ISSN : 2227-7994

FORUM A+P

INTERDISCIPLINARY JOURNAL OF ARCHITECTURE AND BUILT ENVIRONMENT

Reoccurring Novelties

VOLUME 30 /JANUARY 2025



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Interdisciplinary Journal of Architecture and Built Environment of POLIS University

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Printed by: Pegi

ISSN: 2227-7994

DOI 10.37199/F400021000

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Forum A+P: Interdisciplinary Journal of Architecture and Built Environment, published by POLIS University since 2010, is the only scientific and cultural journal in the Albanian-speaking countries in the fields of architecture and urban planning. This journal is recognized by the Ministry of Education and Science, the Academic Degrees Evaluation Committee and has an ISSN international registration code.

Vol.30/January 2025

FORUM A+P
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Reoccurring Novelties

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SONIA JOJIC

EDITORIAL

AI Convergence: Exploring the Interplay of Technology, Architecture, and Design

LEDIAN BREGASI
POLIS University
SONIA JOJIC
POLIS University

DOI 10.37199/F40002967

As we examine the current trajectory of the architectural discipline, it is clear that we stand at an unprecedented inflection point as artificial intelligence transitions from a speculative technological frontier into an active cognitive infrastructure. In introducing this volume of FORUM A+P (Volume 30, January 2025), we articulate a profound shift in how designers conceptualize space, agency, and materiality. Architecture, as we observe, is no longer merely assisted by digital drafting programs or Building Information Modeling protocols; rather, it is being fundamentally reshaped through an ongoing synthesis with non-human intelligence.

Our editorial synthesis explores how generative computational workflows, machine learning algorithms, and advanced digital fabrication techniques converge to reframe design theory and practice. Far from replacing human authorship, we view artificial intelligence as a catalyst for expanding architectural imagination, optimizing environmental performance, and interrogating the socio-spatial complexities of contemporary urban environments. By situating technological innovation alongside material traditions and heritage preservation, we frame a holistic paradigm where technology serves as a bridge between theoretical inquiry and practical execution.

At the core of our computational inquiry in this volume is the acknowledgment that artificial intelligence introduces novel forms of non-human agency into the design process. Generative Adversarial Networks (GANs), diffusion models, and advanced text-to-image synthesis engines operate beyond traditional linear problem-solving. These systems process vast datasets of historical precedence, structural typologies, and spatial configurations, extracting latent visual patterns and generating complex architectural iterations in seconds. Consequently, as we observe in contemporary practice, the creative workflow shifts from manual drafting to an iterative dialogue of prompt engineering, latent space navigation, and critical selection.

This epistemological shift challenges historical definitions of authorship and aesthetic judgment. When machine learning algorithms synthesize stylistic attributes across centuries of built environments, the resulting imagery presents a speculative vernacular—an architecture that feels simultaneously familiar and unprecedented. We challenge designers to develop critical frameworks capable of evaluating these synthetic outputs, distinguishing superficial stylistic mimicry from deep structural and spatial intelligence. The interplay of human intuition and algorithmic synthesis thus establishes a new hybrid methodology for spatial ideation.

Beyond conceptual ideation, our curated contributions demonstrate how the convergence of artificial intelligence and architecture delivers tangible advancements in building physics, environmental engineering, and sustainable design. Machine learning models excel at predicting complex thermodynamic behaviors, daylighting performance, and aerodynamic airflow patterns long before physical construction commences. By training predictive algorithms on environmental datasets, we see how architects can rapidly evaluate hundreds of envelope configurations, balancing solar heat gain against natural illumination.

We consider this computational capability a fundamental redefinition of passive design strategies. Rather than relying on static rules of thumb or time-consuming physical simulations, designers utilize machine learning to dynamically optimize building massing and microclimate interactions. Structural systems similarly benefit from topology optimization algorithms, which redistribute material along stress pathways to minimize embedded carbon without compromising structural integrity. We see this as a

high-performance architecture where formal expression emerges directly from environmental responsive intelligence.

