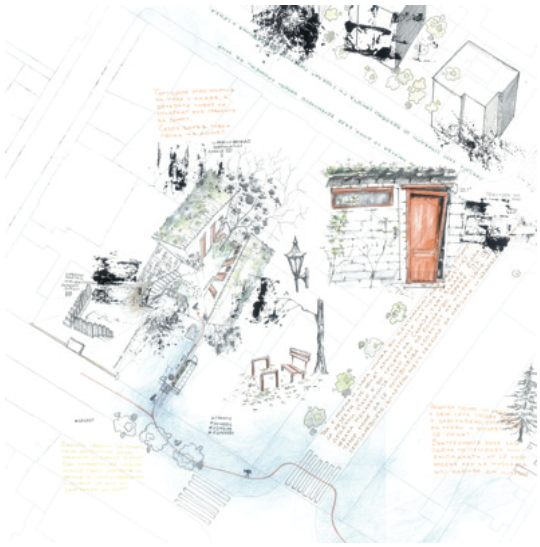


Figure 6: Narrative Mapping of the location in focus. Authors: Authors: Zorica Bikova, Andonovska Sandra, Andonovska Elena. 2025

(5) Synthesis and Critique

The final phase of the course encourages students to synthesize their findings and reflect on their learning. Students present their insights in group discussions, receiving feedback from peers and instructors. This critique process helps students refine their observations, designs, and conceptual understanding of urban spaces. It encourages them to think critically about the complexities of urban environments and how their interventions can contribute to improving public spaces.

- Objective: Encourage reflection and critique through group discussions.
- Activities: Presentation of insights, followed by feedback and discussions from peers and instructors.



Figure 7: Synthesis and presentation of insights. Authors: Elena Brzilova, Anastasija Ilioska. 2024

(6) Site Embodyment (1:x Scale)

The culmination of the course is a 1:x scale site documentation, where students are tasked with applying their knowledge and skills to make a physical representation of the urban space they have studied. This physical model serves to highlight the unique qualities of the space and provide an overview that addresses both spatial and social needs. This model allows students to experiment with urban design principles in a real-world context, demonstrating their understanding of how human interaction and physical environments influence one another.

- Goal: Transform part of the space to make its unique qualities more visible and functional.

Through these steps, students develop a deep understanding of urban spaces as dynamic, socially engaged environments. By engaging in active observation, material analysis, community interaction, and design intervention, students learn to see urban spaces as socio-cultural narratives where each element—physical, sensory, and social—contributes to the broader story of the city. This methodology not only prepares students to create more thoughtful and adaptive urban designs but also fosters critical thinking, creativity, and empathy in their approach to urban planning.

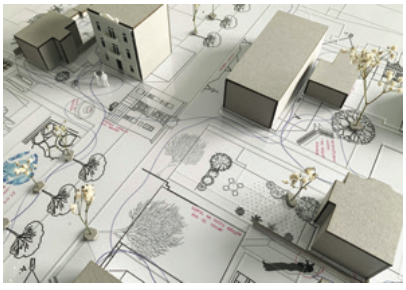


Figure 8: Site Embodiment in a model in 1:200. Authors: Delila Feratoska, Marija Gavrilovikj. 2025

CONCLUSION

The "Architecture and Space" course offers an innovative pedagogical model that engages students with urban environments in a dynamic, embodied way, enabling them to move beyond traditional, passive observation. By integrating visual documentation, spatial analysis, and on-site interventions, students develop the critical skills needed to interpret urban spaces as complex, living entities. This experiential approach fosters a deeper understanding of how urban design can reflect the diverse needs of communities, ultimately laying the foundation for more inclusive, responsive, and resilient urban environments.

The integration of urban scenography into urban design education emphasizes the performative nature of cities, encouraging students to perceive urban spaces not just as static objects but as dynamic, evolving narratives shaped by human interaction. This methodology allows students to explore how space influences behavior,

social interactions, and cultural expression, bridging the gap between technical design and emotional experience. Urban scenography thus provides students with the tools to design spaces that are not only functional but also socially inclusive and culturally rich. A key aspect of this approach is the emphasis on citizen-led urban design and participatory learning. By encouraging students to interact directly with local communities, they become active participants in the civic processes of urban transformation. This participatory approach not only enhances students' understanding of urban spaces but also promotes resilience by involving citizens in shaping their environments. This fosters a sense of ownership and agency, making urban design more adaptable and responsive to the needs of the community.

Incorporating movement, walking, and sensory engagement into the curriculum allows students to uncover the hidden layers of urban spaces, giving them a more nuanced understanding of how cities influence human behavior. By combining technical skills with emotional and social insight, students are better prepared to create urban spaces that are resilient, inclusive, and socially engaging, addressing the challenges of contemporary urban life.

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EXPERIMENT SUPERBLOCKS IN EAST LEIPZIG EXPERIENCES FROM LOCAL CO-PRODUCTION BETWEEN CIVIL SOCIETY, LOCAL AUTHORITIES AND SCIENCE FOR MOBILITY TRANSFORMATION AT THE NEIGHBOURHOOD LEVEL

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ABSTRACT

Inspired by the superblock concept from Barcelona, the Leipzig project 'New Vicinities – Superblocks Leipzig' represents an innovative approach to promoting urban resilience and sustainability at neighbourhood level. Rather than simply transferring the Barcelona model to Leipzig, the concept was adapted to the local context as part of a comprehensive co-production process involving civil society, the city administration, and academia. This ensured that the interventions addressed the specific challenges of Leipzig's densely populated, multicultural eastern district, which became particularly apparent during the pandemic.

Set against this background, this paper introduces the Leipzig superblocks project and discusses its contribution to the debate on superblocks. It aims to improve quality of life, foster social cohesion and enhance resilience to climate change. The paper contextualises the Leipzig example within a broader framework and summarises the challenges and lessons learned from the project. It focuses on the Leipzig superblock experiment as an example of local transformation in practice, incorporating transdisciplinary cooperation between science and the community.

Despite hurdles and opposition, a dynamic learning environment strengthened local ownership and opened up democratic negotiations of local urban futures within a very diverse neighbourhood. Cooperation between the project team, the city administration and the project advisory board – supported by the mayor and city council – established the superblock model as a resilient and sustainable regional and national example of urban development. The project shows how global urban models can be adapted to local conditions. It highlights the factors that contribute to successful resilient mobility transitions and participatory urban development, offering insights for liveable, inclusive and resilient cities.

Keywords: superblocks, coproduction, urban resilience, participation, mobility transformation

INTRODUCTION

Taking inspiration from Barcelona's superblock concept, the Leipzig project 'New Vicinities – Superblocks Leipzig' offers an innovative way of promoting urban resilience and sustainability at neighbourhood level. Instead of simply transferring the Barcelona model to a densely populated, inner-city neighbourhood in eastern Leipzig, the concept was adapted to the local context. This was done as part of a comprehensive co-production process involving civil society, the city administration and academia. This ensured that the interventions addressed the specific challenges of Leipzig's densely populated, multicultural eastern district, which became particularly apparent during the pandemic.

This paper presents the project and its contribution to the broader debate on superblocks. These are used to achieve local mobility transformation and create traffic-calming zones in residential neighbourhoods. The aim is to improve quality of life, foster social cohesion and enhance resilience to climate change. The first part of the paper confidently contextualises the Leipzig example within a broader framework. The second part summarises the challenges and lessons learned from the project. The paper focuses squarely on the Leipzig superblock experiment, showcasing it as a prime example of local transformation in action, underpinned by a dynamic transdisciplinary coproduction between science and the community.

THE MODEL OF SUPERBLOCKS AS AN APPROACH TO ACHIEVE LOCAL MOBILITY TRANSFORMATION

The superblock concept, developed in Barcelona, is now an international model for sustainable urban transformation. A 'superblock' is a cluster of several connected residential blocks. Traffic-calming measures divert motorised traffic from the interior of the superblocks to the main roads on the edge of the area. Within the superblock, diagonal barriers and one-way streets are erected to prevent through traffic for motorised private vehicles. While this greatly reduces through traffic, it remains possible for residents, delivery vehicles, and emergency services and refuse collection vehicles to pass through. Formerly car-only areas are reclassified as public spaces with various functions, offering opportunities for recreation, socialising, play and green spaces (Haase & Schmidt, 2024: 5).

