Evolving Identities: A Spatio-Temporal Analysis of Slovenian Urban Morphology and Architectural Design

Matej Niksic, Urban Planning Institute of the Republic of Slovenia and University of Ljubljana, Slovenia, Slovenia

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Abstract

This research investigates the evolution of contemporary morphological and architectural patterns in Slovenia, Europe, aiming to understand how to regulate future development to strengthen spatial identity through design. While traditional architecture has long been a focus, this research expands to post-World War II typologies, offering a more comprehensive understanding of the complex interplay between historical and contemporary urban forms. A novel method, the "Mappi Method," utilizes Geographic Information Systems (GIS) to analyze morphological patterns and identify key elements contributing to a strong sense of place. By applying this method to a comprehensive dataset of Slovenian settlements, we aim to uncover insights into the spatial characteristics that define Slovenian spatial identity by design. The findings will have significant implications for urban planning, architectural design and heritage conservation. By identifying essential elements of Slovenian spatial identity, we can develop evidence-based strategies to guide future development and preserve cultural heritage. The results can inform national spatial planning policies, local development plans and professional guidelines for architects and urban planners, as well as contribute to the development of curricula in secondary and university programmes. In the long term, this research aims to contribute to a more sustainable and culturally sensitive approach to urban development in Slovenia. By identifying key elements of Slovenian spatial identity, we provide a valuable tool for policymakers, planners and designers. Additionally, applying the "Mappi Method" to other cultural contexts can advance our understanding of how spatial patterns shape cultural identity and inform sustainable urban development worldwide.

Keywords: place identity, identity by design, architecture, urban design, morphology

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Introduction

The concept of spatial identity, closely linked to the genius loci or spirit of place, remains a central concern in contemporary urban design and planning theory. It relates to the visual, functional and symbolic coherence of built environments that reflect local culture, history and landscape (Norberg-Schulz, 1980; Relph, 1976). In the Slovenian context, spatial identity has long been embedded in traditional architectural and settlement forms, shaped by regional materiality, topography and climate (Drozg, 1995; Fister et al., 1993). However, recent decades have witnessed a growing disconnection between these inherited spatial logics and contemporary development patterns, raising critical questions about the resilience and transformation of spatial identity under new urbanization pressures.

Post-World War II developments, particularly in the second half of the 20th century, introduced standardized building typologies and planning practices that often disregarded local context in favor of efficiency and functionality (Fikfak et al., 2023; Pogačnik, 1996). More recently, the influence of global architectural trends, commodification of space and deregulated land use policies have led to increasingly fragmented and visually incoherent environments (Grom, 2022; Gantar et al., 2021). These shifts have resulted in a tension between tradition and transformation, where spatial identity is neither lost nor preserved in linear ways but reconfigured through overlapping morphological patterns.

Despite policy-level aspirations to maintain or strengthen spatial identity (such as those articulated in the Strategija prostorskega razvoja Slovenije, SPRS, 2004), there remains a lack of systematic tools to assess how contemporary architectural and urban forms contribute to or erode spatial distinctiveness. While previous research has extensively documented traditional urban and architectural typologies (e.g., Melik, 1960; Fister, 1993), fewer efforts have focused on integrating these insights with spatial data analytics and post-2000 morphological change detection.

To address this gap, this paper presents findings from the development and application of the "MAPPI Method" (Metoda za ugotavljanje Arhitekturno Pogojene Prostorske Identitete), a novel approach to identifying, classifying, and evaluating spatial identity through both quantitative (GIS-based) and qualitative (field-based) methods. By analysing a broad dataset of Slovenian settlements and cross-referencing historical and current urban forms, the method allows us to investigate not only where identity persists, but how it evolves and what design features contribute to its continuity or disruption.