In curating this volume, we extend the application of artificial intelligence beyond individual building envelopes to encompass the macro-scale complexities of urban planning and spatial morphology. Advanced urban simulation platforms, such as Spacio.ai, enable researchers and urbanists to analyze built environments through granular data-driven metrics. Comparative analytical studies featured in this volume—such as those evaluating the evolving urban palimpsest of Tirana alongside established European block typologies like Barcelona's Eixample—demonstrate how computational metrics illuminate underlying patterns of density, accessibility, and public space distribution.

Algorithmic urbanism provides city planners with real-time feedback on how spatial interventions ripple through urban networks. By simulating pedestrian mobility, microclimatic comfort, and spatial connectivity, machine learning algorithms allow urbanists to test master planning proposals against empirical metrics before physical implementation. We advocate for this analytical rigor to support informed decision-making, helping cities navigate the delicate equilibrium between spontaneous informal development and structured public infrastructure.

The dialogue between computational design and physical construction manifests vividly in our exploration of digital stereotomy and responsive building envelopes. Stereotomy 2.0 revisits historical stone cutting and masonry techniques through the lens of multi-axis robotic milling and parametric carving. By combining algorithmic form-finding with automated subtractive fabrication, we highlight how architects can construct complex stereotomic vaults and interlocking stone assemblies that optimize material consumption while honoring traditional craftsmanship.

Simultaneously, we observe how the envelope of the building has evolved from a static shelter into an active, responsive skin. Kinetic facade systems integrated with sensor networks and real-time machine learning models act as living filters. These dynamic building skins continuously adjust shading louvers, ventilation apertures, and thermal barriers in direct response to shifting weather conditions and internal occupancy patterns. In this tectonic synthesis, computational intelligence is embodied directly within physical material systems.

urgent imperative for academic institutions to reform design pedagogy. Architectural education must equip future practitioners not only with computational proficiency in coding, machine learning, and parametric design, but also with a robust theoretical and ethical foundation. We insist that students learn to approach AI tools with critical rigor, interrogating training data biases, intellectual property rights, and the environmental footprint of digital compute.

Ultimately, in this volume of FORUM A+P (Volume 30), we underscore that technological convergence must remain grounded in human-centric values and socio-spatial responsibility. We contend that artificial intelligence should not serve as an engine for standardized hyper-commercialization, but as an empowering platform for cultural preservation, environmental resilience, and spatial justice. By fostering a nuanced synergy between human creativity, historical continuity, and advanced machine intelligence, we believe the discipline of architecture can shape cities that are environmentally sustainable, aesthetically inspiring, and socially inclusive.

Beyond formal experimentation and discrete building physics, our editorial scope in this volume encompasses broader interdisciplinary synergies where computational tools interface with systemic urban dynamics. We recognize that modern architectural design cannot operate in isolation from data analytics, geographic information systems (GIS), and mobility modeling. By integrating machine learning algorithms with multi-scalar urban data, designers and planners can model complex ecological and socio-economic feedback loops. We view this systemic approach as essential for addressing pressing global challenges, from climate adaptation to resource distribution in rapidly growing urban centers.

Furthermore, we emphasize how performance modeling is evolving from reactive validation to proactive generative design. Through predictive simulation engines, spatial configurations are generated directly in response to complex operational data—such as dynamic occupancy patterns, acoustic performance, and material lifecycle costs. As we curate these contributions, we observe a growing consensus that architecture must leverage data-driven intelligence to craft resilient, adaptive environments that continuously respond to changing human needs.

A critical dimension of the technological transition examined in this volume concerns how digital media, public visual culture, and architectural representation intersect. As artificial intelligence democratizes image generation, the visual discourse surrounding architecture undergoes a profound metamorphosis. We examine how synthetic visualization tools alter public perception, shifting the focus from static architectural renderings to dynamic, immersive media environments. In public space, street art, muralism, and digital projections increasingly interact with built surfaces, turning facades into contested canvases of civic memory and social critique.