Barcelona aims to cut private motorised transport and improve quality of life in its neighbourhoods. Superblocks should improve the urban climate, promote active travel, increase green spaces and strengthen social cohesion (Mueller et al. 2020: 10). This involves redesigning streets to reduce parking, upgrade pavements and create new recreational areas. Superblock research shows these measures are often initially temporary ('tactical urbanism') before being permanently incorporated. A superblock covers four to nine adjacent residential blocks. The measures affect main and side streets, ranging from reducing parking to creating new squares and green spaces. Barcelona has already implemented superblocks in several districts, including Gracia (since 2003), Poblenou (2017), Eixample (Sant Antoni, 2019), Horta, Hostafrancs and Les Corts (https://ajuntament.barcelona.cat/superilles/en/, accessed in March 2024). Further superblocks are planned, particularly in the densely populated Eixample district. In total, the city plans to implement 503 superblocks throughout the entire city.

The effects of the superblocks are manifold (see Haase and Schmidt 2024: 7-8, Eggimann 2022). The Horta superblock has reduced the number of parking spaces and created new, barrier-free recreational areas. The Poblenou superblock has reduced the number of parking spaces from 575 to 341 and increased pedestrian space by 80%. Model calculations show that fully implementing the planned superblocks could increase pedestrian space in Barcelona by 270%, improving residents' quality of life and life expectancy. Evaluations also revealed significant improvements in air quality, noise pollution and road safety. In the Poblenou pilot area, nitrogen dioxide pollution fell by 33%, particulate matter pollution by 4%, and average noise pollution by 6 decibels. The number of journeys made on foot increased significantly, and the quality of life in the new public spaces was rated predominantly positively by residents.

The introduction of superblocks was controversial (see: Boeck 2022: 17, Frago & Graziano 2021, Nello-Deakin 2022, Glöckner & Schmidt 2023). The city administration's top-down approach and initial lack of resident participation led to resistance and protests. Only through integrating participatory processes and gradually adapting measures did acceptance increase. The diversion of traffic to adjacent streets remains challenging, so superblocks should be implemented comprehensively, not in isolation (Zografos et al. 2020: 9).

SUPERBLOCKS AS A GLOBAL MODEL FOR LOCAL TRANSFORMATION

The superblock approach is now serving as a model for sustainable urban development in Barcelona and numerous other European and international cities. Superblocks are joining the ranks of other innovative concepts, such as the 15-minute city (Paris and Milan, Moreno et al. 2021), low-traffic neighbourhoods (LTN, London, Aldred et al. 2021, Thomas and Aldred 2024, Young et al. 2022), and Vienna's residential streets. These models aim to create an urban structure in which all important everyday destinations can be reached on foot or by bicycle, and where public spaces are more open to recreation, socialising, and non-commercial use. The

analysis of international examples show that the adaptation of the superblock model varies greatly from city to city and always requires contextualisation and adaptation to local conditions. In Vitoria-Gasteiz (Spain) and Vienna ('Supergrätzl'), for instance, similar approaches were primarily initiated by the city administration as top-down processes. In other cities, such as Berlin (Kiezblocks, Bauer and Stein 2022) and Brussels (Good Move), however, it is often civil society initiatives that trigger bottom-up processes and demand the redesign of street space (overview in Haase and Schmidt 2024: 9-11). There's no universal model, but governance issues, participation structures and cultural routines are crucial to success. The 15-minute city model is now a strategic framework for mobility and urban development plans in Paris and Milan. In London, LTN shows that traffic-calming measures benefit households without cars and people in disadvantaged neighbourhoods. Vienna has had residential streets since the 1980s that legally allow people to stay and play, but these streets have not been widely used due to a lack of visibility, limited quality of stay and a lack of cultural routines. This underlines the importance of communication strategies to accompany the transformation process.

CONTEXTUALISATION

a. Superblocks as experiments for more sustainable and resilient cities

Superblocks represent a paradigm shift in urban development, in which neighbourhoods become central to resilience, participation and sustainability. Haase and Schmidt (2024: 14) emphasise that the superblock approach goes far beyond classic traffic calming, instead being understood as an integrative concept for sustainable urban development.

One of the central models discussed is triple inner development (Schubert et al. 2022). Building on the concept of 'double inner development' — the combination of structural densification and the preservation or enhancement of green and open spaces — the author highlights the importance of incorporating a third dimension: 'social inner development', which considers traffic areas. This highlights that sustainable urban development must systematically consider structural, ecological and social aspects such as participation, justice, health and neighbourhood cohesion.

The analysis shows that superblocks implement this threefold inner development by creating multi-purpose spaces for mobility, social gatherings, recreation and green infrastructure. Land use is therefore considered in a multidimensional way and is specifically designed to balance different needs and functions. This necessitates novel planning concepts and active engagement with conflicts of use, as emphasised throughout the project.

Temporary interventions, such as those involving tactical urbanism, are described in Haase and Schmidt (2024: 39, also Drobek und Tran 2017, Jarass und Schneidemesser 2021) as important testing grounds for permanent transformations. They make changes visible, enable participation, and create spaces for experiencing new routines and uses. Superblocks exemplify how innovative governance and active community participation can facilitate socio-ecological neighbourhood development (Haase & Schmidt, 2024: 16) However, it is emphasised that such interventions require long-term participation processes and sustainable governance structures to have a lasting and equitable impact.

b. Related instruments for redesigning public space and traffic calming

A wide range of concepts and instruments are aimed at transforming and renegotiating public spaces, as well as reducing traffic Haase and Schmidt (2024: 19-26). These approaches are frequently tested and further developed, and vary in terms of their objectives, scope and durability.

One important related instrument is the temporary play street, which is closed to car traffic at weekends or on specific occasions and used as a space for recreation, play and socialising. These schemes enable alternative uses of street space to be tested and encourage neighbourhood involvement in the design process. They often pave the way for permanent changes and raise awareness of the potential for a fairer distribution of space. 'Shared space' is a concept where road users share a space designed together. This is an approach to road design that brings opportunities for social interaction, but also poses challenges for road safety. In recent years, pop-up cycle lanes and temporary road closures have become increasingly important, particularly in the wake of the Coronavirus pandemic. These lanes are set up at short notice to give cyclists more space and increase safety. They provide an opportunity to trial new traffic management measures and assess their popularity and effect on mobility behaviour. Temporary road closures, on the other hand, create space for events, markets, restaurants, and urban gardening, demonstrating the flexibility and multifunctionality of road spaces. Not least, there have been developed neighbourhood-based mobility concepts that incorporate various measures tailored to a neighbourhood's specific requirements. These include traffic-calming zones, resident parking, redesigned intersections, as well as cycle lanes and converted car parks.

THE LEIPZIG SUPERBLOCKS PROJECT – ACHIEVEMENTS, CHALLENGES AND LEARNING EFFECTS

The Leipzig project (2021–2024) was part of Germany's National Urban Development Policy (Nationale Stadtentwicklungspolitik) and supported under a special programme for the urban transformation of post-Corona cities. The project brought together a wide range of stakeholders, including organised civil society, the municipality, scientists, artists, and local residents. Led by a local civic association, this bottom-up initiative was based on a coproduction approach. Its objectives were twofold: to foster transformation both locally and across the city. The case of Leipzig was also intended to feed into the international discourse on urban mobility transition and superblocks. The project took place in a central, densely built, multicultural, and low-income neighbourhood that has experienced significant growth since the 2010s, making it one of the most dynamic areas in Leipzig (Haase et al. 2020).

In response to the neighbourhood's lack of open spaces and traffic-calmed zones, the project redesigned public spaces in a sustainable way to improve quality of life and social resilience. The aim was to create more equitable spaces for recreation, play, social interaction and car-free mobility that were tailored to the needs of the local population. This was achieved through the implementation of a wide range of participatory and co-productive methods.

The project's success was due to its bottom-up approach, initiated by residents and coordinated by an association. This approach was successful because it enabled broad participation and strong local support. The temporary redesign of the street space through traffic trials allowed various measures to be tested, adapted and monitored scientifically. Ongoing reflection helped surface key insights, especially regarding the dynamic between bottom-up and top-down approaches and the importance of inclusive communication strategies. Despite challenges, the project fostered a dynamic learning environment, which strengthened local ownership and opened new democratic spaces for neighbourhood dialogue. Close collaboration between the project team, city administration, and advisory board — supported by the mayor and city council — ultimately established the superblock model as a prominent regional and national example of resilient and sustainable urban development.

