TECH-ENHANCED PLACEMAKING: REVITALIZING PUBLIC SPACES IN THE BORDER TOWNS OF RNM

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ABSTRACT

Small towns, particularly those located at borders, are increasingly impacted by globalization, which brings both challenges and opportunities. Such are the eastern border towns in North Macedonia (RNM), which face the challenge of revitalizing public spaces to better meet the needs of their residents and visitors. These towns, rich in cultural heritage, require a balanced approach to modernization while maintaining their unique urban identity.

The paper will focus on the public spaces of two towns – Berovo, a mountainous town, and Dojran, a lakeside tourist destination, exploring the possibilities of their upgrading through technological innovations. Aiming at the improvement of user experience, accessibility, the level and intensity of interaction between different users, the applicability of various technological tools will be considered within the framework of traditional placemaking.

The study will provide an insight into the multiple use of public spaces, as well as into their optimal technological enhancement contributing their vibrancy, emotional well-being, attractiveness and local development.

KEYWORDS _ *Border towns, Placemaking, Public spaces, Technology integration, Urban revitalization*

INTRODUCTION

In the age of globalization, small border towns are increasingly challenged by demographic shifts, urban stagnation, and diminished socio-economic relevance. While globalization accelerates growth in major metropolitan areas, smaller settlements often face depopulation, weakened infrastructure, and a loss of urban identity. Such is the case with the eastern and south-eastern border towns of the Republic of North Macedonia (RNM), (fig.1) which, despite their rich cultural heritage and geographic uniqueness, struggle to maintain vibrancy and relevance in the contemporary urban network.

Among these towns, Berovo—a mountainous town with deep ecological potential—and Dojran—a lakeside tourist destination—exemplify the spatial and social fragmentation common in post-transitional urban environments. Public spaces, particularly the main city squares, have lost their central role in everyday civic life, suffering from underuse, functional decline, and disconnection from the community. These spaces, often shaped in the socialist period, now require context-sensitive revitalization strategies.



Figure 1: Location of the border towns Berovo and Dojran (source: author's drawing)

In this context, placemaking emerges as a vital approach to restoring the vitality of urban public life. By rethinking public space as a stage for interaction, identity-building, and collective memory, placemaking fosters community engagement and supports sustainable urban transformation (PPS, 2015; Myrick, 2011; Marsden, 2013; Wyckoff et al. 2015). Recent strategies also point toward the careful incorporation of technology—not as a goal, but as a tool to enhance accessibility, interactivity, and inclusiveness. Simple interventions such as public Wi-Fi zones, digital signage, or interactive elements tailored for youth can enrich the placemaking process and support the evolving needs of local communities while preserving the towns' identity and sense of place (Ouda, 2022; McChesney, 2023; Gtowczynski, 2024). These potential interventions and their relevance to the revitalization of public spaces in Berovo and Dojran will be further examined in the following sections of the paper.

The main goal of this research is to evaluate the spatial and social performance of central public spaces in the small border towns of Berovo and Dojran and to identify placemaking-based strategies that can support their revitalization. The study aims to explore how low-intensity technological interventions can contribute to improved accessibility, inclusiveness, and year-round usability.

Based on this, the main research question is: Can small-scale technological interventions improve the vitality, inclusiveness, and year-round use of public spaces in border towns, while preserving their local identity and sense of place?

RESEARCH METHODOLOGY

The research process is structured into three interrelated phases—empirical research, field research, and critical analysis—designed to systematically examine the role of placemaking in the revitalization of the selected towns (Fig.2).

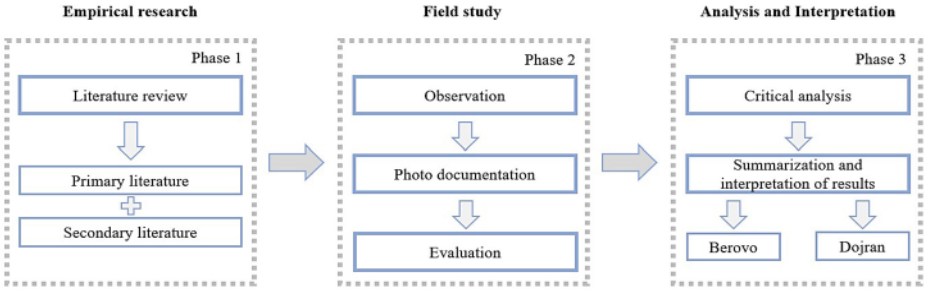

Figure 2: Research methodology (source: author's drawing)