The aim of this paper is to present how the identification of the key morphological and architectural elements that shape the spatial identity of Slovenian settlements is foreseen through the newly developed Mappi approach and how such methodological framework may be capable of informing future planning, architectural design, heritage management and education. The paper contributes to a growing body of knowledge on adaptive regionalism and culturally sensitive spatial development (Frampton, 1983; Lefaivre & Tzonis, 2012) and offers tools to balance the needs of transformation with the imperative of place-rooted continuity.

Methods

Research Objectives and Approach

This study applies a mixed-method approach that integrates spatial analysis, architectural typology assessment and GIS-based morphometric methods to examine how built form contributes to spatial identity across Slovenian settlements. The objective is to identify spatial patterns and architectural characteristics that reinforce or erode local and regional distinctiveness, particularly in the post-WWII era.

The MAPPI Method

To support systematic assessment, the Method for determining Architecturally Conditioned Spatial Identity (in Slovene – Metoda za ugotavljanje Arhitekturno Pogojene Prostorske Identitete - MAPPI) was developed. This method offers a novel, scalable framework that integrates:

- GIS-based quantitative analysis of settlement morphology,
- qualitative fieldwork to capture design characteristics based on digital on-site qualtitative and qualilitative mapping, and
- temporal typologization of built structures into pre-1970, 1970–2004, and post-2004 categories.

MAPPI was designed to bridge the scales of architectural and urban analysis. Its goal is to identify and evaluate “morphological units” (MEs) based on both physical structure and their embedded spatial identity indicators.

Data Sources

For the GIS-based quantitative analysis of settlement morphology analyses that were done in the office, the gGeospatial datasets from the Surveying and Mapping Authority of the Republic of Slovenia (GURS) were used, among others:

- building footprints, construction years and building heights,
- historical typological studies, such as those by Fister et al. (1993), and regional classifications from the Slovenian architectural landscape framework.

Additionally the on-site fieldwork in selected settlements across the country were done, in order to record attributes such as facade treatment, roof forms, materials and stylistic elements.

Analytical Workflow

The MAPPI method unfolds in the following principal stages:

- preliminary GIS-based clustering,
- morphological patterns were detection based on four spatial dimensions: year of construction, building footprint, height and volumetric size. Clustering was performed using algorithms, which allowed differentiation of distinct spatial regimes,
- typological classification - each cluster was interpreted through architectural typologies: traditional, standardized single-family (post-war) and multi-unit typologies.

Based on the insights from the analyses of GURS collectd datasets using Mappi method, the data from the field work ws integrated (achitectural and other spatial characteristics were verified through systematic fieldwork using QField and QGIS, recording 41 architectural attributes per building).

Synthesis of morphotypes is the next step - overlays of clustered spatial data and qualitative field indicators were used to define representative morphological entities (MEs), each bearing distinctive identity traits. Each ME was classified by its contribution to spatial identity: TVG – Traditional, OK – Standardized, and ROP – Variegated or eroded pattern. In the last step comparative and temporal analyses were done and the results were interpreted across multiple settlements to identify spatial and temporal patterns, deviations and identity shifts.

Results

Identification of Morphological Patterns

The application of MAPPI revealed three dominant typologies of the morphological tissues within Slovenian settlements:

A) TVG – Traditional morphologies: found in historical cores and older settlement extensions, these areas exhibit coherent spatial composition, morphological pattern and architectural elements, they are aligned with regional topographies and socio-cultural practices,
B) OK – Standardized morphologies: predominantly post-WWII developments characterized by repetition, simplified layouts and functionally driven design. These morphologies divert from traditional local identity but follow consistent structural patterns,
C) ROP – Variegated morphologies: emerged in the neoliberal era, these areas are marked by fragmented urban tissue, stylistic discord, and weakened place identity. Visual clutter and loss of morphological coherence are dominant features.

Spatial Distribution and Temporal Shifts

Traditional cores (TVG) remain present but are increasingly interfered by both OK and ROP patterns. The 1970–2004 period largely introduced standardized forms that prioritized function and cost-efficiency, resulting in spatial homogeneity and erosion of regionaly distinctive characteristics. Post-2004 developments further amplified the fragmentation, introducing market-driven designs often disconnected from place context.