The following paragraphs summarise the main principles underlying the project's implementation:

Street spaces become spaces for negotiation: The redesign of street spaces in eastern Leipzig evolved into an open negotiation process involving various stakeholder groups. As outlined by Haase and Schmidt (2024: 28-29), the interests of residents, businesses, administrators and politicians came into conflict. The question of land redistribution — namely, who is permitted to use street space and how — became a central point of conflict. Discussions about parking spaces, delivery zones, play areas and recreational spaces demonstrated that street space is a valuable resource. These discussions challenged established routines and led to existing claims of ownership over street space being actively questioned and renegotiated.

Unresolved issues regarding the multifunctionality of road space: The project recognised the multifunctionality of street space as both an opportunity and a challenge. While some stakeholders welcomed the new possibilities, such as more space for recreation, socialising and play, others felt that their established routines and needs were restricted. The question of how to reconcile different uses, such as recreation, play, mobility and commerce, remained a key source of tension. The author emphasises that the design of multifunctional spaces require ongoing renegotiation, leading to inherent uncertainties about how these spaces are ultimately used.

Traffic diversion to surrounding roads or traffic congestion? A common criticism concerned the risk that traffic would be diverted to neighbouring streets, potentially increasing congestion there. Haase and Schmidt (2024: 30) point out that this concern was taken seriously, and notes that international experience — for example, in Barcelona — shows that the so-called 'traffic evaporation' effect can occur. This means that some traffic simply disappears because routes are reorganised or no longer used. In the Leipzig project, this issue was addressed through observation and collaboration with other cities, but it remained a topic of ongoing discussion.

Coproduction between participation and real power relations. The Leipzig project was characterised by tensions surrounding coproduction. While civil society demanded rapid change, the administration was more cautious and acted in accordance with legal constraints. Academia attempted to mediate between these two positions. Conflicts arose, in particular, at the interfaces between land use, participation, communication, and political control. The author emphasises that the project's progress demonstrated the difficulty of achieving genuine co-decision-making and shared responsibility when institutional routines and legal frameworks are obstacles. Nevertheless, the Leipzig project was experienced as a learning space for new forms of cooperation.

Potential revaluation and questions of fairness. The Leipzig project discussed how upgrading public spaces with superblocks may lead to gentrification and displacement (Goossens et al. 2020). This risk was identified early on in the Leipzig project, with monitoring, social measures and targeted communication being used to address it. However, ensuring the long-term social balance of superblocks remains a key challenge, particularly in neighbourhoods with high social and cultural diversity. While targeting and involving vulnerable groups was recognised as necessary, it was also described as difficult to implement in practice.

Transformation as an area of conflict between support and protest. Some stakeholders saw the transformation of street space as an opportunity to improve quality of life, while others viewed it as a threat to their routines and rights. Conflicts over parking spaces, delivery zones, and new recreational areas demonstrate that transformation inevitably leads to conflict by bringing different interests and values into collision. These conflicts should not be viewed as failures, but rather as an integral component of a democratic and iterative transformation process.

HOW LEIPZIG'S SUPERBLOCK WAS SHAPED: THE COPRODUCTION APPROACH

a. Coproduction – working together on Leipzig's superblocks

The Leipzig team and project chose coproduction as the approach for the cooperative realisation of local transformation projects. This approach includes a variety of actors, opinions and knowledge in the design and implementation of the superblock. What's more, the joint realisation of local transformation was key to securing large-scale legitimacy and acceptance among residents and other users in the area.

Participation, cooperation and coproduction are key terms in the current urban development debate (for a detailed overview, see Haase and Schmidt 2024: 37-38). Participation traditionally refers to the involvement of urban communities in planning and decision-making processes, often through hearings, citizens' forums or workshops (Straßburger and Rieger 2014: 230). Cooperation builds on this by emphasising collaboration between different groups on an equal footing (BBSR 2020). Coproduction, finally, refers to an even more intensive form of interaction, in which civil society, the administration and academia jointly take responsibility for planning, implementation and reflection, and share decision-making powers (Franz and Heintel 2022: 15-16).

The Leipzig project focused on coproduction to combine the resources, perspectives and skills of the participating groups. The aim was clear: to identify individual interests and develop and implement solutions together. In this context, coproduction means the urban community is actively involved in designing, implementing and evaluating measures. It is not just a 'consultation mass'. Haase and Schmidt (2024: 37-38) state that coproduction 'goes beyond traditional participation by enabling genuine co-decision-making and shared responsibility'. In practice, coproduction involved an overlap of bottom-up and top-down processes. Bottom-up processes involve the urban community in decision-making and the redesign of public spaces directly, while top-down processes ensure that experiments are integrated into urban planning and backed up with resources. Ideally, this results in the productive integration of both approaches, whereby civil society initiatives are adopted and developed further at an institutional level.

A central element of the Leipzig Superblock project was the use of temporary interventions and tactical urbanism initiatives. These included pop-up furniture, temporary road closures, mobile participation units ('wish offices') and activities such as neighbourhood dialogues and street schools. These measures served to demonstrate changes to public spaces without making irreversible decisions immediately.

Temporary interventions fulfil several functions: they attract attention, lower the participation threshold, enable experimentation, and open up new spaces for discussion. Crucially, they also served as a 'testing ground' for permanent changes, for both the administration and the neighbourhood. The acceptance of such measures varied; many residents welcomed the new open spaces and opportunities for appropriation, while others, especially motorists and business owners, feared or rejected restrictions. In an ex-post perspective, it becomes evident that temporary interventions can facilitate long-term transformation if accompanied by communication and iterative adaptation.

b. Areas of conflict between coproduction, participation and power

Urban co-production processes in particular reveal various areas of tension between co-determination, decision-making and power relations (Willinger 2014, Humann and Polinna 2020, Schneidemesser and Kirby 2022, Schmidt and Haase 2023).

The Leipzig project's implementation of coproduction was marked by numerous areas of tension. The Leipzig project revealed the following key areas of conflict:

- Speed vs. legal certainty: While civil society actors demanded rapid change and visible results, the administration acted more cautiously, focusing on legal requirements and planning processes.
- Land use: Residents under high parking pressure and businesses that feared restrictions on their delivery traffic resisted the redistribution of road space in favour of non-motorised road users.
- Participation and inclusion: Not all neighbourhood groups felt equally represented in the participation process. Vulnerable groups in particular (e.g. people with a migration background or older residents) needed to be specifically targeted to ensure their perspectives were considered.
- Communication and expectation management: Different expectations regarding the speed, scope and permanence of the measures led to misunderstandings and frustration.
- Political governance: The extent to which decision-making power can be granted to civil society actors in public spaces remained a controversial issue.

The project proved that conflicts should not be viewed as failures, but as essential components of social learning. Coproduction requires a 'culture of tolerance for dissent' (Haase and Schmidt 2024: 41) and a willingness to make conflicts transparent, moderate them and utilise them as learning opportunities. Innovative solutions and new alliances emerge at the points of rupture relating to land use claims, the pace of implementation and questions of inclusion. Moderation, transparent communication and the iterative adaptation of measures were indispensable to this process.

PROCESS REFLECTION AND LEARNING OUTCOMES

Transforming public spaces required continuous reflection and adaptation. The success of the project hinged on cooperation between civil society, the administration and academia, as well as a willingness to openly address conflicts and view them as learning opportunities (Yuana et al. 2020). Other successful factors included the early involvement of diverse stakeholder groups, the visibility of changes and continuous reflection. However, limitations became apparent in terms of sustainability, the involvement of all groups, and overcoming legal hurdles.

A key lesson is that, while coproduction between city administrations, civil society and academia can be a powerful tool for transformative urban development, it is not guaranteed to succeed. The Leipzig experience shows that, while coproduction pools resources and perspectives, it also opens up new lines of conflict. A 'culture of enduring dissent' (as mentioned above) is required in order to make different interests visible and address them productively (El-Mafaalani 2017). Moderation, transparent communication, and the iterative adaptation of measures are all indispensable to this process.