The first phase begins with a systematic review of relevant literature, encompassing both primary sources (such as policy documents, strategic plans, and municipal reports) and secondary sources (academic publications) in the field of placemaking, sustainability, and urban development. The objective is to build a foundational understanding of placemaking principles, small-town development challenges, and the broader socio-spatial impacts of globalization on small urban areas. This step ensures the conceptual clarity needed for subsequent fieldwork. The second phase consists of on-site observation, photo documentation, and evaluation of public spaces within the two selected towns. The method of observation and photo documentation is applied in both town's main squares in order to observe their spatial and functional characteristics, as well as ways of their use. This phase was carried out during the month of April, from 14 to 16.04.2025. The evaluation method is carried out after the completion of the previous procedures, after which graphic attachments are made - tables with established criteria and indicators that enabled an insight into the existing physical, sociological, ecological and aesthetic character of public spaces. The evaluation is based on criteria for the quality of public space defined by the organization "Project for Public Spaces". The organization has developed the so-called 'A place diagram' as a tool to help people evaluate public space (Figure 3 and 4). This diagram was used to create evaluation sheets. According to that, 27 criteria have been defined, according to which public spaces are evaluated.



Berovo – city square		
Elements of public space	**Criteria**	**Evaluation**
Access and linkages	Easily accessible	
	Sidewalk access	
	Access to various types of transportation	
	Parking space provided	
	Ramps for disabled people	
	Proximity to services and activities	
	Signaling and information	
Comfort and image	Attractiveness of public space	
	Representativeness	
	Safety during use	
	Historical significance and age	
	Cleanliness, hygiene and maintenance	
	Good and comfortable urban equipment	
	Digitization of public space	
Uses and activities	Daily Use (Liveliness)	
	The most common period of use	
	Use of various age groups	
	Offering different activities	
	Active surrounding facilities and places	
	Unused parts and spaces	
	Security and supervision	
	Temporary entertainment activities	
Sociability	Attracting people	
	User grouping	
	Interaction and socialization	
	Night use of space	
	Encourage positive feelings	
Legend	a positively evaluated aspect	a neutral evaluated aspect	a negatively evaluated aspect

Figure 3 – diagram for evaluation of public spaces (source: www.PPS.org), Figure 4 – evaluation sheet for the city quay (author's contribution)

In the final phase, data from the literature and field research were synthesized through critical analysis. This involved identifying patterns, contradictions, and opportunities for intervention. The findings were then summarized and interpreted in the context of Berovo and Dojran, with attention given to the unique spatial, cultural, and socio-economic characteristics of each town. The outcomes of this analysis provided the basis for developing recommendations for placemaking interventions as tools for local revitalization and sustainable development.

THEORETICAL RESEARCH FRAMEWORK – THE 'PLACEMAKING' CONCEPT

Placemaking is an interdisciplinary and community-centered approach to urban and spatial development that emphasizes the creation, transformation, and activation of public spaces through local identity, collective memory, and social interaction. Rooted in human-centered urbanism (Jacobs, 1961; Whyte, 1980), the concept transcends traditional top-down planning by inviting citizens to co-create their environments, thus reinforcing a sense of belonging and ownership (Lyndon et.al 2012; Clarke, 2017). At its core, placemaking focuses not only on the physical design of a space but also on its use, meaning, and emotional resonance within the local community (DUSP, 2013; Lang 2017). It aims to strengthen the connection between people and the places they share by integrating cultural, environmental, and economic aspects into the development process (Gehl, 2010; Wyckoff et.al, 2015)

Placemaking can take many forms—ranging from temporary interventions and tactical urbanism to long-term strategic revitalization—and often involves collaborative processes with local stakeholders, institutions, and civil society (Lyndon et al. *ibid*; Wyckoff 2014; PPS 2015; Markusen & Gadwa 2010). Its core principles emphasize inclusivity, adaptability, and the promotion of everyday life in the urban realm, making it particularly suitable for small towns, where spatial and social networks are closely interwoven. In such contexts, placemaking becomes a key driver for reclaiming underused public spaces and reactivating urban life through minimal but meaningful design activities (Myrick, 2011).