Elements of Spatial Identity

This study and namely its field work is ongoing and aims to understand the state of the art across the whole national territory, however it is possible to preliminarely list the most important elements that contribute (or not) to preserved spatial identity. Amon other the list includes:

- building placement and orientation within the plot,
- typology-consistent roofscape,
- continuity of material usage and facade articulation,
- scale and proportionality within local context,
- and last but not least: integration of open/public spaces within settlement fabric.

Discussion

Interpreting the Patterns: Spatial Identity in Transition

The findings of this research highlight a complex and dynamic transformation of Slovenian urban morphology and architectural character. The coexistence of traditional (TVG), standardized (OK), and variegated (ROP) morphologies demonstrates how spatial identity is negotiated across time, policy and design paradigms. While TVG areas continue to anchor identity through recognizable formal, material and locational attributes, OK and ROP areas signify shifts away from locality-rooted design approaches.

The standardized post-war typologies (OK) emerged as a functional response to housing needs and industrial growth. However, their replication and detachment from local morphological logic have contributed to a gradual weakening of place-based coherence while on the other hand established new, largely spread patterns and typologies that establish new identity on its own terms. The ROP morphologies - characterized by stylistic inconsistency and weak spatial logic - exemplify the effects of market-driven development in the absence of strong design regulation. These findings confirm concerns expressed in previous literature (e.g., Drozg, 1995; Fikfak et al., 2023) about the erosion of distinct regional architectural identities and the rise of generic environments.

The Value of the Mappi Method

MAPPI emerges as a powerful diagnostic tool that enables both comprehensive and nuanced reading of urban form. Its integration of GIS-based quantitative data and field-based qualitative assessments facilitates a multi-scalar interpretation of spatial elements that influence spatial identity by urban and architectural design. One of the most important contributions of the method lies in its ability to reveal not only the current state of spatial character but also trajectories of change. The systematic mapping of architectural typologies and their spatial logic allows identification of critical thresholds - points where traditional spatial logic begins to dissolve.

By differentiating between traditional (TVG), standardized (OK) and variegated (ROP) morphological types, MAPPI offers a conceptual and analytical framework to understand how and where interventions are needed in directing current and future developments through urban and architectural policies and regulation. It aligns with contemporary calls for more responsive and culturally aware planning tools and can be applied across contexts with adequate data availability and local calibration.

Implications for Urban Planning, Architectural Design and Policy

The results of the study support the need for a policy shift from reactive to proactive spatial governance. Evidence shows that where planning tools and architectural design have retained or reinterpreted traditional patterns (TVG), spatial identity remains legible and valued. Conversely, in areas dominated by OK and ROP patterns, spatial cohesion and cultural continuity need to be addressed with greater care. Thus, future development should:

- prioritize adaptive regionalism, a design approach that balances tradition with contemporary needs,
- incorporate spatial identity indicators (as derived from MAPPI) into development guidelines, zoning and heritage protection tools,

- promote design literacy and contextual awareness among stakeholders, including architects, planners and developers,
- and foster multi-level coordination between national policy frameworks and local development strategies.

Furthermore, MAPPI results can support education and training by embedding spatial identity analysis into architecture and urban planning curricula. In this way, future professionals can be equipped with tools and awareness necessary for culturally grounded development.

Limitations and Future Research

While the MAPPI method proves robust and scalable, certain limitations must be acknowledged. The current study is based on selected settlement cases and is still in progress regarding full national coverage. While GIS data provides a strong foundation, the method's full potential is unlocked only when paired with fieldwork - an approach that is time and resource intensive.

Future research should extend the application of MAPPI to diverse geographical and cultural contexts, to test its adaptability. It should also refine classification criteria and integrate more socio-cultural and perceptual data, at both settlement and architectural scales. Participatory extensions of MAPPI to incorporate community perception of identity and place must also be explored in the future.