The collaboration was characterised by both mutual learning and friction. While civil society actors often called for rapid change, the administration and politicians were more cautious, acting in accordance with legal constraints. Academia took on a mediating and reflective role, helping to moderate conflicts and develop new solutions (Großmann et al. 2021).

Temporary interventions, such as pop-up furniture, temporary road closures and mobile participation formats, have proven to be an effective way of making changes to urban spaces visible and tangible. They lower the threshold for participation, enable experimentation and create opportunities for discussion. However, they are not an end in themselves. Without political support, long-term strategies and widespread acceptance in the local community, they often remain isolated events.

The temporary measures were seen by many people in the area as an enrichment because they offered new opportunities for play and recreation, for example. At the same time, there was also resistance, particularly from motorists and business owners, who feared restrictions. The evaluation showed that temporary interventions can facilitate permanent change if accompanied by communication and adapted iteratively.

Another lesson learned is that conflicts should not be viewed as failures, but as a necessary part of the social learning process. The Leipzig experience shows that innovative solutions and new alliances can emerge precisely at the points of rupture, such as between land use claims, the pace of implementation, and questions of inclusion. In fact, the redesign of the street space opened up a negotiating arena where different interests collided. Residents facing high parking pressure criticised the measures, while families with children welcomed the new spaces. The conflicts were not viewed as obstacles, but rather as opportunities for democratic learning.

The project showed that superblocks do not automatically result in social justice and inclusion. These outcomes must be actively pursued. It was particularly challenging to involve groups that are often underrepresented in traditional participation processes. Therefore, outreach formats, translation services and cooperation with local initiatives were crucial. Targeting vulnerable groups and collaborating with migrant organisations were important steps in enabling participation. Ensuring the long-term social balance of superblocks remains challenging. Their continuation and expansion largely depend on political support and institutional embedding. Without clear responsibilities, resources and staying power, many initiatives remain stuck in the experimental stage. The Leipzig experience shows that close integration of bottom-up and top-down processes is necessary. Thus, the project demonstrated that consolidating temporary interventions into permanent changes is challenging. This requires political support, institutional anchoring, and continuous participation.

SUMMARY AND OUTLOOK

The Leipzig example impressively demonstrates that urban transformation is not a linear or purely technical process, but rather a social learning and negotiation process shaped by various groups, their interests and power relations. Coproduction between civil society, the administration and academia has proven to be a key success factor; however, it also requires continuous moderation, an openness to dissent, and a willingness to view conflicts as productive components of change. Experience shows that new forms of democratic negotiation and urban governance can emerge when different perspectives collaborate on an equal footing and share responsibility.

Temporary interventions are vital for permanently redesigning public spaces. Traffic trials, pop-up furniture and mobile participation formats are all effective ways of doing this. These interventions make changes visible, stimulate discussion, and enable new routines and uses to be explored. However, it is crucial to understand that these measures are not an end in themselves. It is clear that, without political backing, sustainability strategies and broad neighbourhood acceptance, these events will remain isolated. The success of sustainability and scaling is dependent on embedding them in institutions and securing political support.

The Leipzig case proves that social justice and inclusion must be actively pursued – they are not automatic by-products of superblocks. Such projects must target outreach to vulnerable groups, cooperate with local initiatives and consider the risks of gentrification. However, designing superblocks to be socially balanced in the long term remains a central challenge, particularly in neighbourhoods with high social and cultural diversity.

The project, especially the setting up and implementation of the coproduction, demonstrated that conflicts and resistance should not be viewed as failures. They are a necessary part of a social learning process. Disputes over land use, parking spaces and delivery zones, or conflicts of use between different groups, demonstrate that transformation is a continuous democratic negotiation process, in which various interests, values and visions of the future collide. It is precisely at these rupture points that innovative solutions, new alliances, and a deeper understanding of the complexity of urban change emerge.

International examples show that the success of superblock approaches depends on local adaptation, participation processes and the political framework. Leipzig's experiences offer valuable insights for other cities wishing to follow a similar path. There are four key success factors: early and broad participation, iterative experimental formats, monitoring of social and ecological effects, and open, conflict-oriented communication.

The transformation of public space through superblocks is not a technocratic project, but rather a social learning process. This process requires the courage to engage in conflict, an openness to forming new alliances, and perseverance. The outcomes produced in Leipzig are the foundation for developing and scaling up the approach (Deutsches Institut für Urbanistik 2024). This initiative is not a finished model, but an invitation to learn, debate and work together to create a fairer, more sustainable and resilient city.

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CULTIVATING RESILIENCE IN THE COMMUNITY GARDEN "BOSTANIE"

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ABSTRACT

The community garden Bostanie was established as a collaborative project driven by a diverse network of stakeholders. The initiative was spearheaded by “The Green Ark” - an environmental civic organization committed to applying permaculture design in (peri)urban environments for the benefit of local communities since 2007. Recognizing the pressing need to impel urban resilience, in 2019 the City of Skopje approved the financing of the project titled "Development of the First Urban Garden in the City of Skopje," that was proposed by “The Green Ark”, aiming to foster community engagement and promote sustainable urban agriculture. With financial support from the City of Skopje, and in coordination with the public enterprise "Parks and Greenery," as well as the Municipality of Aerodrom, the project secured a location in the park of the neighborhood Novo Lisiče.

Through a participatory approach coordinated by the permaculture designers team of “The Green Ark”, citizens worked together to design and develop an inclusive educational gardening space, demonstrating the power of collective action in fostering urban resilience. Volunteers from the local community played a crucial role in shaping and maintaining the garden, further inspiring the donation of a wellbore and a water pump by the company “Civil Engineering Institute Macedonia - CEIM”. The aim of the project is to proactively engage the residents of Skopje, in order to foster a regenerative culture of shared responsibility for green public spaces and peer to peer exchange of knowledge.

Since its official launch in 2021, Bostanie has had an evident impact on both the local environment and community dynamics, acting as a vibrant hub for over fifty active gardeners and a venue for open-air cultural and artistic events. The community garden serves as a microclimatic refuge, mitigating urban heat effects and promoting local biodiversity in Skopje. It also provides hands-on learning opportunities for children and adults, reinforcing knowledge regarding agroecological practices, food sovereignty and food security, permaculture design, as well as commoning environmental stewardship.

Beyond its environmental benefits, Bostanie is strengthening civic ties by bringing together a diverse group of people, including families, students, and retirees, who engage in shared

gardening activities. The initiative fosters a sense of belonging and collective ownership, demonstrating the importance of community-driven urban resilience. These claims mentioned above should be assessed in some way. This paper is intended to shed some light on how the current development course of the community garden Bostanie towards resilience could be evaluated and enhanced by applying the twelve permaculture design principles, devised by one of the co-originators of Permaculture - David Holmgren.

Furthermore, putting Bostanie under the scrutiny of the same design principles upon which it has been reportedly designed, would enable us to give a more informed appraisal of how small-scale community gardening projects could serve as catalysts for broader environmental and social change.

Keywords: community garden, permaculture principles, resilience, Bostanie, Skopje

INTRODUCTION

In recent years, urban community gardens have emerged as vital micro-ecologies for cultivating food, relationships, and resilience in cities worldwide. In Skopje — a city marked by rapid urbanization, economic uncertainty, and growing socio-political fragmentation — such gardens might offer a grassroots response to systemic disconnection.

Amid growing concerns about food security, environmental degradation, and the erosion of public space, especially with focus on the diminishing vegetated areas of the city, citizens could be reclaiming public land and reimagining urban life through collaborative, agroecological and permacultural practices. Community gardens in Skopje might also lead to a broader movement toward self-organization, food sovereignty, and environmental stewardship. To further elaborate this speculation is a challenge, since this might be evident in only one example to date i.e. the community garden Bostanie, which still remains under-researched in terms of the potential to have a significant systemic impact and capacity for resilience. That is why this paper delves in delineating potential layers of resilience that the community garden Bostanie might nurture in the following categories - Ecological Resilience, Socioeconomic Resilience, Institutional & Policy Resilience, Systemic Resilience, Adaptive Resilience - assessed through the prism of the twelve permaculture design principles, that have been devised by David Holmgren as a guiding framework for the permaculture design process, including implementation, evaluation and adaptation.