In recent years, the scope of placemaking has expanded to consider the role of technology in shaping public experiences (Halegoua & Polson, 2021; Djukic et.al. 2023; Fuentes et.al. 2023; Petrovski et.al. 2024). While not a replacement for physical or social interventions, technological tools can enrich the user experience and support wider participation. When thoughtfully integrated, these elements can improve accessibility, offer information, attract younger users, and enhance the overall functionality and attractiveness of public spaces.

CASE STUDY – URBAN (RE)DEVELOPMENT OF THE BORDER TOWNS

The Republic of North Macedonia is a landlocked nation situated in South-eastern Europe on the Balkan Peninsula with a surface area of 25,436 km2. It borders two EU member states, Bulgaria and Greece, and two EU candidate countries, Albania and Serbia.

Berovo and Dojran are situated within the Eastern and South-eastern Planning Regions of the Republic of North Macedonia—areas that remain among the least developed in the country despite their rich natural and cultural assets. According to the 2021 census, the Municipality of Berovo has a population of approximately 10,890 inhabitants, while the city of Berovo has 7.002 inhabitants. Dojran Municipality has around 3,360 residents, while the administrative center, Star Dojran, has only 413 inhabitants, (SSO,2022). These figures indicate the relatively small catchment populations of their city squares, highlighting the need for spatial strategies that promote multifunctional, inclusive, and seasonally adaptable public space use. Berovo lies in the Maleshevo region, near the border with Bulgaria, characterized by dense forests, ecological tourism potential, and a strong sense of local identity. Dojran, located by Lake Dojran along the Greek border, is part of a cross-border tourist zone with historical significance but suffers from infrastructural gaps and ecological risks. Both regions face persistent socio-economic challenges, including youth emigration, low investment, and uneven

spatial development. As border towns within peripheral regions, Berovo and Dojran reveal the urgent need for integrated, place-based strategies that strengthen local economies and identities. In this context, placemaking emerges as a key tool to activate underutilized public spaces, support regional cohesion, and enable sustainable revitalization rooted in the unique spatial, environmental, and cultural dimensions of these territories.

Berovo

The main city square of Berovo is located in the town's historic core. Constructed in 2010, the square spans approximately 2,700 m² and features a regular rectangular layout (fig.5). It is framed by buildings on the north, east, and south sides, while its western edge is defined by a street that also functions as the town's central pedestrian axis or čaršija. A key feature of the square is the Church of the Nativity of the Blessed Virgin Mary, which holds a dominant spatial and symbolic presence.

Based on photo documentation and on-site observation (fig.6), the square currently serves as a gravitational point of the town—an active space supporting rest, socialization, and public interaction through a dynamic urban design. An evaluation of the square was also conducted using previously defined criteria, grouped into four key elements. Each element comprises multiple indicators that were individually assessed and then analysed to determine the overall spatial performance of the square (fig.7).





Figure 5: Berovo's city sqare (source: Google Earth), **Figure 6:** photo documentation of the square (author's contribution)

The city square in Berovo shows strong accessibility and comfort, with good sidewalk connections, proximity to services, cleanliness, and attractive urban design. However, digital infrastructure is lacking, and the space sees limited activity beyond midday. Uses and activities are moderately developed, with some variety but also underused areas and few entertainment options. Sociability is the weakest aspect, especially regarding night use and emotional connection to the space. Overall, while functional and accessible, the square would benefit from improvements in digital features, sociability, and diverse programming to enhance its placemaking role.

Berovo – city square		
Elements of public space	**Criteria**	**Evaluation**
Access and linkages	Easily accessible	●
	Sidewalk access	●
	Access to various types of transportation	●
	Parking space provided	●
	Ramps for disabled people	●
	Proximity to services and activities	●
	Signaling and information	●
Comfort and image	Attractiveness of public space	●
	Representativeness	●
	Safety during use	●
	Historical significance and age	●
	Cleanliness, hygiene and maintenance	●
	Good and comfortable urban equipment	●
	Digitization of public space	●
Uses and activities	Daily Use (Liveliness)	●
	The most common period of use	Noon
	Use of various age groups	●
	Offering different activities	●
	Active surrounding facilities and places	●
	Unused parts and spaces	●
	Security and supervision	●
	Temporary entertainment activities	●
Sociability	Attracting people	●
	User grouping	●
	Interaction and socialization	●
	Night use of space	●
	Encourage positive feelings	●
Legend	● a positively evaluated aspect	● a neutral evaluated aspect ● a negatively evaluated aspect

Figure 7 – evaluation of Berovo's Main City Square (author's contribution)

Dojran

Located in the settlement of Stari Dojran, the city square "Under the Maples" is named after the three maple trees at its center. Positioned on the northern edge of the town, adjacent to Dojran Lake, the square covers an area of 2,000 m² and has a clean rectangular form (fig.8). It is situated behind the municipal building and is surrounded by a few cafés and urban beaches.