We contend that this interplay between physical space and digital media requires architects to think beyond material form, engaging directly with visual narrative and public engagement. Computational tools enable new modes of artistic expression and public participation, allowing communities to co-create spatial narratives and visually interrogate urban identity. By situating digital visual culture within architectural theory, we advocate for an inclusive public realm where digital and physical artistic expressions enrich urban life.

In concluding this volume of FORUM A+P (Volume 30), we reflect on the fundamental balance between technological innovation and historical continuity. Our editorial vision rejects the false dichotomy between radical computational futures and the preservation of urban heritage. As demonstrated throughout this collection, advanced computational methodologies—whether digital stereotomy, urban simulation, or AI-driven environmental optimization—gain their deepest significance when informed by the rich palimpsests of our built environment.

Ultimately, we reaffirm that technological convergence in architecture must remain grounded in humanistic ethics, spatial justice, and cultural identity. Artificial intelligence and digital workflows are not self-serving ends, but powerful extensions of human intellect and design agency. By nurturing a thoughtful, critical, and ethical dialogue between human creativity and non-human intelligence, we invite the architectural community to build a sustainable, inspiring, and equitable built environment for generations to come.

Photography and Architecture_A Man Altered Landscape

SONIA JOJIC
POLIS University
KETI HOXHA
POLIS University
ARJOLA SAVA
POLIS University
KEJSI VESELAGU
POLIS University

Objectives

To explore the transformative potential of photography as a creative tool in architectural design and experimentation. To investigate the role of collage as a method for reimagining architectural forms and structures through photographic deconstruction and recombination. To challenge conventional perspectives on architectural space by using photographic collages to break down traditional boundaries and recontextualize existing forms. To inspire a deeper understanding of architectural innovation through the reinterpretation of familiar architectural elements, fostering new interpretations and design possibilities. To examine the intersection of visual art and architecture, focusing on how photography and collage can contribute to the creative and conceptual development of architectural ideas.

Methodology

The workshop employed an experimental approach to architectural photography, where participants were encouraged to reframe traditional photographic practices through the medium of collage. The methodology followed these steps:

Selection of Architectural Subjects: Participants chose iconic or everyday architectural forms as

subjects for their photographic exploration.

Photography and Deconstruction: Using traditional and digital photographic techniques,

participants captured architectural images, focusing on elements of structure, texture, and form.

These images were then digitally altered or physically cut and assembled, breaking down the

original building forms.

Collage and Recombination: The fragmented photographs were recombined into new compositions, often blending multiple perspectives or abstracting familiar elements to create

surreal and innovative visuals.

Iteration and Refinement: Through multiple iterations of collage and deconstruction, participants explored how these new compositions challenged conventional ideas of space and form.

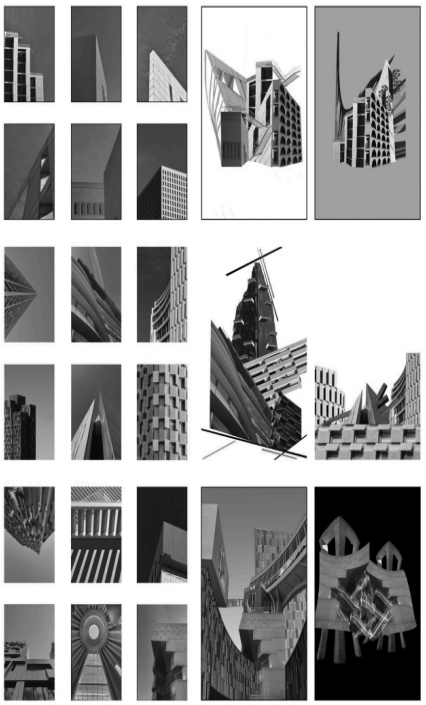
Discussion and Reflection: The workshop concluded with a group discussion where participants reflected on how these creative processes altered their perceptions of architecture and its potential for innovation.