OVERVIEW OF THE COMMUNITY GARDEN “BOSTANIE”

Established between 2019 and 2021, Bostanie is a 3000 m2 community garden located within a recently built (ca. 2016) public park in the neighborhood of Novo Lisiče in Skopje. The public park hosting the community garden had a somewhat turbulent past - it has been agricultural land for years, later to be neglected and even used sporadically as an illegal dump site. The future of the park is precarious as well, since the general urban plan of Skopje designates the area as the future classification yard and depot of the public transportation system. This fact might compromise the future status of the community garden, it being part of the interim public park, and put into question not only the resilience of Bostanie, but its very existence. Having this in mind, one might bring into question the soundness of policy decisions made by the local government that seem somewhat contradictory in the long term development of the city.

Nonetheless, established through a collaboration between The City of Skopje and the civic organization “The Green Ark”, the community garden Bostanie now serves as both a practical food-growing space and a living laboratory for communal life. This has been achieved with the awareness of the paradoxical threat posed by the potential implementation of the general urban plan in the foreseeable future. Operating in somewhat ambiguous circumstances of uncertain institutional policies, the community garden Bostanie seems to develop a tendency toward socio-political rewilding as an adaptive strategy, not relying on further support from the local government. In this sense, the community garden Bostanie is not a grassroots initiative per se, however over time is manifesting organizational practices akin to commoning.

The name Bostanie evokes the loanword of Turkish origin “bostan”, denoting a traditional small-scale garden, a word which has acquired a more specific meaning in Macedonian, "бостан" as a term referring to melons and watermelons as crops. On the other hand, Bostanie (Мас. бостание) echoes “uprising” (Мас. востание) in Macedonian language, thus it has been translated into English as “Croprising” (crop + uprising) in the case of the collaborative interdisciplinary book CROPRISING: BAD GARDENERS & GOOD WEEDS - A GUIDE (2023) by Hana Korneti and Ivana Chaloska. This name was chosen by consensus from the gardeners at one of the monthly coordinative meetings in Bostanie and is indicative of the general worldview of the participants in the community garden. The garden is organized around principles of shared responsibility, non-hierarchical participation, and agroecological regeneration. It supports a diverse group of participants — ranging from experienced environmental activists and permaculture designers to artists and gardening-minded citizens seeking alternative modes of living and learning.

Moreover, on one festive occasion in 2023 during an open potluck feast where participating gardeners and their friends were gathered to do some cooking and enjoy music and dancing together, the community garden Bostanie was declared a temporary autonomous zone along the lines of Hakim Bey’s writings, as a serious joke. Thus it might seem that Bostanie is aimed to develop beyond gardening, in an effort to function as a commons: a collectively managed space where relationships with land, food, and one another are continually negotiated and redefined.

RESEARCH AIMS AND QUESTIONS

This paper seeks to assess the resilience of Bostanie through the lens of permaculture design, specifically employing David Holmgren's twelve permaculture principles as a guiding framework. The core research question is:

How the concept of resilience could be assessed in the case of Bostanie as an urban community garden, based on its alignment with and application of the twelve permaculture principles?

METHODOLOGY

The paper draws on a qualitative, interdisciplinary approach that combines: Participant observation during gardening sessions, meetings, and community events; Document analysis of internal communications, social media presence, and workshop materials; Literature review focusing on The Permaculture Transition Manual by Ross Mars (2016), supplemented by scholarly and activist literature on permaculture, urban ecology, and commons-based governance.

The twelve permaculture principles serve as an analytical tool to evaluate Bostanie's structure, practices, and capacity to respond to change. The emphasis is on social cohesion as a core component of resilience, while also assessing supporting dimensions such as food sovereignty, water and energy management, soil regeneration, and biodiversity.

DEFINING RESILIENCE IN BOSTANIE USING PERMACULTURE PRINCIPLES

Resilience, in ecological and social systems, generally refers to the capacity to absorb disturbance, reorganize, and continue to function, adapt, and even transform in response to changing conditions (Walker et al., 2004). In the specific context of urban community gardening, resilience includes aspects of:

Ecological resilience: The community garden's ability to maintain soil fertility, water cycles, biodiversity, and productive yields despite environmental pressures such as climate change, urban pollution, or seasonal variability. This aspect of resilience emphasizes soil health, biodiversity, and water management to ensure long-term adaptability, and effective recovery from environmental disturbances while maintaining productive and regenerative functions.

Related permaculture principles: Catch and store energy; Use and value diversity; Produce no waste.

Socioeconomic resilience: The capacity of the garden's community to withstand and adapt to social and economic challenges—such as gentrification, land tenure insecurity, social conflicts, fluctuating market prices—while maintaining cohesion, cooperativeness, inclusive participation, and self-organization. This aspect of resilience focuses on social cohesion, participatory decision-making, and non-hierarchical organization.

Related permaculture principles: Integrate rather than segregate; Apply self-regulation and accept feedback; Creatively use and respond to change.

Institutional & Policy resilience: The ability of a community garden to secure legal recognition, access to land, and institutional support, ensuring long-term sustainability despite political or economic changes. This aspect of resilience points to the necessity of continual advocacy, partnerships with local governments, and policy engagement.

Related permaculture principles: Apply self-regulation and accept feedback; Observe and interact.

Systemic resilience: The ability to integrate the garden's practices into broader food, energy, economic and social systems, contributing to wider urban sustainability and autonomy. A resilient urban community garden strives for long-term food sovereignty by producing sufficient, diverse, and accessible food while reducing dependence on external inputs. This aspect of resilience accentuates seed-saving, local food networks, and renewable energy through shared resources and local exchange trading systems.

Related permaculture principles: Obtain a yield; Use and value renewable resources; Use small and slow solutions.

Adaptive resilience: A resilient urban community garden is not static; it evolves by learning from past experiences, experimenting with new techniques, and adapting to changing social, environmental, and economic conditions. This aspect of resilience highlights flexibility, innovation, and learning from nature.

Related permaculture principles: Observe and interact; Creatively use and respond to change; Use edges and value the marginal.

Thus, resilience in urban community gardens like Bostanie is not only about ecological survival but about social adaptability, collective learning, mutual aid and the ability to generate and support restorative modes of living in the city.



Figure 1: Practicing Participatory Design at a Meeting of The potential Gardeners in 2019

OVERVIEW OF PERMACULTURE AND ITS RELEVANCE TO COMMUNITY GARDENING

Permaculture, coined by Bill Mollison and David Holmgren in the 1970s, originated as a design philosophy for creating permanent agriculture systems that mimic natural ecosystems. Over time, it expanded to include permanent culture: applying ecological principles to human settlements, economies, and social organization.

Permaculture is grounded in three core ethics: Earth Care (sustaining natural systems); People Care (nurturing community and individual well-being); and Fair Share (equitable distribution and return of surplus to the system). These ethics are operationalized through twelve design principles (Holmgren, 2002), which serve as flexible, context-sensitive guides for building functional regenerative systems.

In the context of community gardening, permaculture provides a holistic framework that connects soil health, water management, food production, social governance, and learning processes into a cohesive and synergistic, self-reinforcing system. Rather than fragmenting ecological and social issues, permaculture insists on designing functional relationships between biological agents and infrastructural elements that nurture the garden's agroecosystem and community as an integrated whole.

In this sense, Bostanie can be seen as not just a site of agricultural production, but as a living agroecosystem embodying ecological literacy, democratic participation, and adaptive capacity—key markers of urban resilience.

THE TWELVE PERMACULTURE PRINCIPLES AS ASSESSMENT CRITERIA

The assessment of Bostanie's resilience in this paper is structured around David Holmgren's twelve permaculture design principles, which include:

1. Observe and interact
2. Catch and store energy
3. Obtain a yield
4. Apply self-regulation and accept feedback
5. Use and value renewable resources and services
6. Produce no waste
7. Design from patterns to details
8. Integrate rather than segregate
9. Use small and slow solutions
10. Use and value diversity
11. Use edges and value the marginal
12. Creatively use and respond to change



Figure 2: David Holmgren's Permaculture Design Principles

Each principle provides a lens for examining a different aspect of Bostanie's structure and practice:

Ecological functions (soil, water, energy)
Social dynamics (participation, governance, conflict management)
Economic practices (resource sharing, yield distribution)
Adaptive strategies (flexibility in response to external pressures)

By systematically applying these principles as evaluation criteria, the paper aims to offer a comprehensive, nuanced analysis of Bostanie's strengths, weaknesses, challenges and opportunities for enhancing resilience. This approach is grounded in the idea that resilience emerges not from isolated successes (e.g., growing food alone) but from the integration and interdependence of ecological, social, and economic systems within a living, evolving design.