According to photo documentation and on-site observation (fig.9), the square is a mildly active space in the spring months. Its primary role is recreational and social, but in the peak tourist season, it also serves as an event venue. Concerts, celebrations, competitions, and various cultural events are regularly held here from June till mid-September. An evaluation of the square's elements was carried out based on predefined criteria, revealing the seasonal nature and multifunctional potential of this public space (fig.10).





Figure 8: Dojran's city sqare (source: Google Earth), **Figure 9:** photo documentation of the square (author's contribution)

Dojran – city square		
Elements of public space	**Criteria**	**Evaluation**
Access and linkages	Easily accessible	●
	Sidewalk access	●
	Access to various types of transportation	●
	Parking space provided	●
	Ramps for disabled people	●
	Proximity to services and activities	●
	Signaling and information	●
Comfort and image	Attractiveness of public space	●
	Representativeness	●
	Safety during use	●
	Historical significance and age	●
	Cleanliness, hygiene and maintenance	●
	Good and comfortable urban equipment	●
	Digitization of public space	●
Uses and activities	Daily Use (Liveliness)	●
	The most common period of use	Noon
	Use of various age groups	●
	Offering different activities	●
	Active surrounding facilities and places	●
	Unused parts and spaces	●
	Security and supervision	●
	Temporary entertainment activities	●
Sociability	Attracting people	●
	User grouping	●
	Interaction and socialization	●
	Night use of space	●
	Encourage positive feelings	●
Legend	● a positively evaluated aspect	● a neutral evaluated aspect ● a negatively evaluated aspect

Figure 10: evaluation of Dojran's Main City Square (author's contribution)

The evaluation of Dojran's city square reveals similar characteristics to Berovo's square, particularly in terms of accessibility, physical structure, and comfort. However, its usage is highly seasonal. The square becomes an active public space mainly during the summer months, coinciding with the tourist season, when it hosts various cultural and recreational events. Outside of this period, the square remains largely underused. Nighttime activity is virtually absent, and long-term sociability is limited due to the lack of continuous programming and user engagement throughout the year.

RECOMMENDATIONS

The evaluation of public spaces in Berovo and Dojran has revealed both their potential and their current limitations in fulfilling the needs of residents and visitors. While both city squares demonstrate a solid urban foundation and seasonal activation, they lack year-round vibrancy, technological integration, and social inclusivity—particularly in terms of youth engagement and night-time use. Based on the findings from field observation, photo documentation, and spatial assessment, the following tables present a set of targeted placemaking actions and recommendations aimed at improving the functionality, identity, and liveliness of these spaces.

Key elements of public space	Aspects of public space to be improved	Proposal of placemaking actions and projects
Access and linkages	Signalling and information	- Install new signal panels throughout / around the square - Install information panels in the square
Comfort and image	Attractiveness and representativeness Good and comfortable urban equipment Digitalisation of public space	- Stickers with QR codes providing information about the municipality, town, and public spaces - Introduce free Wi-Fi zones - Smart benches with phone chargers - Smart lighting - Interactive panels for tourists in multiple languages - Improve urban equipment with protective elements against weather conditions - Relocate existing equipment under the shade of trees
Uses and activities	Liveliness and daily use Offering different activities Security and supervision Use of various age groups Active surrounding places and facilities	- Light outdoor recreation – group sports activities - Open-air cinema - Educational workshops and lectures - Promotional events - Extend the working hours of nearby service establishments and shops - Introduce indoor social and recreational activities in surrounding venues - Hire security agencies to monitor the square - Organize volunteer actions for supervision and safety - Artistic and illuminated installations - Organize a winter market - Ice and snow sculpture competition - Provide blankets and heaters near benches
Sociability	User grouping for socialisation Night use of space Interaction and socialization	- Frequent organization of music, art, and literary events in open spaces - Install pavilions for socializing, with heaters - Organize gatherings in nearby locations - Increase lighting in the square with lampposts, LED strips, spotlights, etc. - Organize nighttime events – debates, promotions, etc.