Conclusion

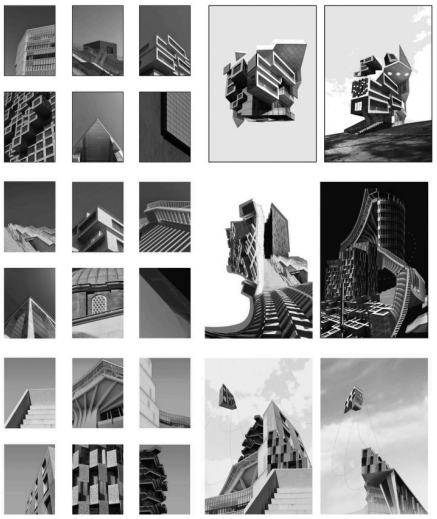
The workshop successfully demonstrated the potential of photography and collage as powerful tools for architectural experimentation. By reinterpreting architectural images through deconstruction and recombination, participants were able to explore new visual narratives and challenge conventional understandings of space. The integration of collage into architectural photography revealed how familiar structures could be reimagined, offering fresh perspectives on form and function.

The process of recontextualizing existing architectural elements emphasized the importance of innovation within the context of the "existing" rather than the creation of entirely new forms. This approach not only highlighted the flexibility and adaptability of architectural design but also showcased the potential for abstraction in rethinking the built environment.

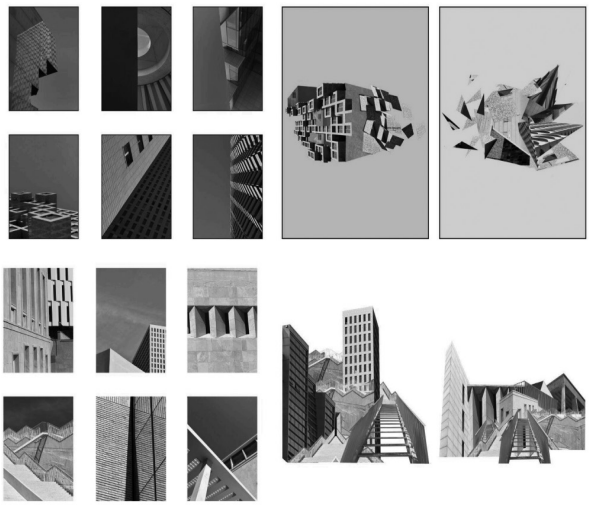
Ultimately, the workshop reaffirmed the idea that architecture and photography share a symbiotic relationship, where the boundaries between the real and the abstract can blur, opening the door to bold, inventive, and imaginative architectural possibilities



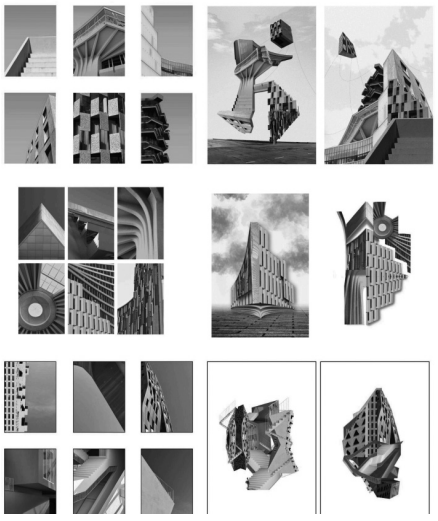
Workshop Process Image



Workshop Process Image



Workshop Process Image



Workshop Process Image

Showroom Concept for Innovative Interior Spaces

KRISTIANA MEÇO
POLIS University
DORINA XHERIMEJA
POLIS University

This workshop presents a concept the new of the showroom created about the appearance space innovative the internal who answer needs in and developmental the consumer contemporary

Showroom is conceived how a environmental the adaptable that integrates technology more the last , material the lasting and elements design flexible about the moved experience immersive and interactive the users . Through application modular and systems intelligent , concept grants constant reconfiguration the realms about the accommodate products , aesthetics and stories the miscellaneous the brand

Objectives

This workshop aims to the provide a sense the deep and practical the development the concepts the advanced for showrooms and space interiors innovative . Participants will have opportunity the explore and develop ideas new about creating spaces that join aesthetics , functionality and technology modern , focusing in trends more the last the design and infrastructure of the interior

Conclusion

Design the give priority sustainability environmental, with focus in energy efficiency and use of materials environmentally friendly. Exhibition, it includes also virtual reality technologies and the added, increasing dimensions physical and digital the experience of the interior. Uniting functionality with innovation aesthetic, this concept aims the provide a platform dynamic about marks about the committed customers in way meaningful and the unforgettable. This seminar concludes by analyzing potential impact the salons such in the the future of spaces the retail sales and design the internal, emphasizing their role in shaping interactions the consumer and driving trends the industry.