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Figure 3: Aerial View of The Community Garden Bostanie in July 2024

ASSESSING RESILIENCE IN BOSTANIE USING PERMACULTURE PRINCIPLES

Social Cohesion and Non-Hierarchical Organization

Permaculture principles: Integrate rather than segregate; Use and value diversity

A cornerstone of Bostanie's resilience lies in its capacity to weave strong social ties among a diverse range of participants. Inspired by permaculture ethics, the community deliberately cultivates integration over segregation - encouraging interactions across age, ethnic, professional, and ideological differences.

Community participation and decision-making models:

Bostanie operates on a basis of horizontal decision-making through regular monthly assemblies where each voice is valued equally. There are no fixed leadership roles; instead, task distribution emerges through consensus-building, informal expertise, and situational leadership depending on needs.

Inclusivity and non-hierarchical structure in organizing the garden:

Open calls for participation, self-managed project teams, and rotating responsibilities ensure that power remains decentralized. The structure minimizes hierarchies, allowing new members to engage meaningfully without bureaucratic barriers.

Challenges and strategies for maintaining engagement:

Maintaining cohesion without centralized authority presents challenges such as volunteer fatigue, conflict management, and fluctuating commitment levels.

Bostanie addresses these through flexible participation models, social rituals (shared meals, celebrations), and conflict mediation practices that strengthen community resilience rather than fracture it.

Food Sovereignty and Agrobiodiversity

Permaculture principles: Obtain a yield, Use and value diversity

Food production at Bostanie transcends mere subsistence; it embodies a political practice of reclaiming autonomy over food systems. The garden contributes to local resilience by reducing dependency on industrial agriculture.

Food production for self-sufficiency and local resilience:

Through collaborative growing, members gain access to fresh, nutritious produce while simultaneously re-establishing urban food commons. Surplus food is often shared among participants.

Crop selection and biodiversity in an urban setting:

Following permaculture emphasis on diversity, Bostanie cultivates a wide variety of heirloom vegetables, medicinal plants, perennial herbs, and pollinator-supporting flowers, promoting both agrobiodiversity and ecosystem resilience within the urban fabric.

Seed-saving and local food networks:

Participants engage in seed-saving practices and organize seed-exchange events to maintain genetic diversity adapted to Skopje's microclimate. Informal exchanges with neighboring citizens who garden and an urban food cooperative are an attempt to sprout a networked urban food sovereignty movement.

Water Management and Soil Remediation

Permaculture principles: Catch and store energy, Use small and slow solutions, Produce no waste

Water and soil management practices at Bostanie exemplify ecological mindfulness and resourcefulness.

Rainwater harvesting and irrigation strategies:

Simple, low-tech rainwater catchment systems (e.g., barrels, diverted gutters) and an automated drip irrigation system minimize water consumption, embodying the principle of catching and storing energy.

Soil health improvement techniques:

The community practices composting, sheet mulching, and microbial inoculation to rebuild soil fertility and structure. These "small and slow" interventions promote long-term soil regeneration and resilience against urban soil degradation.

Remediation efforts:

Where soil contamination has been a concern, phytoremediation (plant-based detoxification) and raised bed gardening offer practical solutions without relying on expensive technological inputs.

Energy and Resource Management

Permaculture principles: Use and value renewable resources and services, Produce no waste

Bostanie aims to close energy and material loops wherever possible, reducing dependence on external, non-renewable inputs.

Renewable energy use and sustainable resource use:

Although large-scale renewable installations (e.g., solar panels) may be limited by resources, Bostanie optimizes passive energy techniques: seasonal planting to reduce water needs, shade trees for microclimate regulation, and use of manual tools instead of fossil-fuel-driven machinery.

Waste reduction and composting systems:

Organic waste (kitchen scraps, garden residues) is fully integrated into the composting cycle. Recycled materials (e.g., reclaimed wood, second-hand containers and bathtubs) are routinely used for constructing raised beds, composting bins, trellises, and seating.

Adaptive Strategies for Change and Growth

Permaculture principles: Observe and interact, Creatively use and respond to change

Bostanie's longevity hinges on its members' ability to listen to the land and the community, noticing patterns and responding dynamically.

Adaptation to environmental, social, and economic shifts:

Whether dealing with drought, new regulations, or shifts in participant demographics, Bostanie adopts an experimental, iterative approach: piloting small changes, observing outcomes, and adjusting practices accordingly.

Flexibility in community dynamics and evolving roles:

New members bring fresh skills and ideas, and roles evolve organically rather than being rigidly assigned. The garden's structure remains open-ended, ready to accommodate different intensities of engagement — from casual volunteers to deeply committed stewards.

The preceding assessment of Bostanie through the lens of the twelve permaculture principles has pinpointed the multiple layers of resilience embedded within its social, ecological, and organizational practices. In the subsequent section, key findings will be synthesized to critically evaluate how these practices contribute to the overall adaptability and sustainability of the community garden, with attention to broader implications for urban resilience frameworks.

Aspect of Resilience	Permaculture Principle	Practice in Bostanie
Ecological, Socioeconomic, Institutional & Policy, Systemic, Adaptive	Observe and interact	Regular monitoring of soil, plants, and community needs; adaptive design.
Ecological, Systemic, Adaptive	Catch and store energy	Rainwater harvesting; composting organic matter; seed saving.
Socioeconomic, Systemic, Adaptive	Obtain a yield	Regular food production for community use; surplus sharing.
Social, Systemic, Adaptive	Apply self-regulation and accept feedback	Community meetings to reflect, resolve conflicts, and adapt practices.
Ecological, Systemic, Economic, Adaptive	Use and value renewable resources and services	Use of recycled materials for garden beds; reliance on natural cycles
Ecological, Systemic, Economic, Adaptive	Produce no waste	Composting food scraps; upcycling urban waste into gardening structures.
Ecological, Systemic, Adaptive	Design from patterns to details	Zoning of garden areas (e.g., intensive beds near entrances); seasonal rhythms.
Ecological, Social, Institutional & Policy, Systemic, Adaptive	Integrate rather than segregate	Mixed planting; collaborative rather than specialized roles.
Ecological, Social, Systemic, Adaptive	Use small and slow solutions	Incremental expansion; low-tech irrigation methods; gradual soil building.
Ecological, Social, Systemic, Adaptive	Use and value diversity	Biodiverse crops; social inclusion of different communities and age groups.
Ecological, Social, Systemic, Adaptive	Use edges and value the marginal	Planting along fences and unused spaces; inclusion of marginalized social groups.
Ecological, Socioeconomic, Institutional & Policy, Systemic, Adaptive	Creatively use and respond to change	Flexibility in garden design; response to land access issues or changing urban policies.

Table 1: Aspects of Resilience and Permaculture Principles Observed Through Practices in Bostanie

EVALUATING BOSTANIE THROUGH FIVE ASPECTS OF RESILIENCE

Ecological Resilience

Ecological resilience, in the context of community gardening, refers to the capacity of an ecological system to absorb disturbances, reorganize, and continue to function without shifting into qualitatively different regimes (Holling, 1973; Walker et al., 2004). In evaluating Bostanie, this perspective demands an examination of the garden's soil health, biodiversity, water management, and regenerative capacity, not as static indicators of sustainability, but as dynamic processes of continual adaptation. Drawing on C. S. Holling's foundational concept of resilience as "the persistence of relationships within a system" and Walker and Salt's notion of adaptive cycles (2006), Bostanie's ecological practices can be seen as efforts to maintain system functionality across different disturbance regimes, including urban pollution, climate variability, and land-use pressures. Soil remediation efforts—such as composting, mulching, and minimal tillage practices—reflect a conscious strategy to enhance soil's ecological memory (Peterson, Allen, & Holling, 1998), fostering microbial diversity and nutrient cycling critical for long-term resilience.

Moreover, Bostanie's commitment to crop diversity aligns with the principles of functional redundancy and response diversity (Elmqvist et al., 2003), where multiple species perform similar ecological roles but respond differently to stressors, thereby safeguarding ecosystem services under changing conditions. Rainwater harvesting and decentralized irrigation systems embody principles of localized resource management and energy capture (cf. Mollison & Holmgren, 1978), minimizing dependency on external infrastructures and enhancing adaptive capacity.