In a broader sense, the findings underscore the need for cross-disciplinary collaboration in defining and sustaining spatial identity - urban planners, architects, sociologists, geographers, landscape architects and local communities must co-produce knowledge and co-design environments that resonate with shared values.

Conclusion

This paper examined the evolution of spatial identity in Slovenian settlements through the lens of urban morphology and architectural typologies, using the MAPPI method that has been developed and is being tested in a national research project. By integrating GIS analysis and on-site fieldwork, the study identified three dominant morphological patterns - traditional (TVG), standardized (OK), and variegated (ROP) - each reflecting different periods and planning paradigms.

The results show that traditional morphologies remain strong carriers of spatial identity, while post-war standardization and recent fragmented development often disrupt local coherence and cultural continuity. This indicated the need to develop new tools to address current and future developments through the lenses of strengthening spatial identity by urban and architectural design. MAPPI has proven to be an effective tool for identifying these dynamics.
The study contributes to:

- methodological advancement through a replicable, data-informed approach to mapping identity,
- policy and planning, by offering criteria for regulating future development in line with spatial character,
- and also education and practice, by informing curricula and professional guidelines.

The study also shows that spatial identity by design is not static phenomena – even if it is measurable, designable and essential for culturally sensitive urban development, its dynamic nature calls for continuous monitoring, context-aware interpretation and adaptive, locally grounded design strategies. Tools like MAPPI can help integrate this awareness into everyday planning and design practice in Slovenia and possibly beyond.

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Declaration of Generative AI and AI-Assisted Technologies

AI-assistive technology was used to check the initial structure of the paper and for the final language check (ChatGPT).

References

Drozg, V. (1995). *Morfologija vaških naselij v Sloveniji* [Morphology of village settlements in Slovenia]. Ljubljana: Filozofska fakulteta, Oddelek za geografijo.

Fikfak, A., Grom, J. P., Švigelj, A., Nikšič, M., & Lazić, M. (2023). *MAPPI: Metoda za ugotavljanje arhitekturno pogojene prostorske identitete*. Ljubljana: Fakulteta za arhitekturo, UL & Urbanistični inštitut RS.

Fister, P., Deu, Ž., & Žarnić, R. (1993). *Arhitekturna tipologija v Sloveniji* [Architectural typology in Slovenia]. Ljubljana: Fakulteta za arhitekturo, UL.

Frampton, K. (1983). Towards a critical regionalism: Six points for an architecture of resistance. *The Anti-Aesthetic: Essays on Postmodern Culture*, 16–30.

Gantar, D., Nikšič, M., & Goršič, N. (2021). Vloga značilne arhitekturne tipologije pri ohranjanju prostorske identitete: Primer občine Idrija [The Role of Characteristic Architectural Typology in Preserving Spatial Identity: The Case of the Municipality of Idrija]. Annales: Anali za istrske in mediteranske študije. Series historia et sociologia, 31(4), 617–632. https://doi.org/10.19233/ASHS.2021.40

Grom, J. P. (2022). *Prostorska identiteta in načrtovanje sodobnih naselij* [Spatial identity and planning of contemporary settlements]. Internal report, Urbanistični inštitut RS.

Lefaivre, L., & Tzonis, A. (2012). *Architecture of Regionalism in the Age of Globalization: Peaks and Valleys in the Flat World*. Routledge.

Melik, A. (1960). Slovensko Primorje. Ljubljana: Slovenska matica.

Norberg-Schulz, C. (1980). *Genius loci: Towards a phenomenology of architecture*. New York: Rizzoli.

Pogačnik, A. (1996). *Arhitekturni razvoj slovenskega podeželja* [Architectural development of the Slovenian countryside]. Ljubljana: Kmečki glas.

Relph, E. (1976). *Place and placelessness*. London: Pion.

Strategija prostorskega razvoja Slovenije. (2004). *Strategija prostorskega razvoja Slovenije* [Spatial Development Strategy of Slovenia]. Ljubljana: Ministrstvo za okolje in prostor.

Contact email: matej.niksic@uirs.si