Figure 11: proposal for implementation of placemaking projects in Berovo (author's contribution)

To improve year-round use and social vitality, *Berovo's city square* should undergo targeted placemaking interventions (fig.11). These include introducing free Wi-Fi, smart benches, QR code info points, and interactive panels to increase digital engagement, especially among youth. Comfort can be enhanced by relocating equipment under tree shade and adding weather protection. Activity-based recommendations include open-air events, educational workshops, and seasonal programs, supported by extended hours in nearby services. Implementation should begin with low-cost actions, such as improved lighting and public events, in collaboration with local institutions and the municipality. These steps aim to transform the square into an inclusive and active space for everyday use.

Key elements of public space	Aspects of public space to be improved	Proposal of placemaking actions and projects
Comfort and image	Digitalisation of public space	- Install smart benches with phone chargers - Interactive panels for tourists in multiple languages - Introduce daytime and nighttime events such as: handicraft bazaars, children's and humanitarian events, festivals, etc. - Improve urban equipment with protective elements against weather conditions - Outdoor art events and exhibitions - Fish Festival – promotion of lake fish and regional culinary specialties - Culinary competitions
	Good and comfortable urban equipment	
	Attractiveness and representativeness	
Uses and activities	Liveliness and daily use	- Light outdoor recreation – group sports activities - Open-air cinema - Educational workshops and lectures - Promotional events - Extend the working hours of nearby service establishments and shops - Introduce indoor social and recreational activities in surrounding venues - Hire security agencies to monitor the square - Organize volunteer actions for supervision and safety - Artistic and illuminated installations - Organize a winter market - Ice skating competition near the lake
	Offering different activities	
	Security and supervision	
	Use of various age groups	
	Active surrounding places and facilities	
Sociability	User grouping for socialisation	- Frequent organization of music, art, and literary events in open spaces - Install pavilions for socializing, with heaters - Organize gatherings in nearby locations - Increase lighting in the square with lampposts, LED strips, spotlights, etc. - Organize nighttime events – debates, promotions, etc.
	Night use of space	
	Interaction and socialization	

Figure 12: proposal for implementation of placemaking projects in Dojran (author's contribution)

The proposed placemaking strategies for Dojran are designed to enhance the functionality, accessibility, and vibrancy of its public spaces, particularly along the lakeside. By integrating technological innovations, the interventions seek to improve the digital engagement of visitors, with a focus on fostering a deeper connection to the site's cultural and historical context. Furthermore, the introduction of diverse social activities, aims to stimulate social interaction, promote local traditions, and create a dynamic public sphere. The incorporation of outdoor art events and competitions will also contribute to the cultural enrichment of the area, while enhancing the sense of place and community identity. To address environmental factors and extend the usability of public spaces

throughout the year, the improvement of urban furniture with protective elements against adverse weather conditions is recommended. Collectively, these placemaking actions will not only strengthen the social, cultural, and economic fabric of Dojran but also position it as a resilient, inclusive, and sustainable urban environment.

CONCLUSIONS

This research set out to explore how placemaking strategies, supported by modest technological interventions, can contribute to the revitalization of public spaces in the border towns of Berovo and Dojran. Through the evaluation of their main city squares—based on field observation, photo documentation, and spatial assessment—it was confirmed that while both spaces possess solid structural qualities and cultural value, they face challenges in terms of limited year-round use, weak night-time activity, and reduced engagement among younger residents.

The research question—whether small-scale technological improvements can enhance vitality and inclusiveness without compromising identity—was addressed through targeted recommendations. These included smart infrastructure (e.g. Wi-Fi, benches, info panels), seasonal programming, and better lighting and urban equipment. Such measures can indeed improve spatial performance while preserving the unique character of place. More broadly, the findings emphasize the importance of context-specific, low-cost placemaking approaches in small towns, especially in peripheral and border regions. Strengthening public spaces can stimulate social cohesion, cultural expression, and regional resilience—critical goals for towns affected by migration and marginalization.

Future research could build on this work by incorporating participatory planning methods, long-term monitoring of implemented interventions, or exploring digital co-creation tools to involve citizens more actively in placemaking processes.

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