Nonetheless, from a resilience thinking perspective (Folke et al., 2010), true ecological resilience in Bostanie also depends on the garden's ability to engage in continuous learning, experimentation, and reorganization. Current challenges such as limited access to uncontaminated water sources and urban soil degradation expose vulnerabilities that, if left unaddressed, could erode system resilience over time. Therefore, enhancing Bostanie's ecological resilience demands not only technical interventions but also a participatory ecological literacy among its community, fostering an ethos of stewardship embedded in the permaculture principle of "designing from patterns to details."

Based on the information gathered on site, Bostanie demonstrates ecological resilience primarily through its commitment to soil regeneration, biodiversity, and water management. Community practices such as composting, mulching, and raised bed gardening contribute to soil health, making the site more resistant to droughts, pests, and nutrient depletion.

The intentional planting of a diverse array of species in polycultures, including local varieties and pollinator-friendly plants, increases ecological stability by reducing reliance on monocultures and fostering natural pest control. Among the rules and recommendations for conduct in the community garden Bostanie, there is an explicit ban on the use of artificial fertilizers, synthetic pesticides, herbicides, insecticides and fungicides, resulting in the immediate and permanent expulsion of a participating gardener if not adhered to.

Efforts to capture and store rainwater and use greywater systems (if present) reflect an understanding of the principle "Catch and store energy."

Thus, ecological resilience could be further strengthened by enhancing rainwater harvesting infrastructure, expanding native plantings, and engaging in active soil remediation in degraded parts of the garden.

Key indicators for evaluation: Soil fertility metrics, plant species diversity per m2, rainwater use, composting volumes, pest/disease incidents managed ecologically.

Socioeconomic Resilience

Socioeconomic resilience in urban community gardens refers to the capacity of grassroots initiatives to sustain food production, economic viability, and community agency in the face of systemic shocks, inequalities, and market dependencies (Adger, 2000; Berkes & Ross, 2013). In assessing Bostanie, this dimension reveals how the garden navigates tensions between autonomy and external pressures, contributing to local food sovereignty and shared economic sustainability.

Drawing from E. Ostrom's (1990) work on self-organized resource governance and its relevance to urban commons, Bostanie exemplifies a microcosm of economic self-reliance through its practices of collective seed saving, informal food exchanges, and minimal input reliance. These practices align with La Via Campesina's vision of food sovereignty as the democratization of food systems (Patel, 2009), re-centering production and distribution around community needs rather than market logic.

Furthermore, the shared labor models and informal economies present in Bostanie reflect broader patterns of social reproduction outside the wage economy (Federici, 2012), highlighting how the garden becomes a site for sustaining life in the face of precarity and urban alienation. The principle of "Obtain a Yield" from permaculture

e design is thus not reduced to mere harvests, but expands into social and relational yields that strengthen the economic resilience of the collective.

Bostanie's horizontal, non-hierarchical organizational model fosters strong social resilience. Decision-making is typically participatory, with open assemblies and consensus processes where all members have a voice. A list of rules and recommendations for conduct in the community garden - which must be accepted as a precondition by the potential participants upon their application to garden in Bostanie - regulates the everyday functionality in terms of responsibilities, interpersonal relations, resource management, infrastructure maintenance, etc.

Yet, consistent with critiques of resilience thinking (Cote & Nightingale, 2012), it is important to recognize that resilience is not inherently equitable. Bostanie's socioeconomic resilience may be constrained by unequal access to land, limited financial resources, and external regulatory frameworks that privilege private property over commoning practices. These vulnerabilities suggest that true resilience must be understood not only as adaptation within existing structures but also as a capacity for transformative change (Folke et al., 2010)—to challenge and reshape the systemic conditions that generate socioeconomic precarity in the first place.

The community garden organizes collective workdays, educational workshops, potluck cooking feasts, art & culture events, and knowledge-sharing sessions that enhance community bonds and maintain a supportive environment even during periods of stress or conflict. Bostanie has been experienced by a significant number of participating gardeners as a potential temporary refuge during the COVID-19 pandemic, where people could maintain safe spatial distance from each other, while still nurturing mutually close social bonds.

However, challenges such as volunteer burnout, generational turnover, or occasional tensions regarding resource sharing could undermine social resilience over time.

Proactively applying feedback mechanisms (e.g., anonymous surveys, open forums) and building conflict resolution processes could further bolster adaptability.

Thus, Bostanie's socioeconomic resilience emerges as a relational, contested, and politically situated process, rather than a stable or given outcome. It reveals both the potentials and limits of grassroots economic autonomy within neoliberal urban environments.

Key indicators for evaluation: Participation rates, conflict resolution mechanisms, diversity of participants (age, background), frequency and quality of collective events.



Figure 4: Celebration in The Community Garden Bostanie in September 2022

Systemic Resilience

Systemic resilience, when examined through the lens of urban community gardening, extends beyond internal stability to encompass the capacity of a commons to negotiate its survival and evolution within complex, multi-scalar socio-ecological systems. Drawing on Elinor Ostrom's theory of collective action and the governance of commons (Ostrom, 1990), Silvia Federici's emphasis on the reproduction of communal life against enclosures (Federici, 2012), and Arturo Escobar's notion of relational ontologies in territorial and ecological struggles (Escobar, 2018), systemic resilience is understood as an emergent property of commoning practices that foster adaptive, diverse, and context-responsive interconnections. Evaluating Bostanie through this perspective foregrounds the garden's role not merely as an isolated ecological project, but as a node within broader networks of solidarity, governance, and urban socio-ecological transformation.

Bostanie actively promotes urban community gardening, understood as the capacity of a commons to maintain its vitality and adaptiveness through its embeddedness in wider social-ecological systems. Rooted in the practices of commoning — the collective stewardship of shared resources — systemic resilience emphasizes not only the internal governance and ecological health of the community garden, but also its relational dynamics with external actors, institutions, and environments. One of the key values of Bostanie's participants is the strive toward food sovereignty by prioritizing local, seasonal, and diverse food production. Gardeners engage in practices such as seed-saving, sharing of surplus, and collective food preparation events (e.g., harvest festivals), strengthening the local food economy and knowledge base.

In evaluating Bostanie, systemic resilience thus highlights how the garden's survival and flourishing depend on its ability to weave robust, diverse, and evolving connections beyond its immediate boundaries, fostering mutual support, feedback responsiveness, and collective agency across scales. Resource-sharing models, such as tool libraries or collective seed banks, also reduce dependence on external inputs.

Key indicators for evaluation: Quantity and diversity of food produced, seed-saving practices, surplus food redistribution, any micro-economies emerging (workshops, local markets).

Institutional and Policy Resilience

Institutional and policy resilience in the context of urban community gardening refers to the capacity of grassroots collectives to secure recognition, access to resources, and supportive governance frameworks while maintaining autonomy and resisting enclosure (De Angelis, 2017; Ostrom, 1990). Bostanie's experience illustrates the complex entanglement between bottom-up commoning practices and top-down urban governance structures.

Bostanie operates within an urban environment marked by volatile land tenure regimes, fragmented municipal support, and intermittent recognition of commons-based initiatives. Following Ostrom's (1990) principles for successful common-pool resource management, the absence of clearly defined rights and enforceable agreements increases Bostanie's vulnerability to external disruptions such as privatization pressures, real estate speculation, or abrupt policy shifts.

Yet, Bostanie's efforts to cultivate relationships with local institutions, through advocacy and participatory dialogue, resonate with contemporary notions of co-governance as articulated by Foster and Iaione (2016). Their concept of the "urban commons" emphasizes negotiated, polycentric governance models where citizens and institutions collaborate in the stewardship of shared resources. Bostanie's informal alliances and attempts to anchor itself in broader urban planning conversations embody early forms of such experimental governance, despite the challenges posed by bureaucratic inertia and neoliberal urban development logics.

From a more critical perspective, drawing on De Angelis (2017) and Escobar (2018), institutional resilience must not be construed merely as integration into existing hegemonic structures. Instead, it involves the capacity to maintain spaces of commoning that resist subsumption under the dominant logic of commodification and market governance.

Bostanie's ongoing struggle to assert the legitimacy of non-market land use practices points to a broader political question: whether urban policy frameworks can accommodate autonomous, self-organized commoning practices, or whether they systematically neutralize them under the guise of "participation" and "community engagement."

Institutional resilience might become a vulnerability of Bostanie at some point.

Even though operating on formally allocated urban land with official written consent by the Sector for Communal Affairs of The City of Skopje to establish and develop the community garden on a precisely designated area within the public park on state owned land, there is no legislative recognising the category of a community garden as an element of urban planning, yet. This fact leaves the garden somewhat exposed to urban development pressures or policy shifts, especially having in mind that according to the general urban plan of Skopje the whole area of the park is designated as the future classification yard and depot of the public transportation system.

While informal relationships with sympathetic municipal actors provide a degree of protection, greater engagement with policy advocacy, public campaigns, and formal land agreements would strengthen resilience. Building alliances with NGOs, urban agriculture networks, and universities could amplify Bostanie's visibility and legitimacy in policy discourse.

Thus, Bostanie's institutional and policy resilience is neither static nor guaranteed; it is a dynamic process shaped by both negotiation and contestation. It highlights the tension between the need for institutional support to ensure stability, and the imperative to preserve the radical autonomy that lies at the heart of community-led urban gardening movements.

Key indicators for evaluation: Legal status of land, number and strength of institutional partnerships, involvement in policy dialogues, advocacy campaigns undertaken.

Adaptive Resilience

Adaptive resilience in urban community gardens such as Bostanie refers to the collective capacity to anticipate, absorb, and creatively respond to environmental, social, and economic perturbations without compromising core values of autonomy, sustainability, and inclusivity (Folke et al., 2010; Berkes & Ross, 2013). It foregrounds not only the ability to persist through shocks but also the capacity for learning, innovation, and transformation in complex socio-ecological systems.

At Bostanie, adaptive practices manifest through iterative experimentation with agroecological techniques, the flexible reorganization of communal roles, and the ability to self-modulate activities in response to external pressures such as changing municipal regulations or climatic variability. This process resonates with concepts of adaptive governance (Chaffin, Gosnell & Cosens, 2014), which emphasize decentralized, flexible, and participatory decision-making as key to resilience in dynamic environments.

The community's reflexive engagement with ecological feedbacks—through soil remediation, rainwater management, and biodiversity enhancement—illustrates what C.S. Holling (1973) described as ecological resilience: the capacity to absorb disturbance without shifting into a qualitatively different state. Simultaneously, Bostanie's socio-organizational adaptations align with what Walker et al. (2004) conceptualize as transformability: the capacity to create fundamentally new system trajectories when existing ones become untenable.

Bostanie shows notable adaptive resilience, constantly evolving its practices based on environmental feedback and social learning.

Adaptations include experimenting with new planting techniques (e.g., polycultures, guild planting), shifting governance structures when necessary, and integrating new members' ideas into design and organization.

The garden's openness to trial-and-error, combined with a reflective attitude toward both successes and failures, reflects a mature permaculture ethic.

In future, documenting these adaptations (e.g., through a living archive, garden journals, photo-essays) could formalize collective learning processes and ensure knowledge is passed on to new members.

Importantly, Bostanie's adaptive resilience is not solely reactive but proactive, embodying what Escobar (2018) frames as autonomous design: a relational approach to world-making that foregrounds local knowledge, communal practices, and pluriversal futures over technocratic, one-size-fits-all solutions. Adaptive resilience here becomes an act of everyday resistance against urban standardization and a means of sustaining alternative socio-ecological imaginaries.

Nevertheless, consistent with critiques of resilience discourse (Cote & Nightingale, 2012), it is essential to interrogate whose adaptation is prioritized, under what conditions, and to what ends. In Bostanie, maintaining adaptive capacity necessitates not only internal flexibility but also external solidarity networks that buffer against systemic marginalization, ensuring that adaptation does not become mere accommodation to unjust urban environments.

Thus, Bostanie's adaptive resilience is best understood as a situated, politicized, and relational process, enmeshed within broader dynamics of urban contestation and commoning practices.

Key indicators for evaluation: New practices introduced per season, responses to environmental shocks (e.g., heatwaves, floods), turnover of leadership roles, documentation of learning.

Resilience Aspect	Strengths	Vulnerabilities	Opportunities
Ecological Resilience	Soil health, biodiversity, water infrastructure	Pollution/soil management	Expand native plantings, improve systems
Socioeconomic Resilience	Participation, inclusivity, cohesion	Volunteer burnout, resource tensions; Limited economic self-sufficiency	Conflict resolution tools, broader outreach; Social enterprise models
Systemic Resilience	Local food, seed-saving	Low collective agency across scales	Engagement in local exchange trading systems
Institutional/Policy Resilience	Informal municipal ties	Lack of formal land security	Advocacy, formal agreements
Adaptive Resilience	Flexibility, openness to change	Knowledge loss with turnover	Documentation, knowledge sharing

Table 2: Aspects of Resilience Indicating Strengths, Vulnerabilities and Opportunities of Bostanie

The evaluation of Bostanie through the five dimensions of resilience — ecological; socioeconomic; systemic; institutional and policy; and adaptive — reveals a complex interplay of strengths and vulnerabilities. The resilience of Bostanie as an urban community garden must be understood as a multidimensional and relational phenomenon, embedded within complex socio-ecological systems and commoning practices. Drawing on theoretical frameworks from resilience theory (Folke et al., 2010; Walker et al., 2004), political ecology (Escobar, 2018), and the commons (Ostrom, 1990; Federici, 2012), this discussion approaches Bostanie's resilience through five interrelated aspects: ecological, socioeconomic, institutional & policy, and adaptive resilience. Rather than treating resilience as a static attribute, it is conceived as an evolving capacity for transformation, learning, and self-organization in the face of environmental, political, and economic uncertainties (Berkes & Ross, 2013; Chaffin et al., 2014). Furthermore, situating Bostanie within broader commoning processes highlights resilience not merely as technical adaptability but as a politicized practice of autonomy, relationality, and collective stewardship of shared resources (Linebaugh, 2008; Bollier & Helfrich, 2015). This multidimensional lens allows for a nuanced evaluation that interrogates not only ecological viability and food sovereignty but also social cohesion, institutional embeddedness, and the capacity for continuous adaptation to urban dynamics Building on this analysis, the Conclusion will synthesize the key findings and propose strategic directions for enhancing Bostanie's long-term resilience within the broader context of sustainable urban development.

CONCLUSION

The analysis of the Bostanie community garden through the multidimensional framework of resilience — ecological, socioeconomic, institutional and policy, systemic, and adaptive — reveals that its significance transcends the sphere of urban agriculture, positioning it as a living laboratory for commoning processes, socio-ecological regeneration, and autonomous urban futures. Drawing on Holling's (1973) notion of resilience as the capacity for absorption, renewal, and transformation, and Escobar's (2018) emphasis on relationality and pluriversality, Bostanie demonstrates how grassroots initiatives can foster resilient modes of living that contest the extractive

Moreover, as a systemic project of commoning (Federici, 2012; Bollier & Helfrich, 2015), Bostanie operates not merely through fixed structures but through ongoing social, ecological, and material negotiations. Its existence illustrates that resilience is not an intrinsic feature of isolated systems, but the emergent property of dynamic, relational, and often contested socio-ecological assemblages. Adaptive capacities — learning, experimentation, and responsiveness — further reinforce Bostanie's resilience, reflecting Berkes and Ross's (2013) emphasis on iterative governance and Chaffin et al.'s (2014) model of adaptive management.

Ultimately, Bostanie exemplifies how urban community gardens can function as vital infrastructures of care, solidarity, and systemic transformation. As cities face intensifying environmental, social, and political challenges, such commons-based initiatives offer not only practical responses but also conceptual alternatives: they invite reimagining urban life beyond enclosure, extraction, and commodification. Bostanie demonstrates how grassroots initiatives, guided by permaculture principles, can meaningfully contribute to urban resilience. However, realizing their full potential requires supportive policy frameworks that secure land access, facilitate resource mobilization, and recognize community gardens as critical urban infrastructure. As Escobar (2018) asserts, building resilient urban worlds entails cultivating pluriversal practices grounded in relationality, mutual care, and socio-ecological justice — and Bostanie stands as a modest but significant embodiment of this transformative horizon.

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