Workshop Process Image

Exploring the Historic Architecture of Sacred Spaces. Gathering Constants and Similarities

EMEL PETERCI
POLIS University
FLAVIO CYCI
POLIS University

Objectives

The curation of this course offered continuity not just between historical and current analyses of sacred architecture design, but also between cultural history and architectural design, which are often separated in architecture schools. The workshop highlighted the main contribution of sacred spaces, which are very transformable spaces both within the same function and other functions. Many societies have used significant resources to create sacred structures and sites for worship, prayer, and meditation. The external and internal architectural space (gateway, path, and aisle), architectural archetype (universal, religious myth, geometry), and atmospheric ambiguity (noise, light, monumental approach or humility, feeling of emptiness or profusion) are three markers that frequently influence the decision to determine whether a space is sacred or not. The workshop uses short narratives, articles, books, cross-references, architecture, and artworks to analyze sacred architecture from many cultures, belief systems, and faiths, including churches, mosques, synagogues, and temples.

The conversation in class begins with the students' knowledge of sacred space, the establishment of boundaries, and the recognition that not all spaces where religion is taught may be sacred; so, those markers must be read together to claim that we are dealing with a sacred space. The lecture expands our notion of sacred places beyond real physical construction, approaching the subject from several angles: a pilgrimage as a sacred trip, the mind and heart as the most sacred location, and so on.

The objective of the workshop was to examine around six structures that were built by various architects in the early years, from before the Ottoman rule to the Italian occupation, and were located in Tirana's essential nodes. Two objects from the Muslim faith, two from the Catholic faith, one

from the Orthodox faith, and one from the Bektashi faith were among the objects that were investigated. Kokonozi Mosque, Tabakve Mosque, Saint Procopius Church, Orthodox Church of the Holy Annunciation, Catholic Church "Heart of Christ," and the World Headquarters of the Bektashi in Tirana, Albania were surveyed by 6 groups of students. Each group of students had 5 members, which were sufficient to complete all the requirements of the workshop.

Methodology

The current research examines the unique case study of 6 objects, Kokonozi Mosque, Tabakve Mosque, Catholic Church "Heart of Christ," Saint Procopius Church, Orthodox Church of the Holy Annunciation and The World Headquarters of the Bektashi in Tirana, Albania, studied to learn more about the original structure and later expansions and restorations.

The workshop focused on involving second-year students who had obtained the necessary historical information in the first year, making them more prepared for exploring the selected sacred places.

The students would investigate the markers of the sacred locations in six groups, each consisting of five students. The students also looked at the constraints and conflicts that result from varying interpretations of faith and tradition, as well as the constraints that come from connections with the architectural features of buildings in relation to rituals and heritage. The main goal of this investigation was to evaluate the spaces' existing condition. Because of this and the time limitations, students use a somewhat planned approach, inserting the markers of sacred space in scenarios that have already been covered and using them in their case studies.

The program started with the introduction of the holy space markers, followed by a case study investigation of them. The opportunity to explore the sacred area more closely was made possible through a close-up visit. The marks were highlighted and positioned on the presentation panels as the third stage.

The students were able to collaborate on projects involving various disciplines (history, information from the Internet, historical books, etc.) and sectors (interviews with locals and interest groups) after finishing their representation of the markers of the sacred space. etc.) were crucial to finishing each case study's history and obtaining a comprehensive understanding of them.

Following this phase, the students became even more interested in learning about the object's full life history and investigated all possible previous conversions and transformations. The students were required to submit a brief report in which they detailed their experiences with the markers of the sacred place and all the emotions they had throughout the field trips.

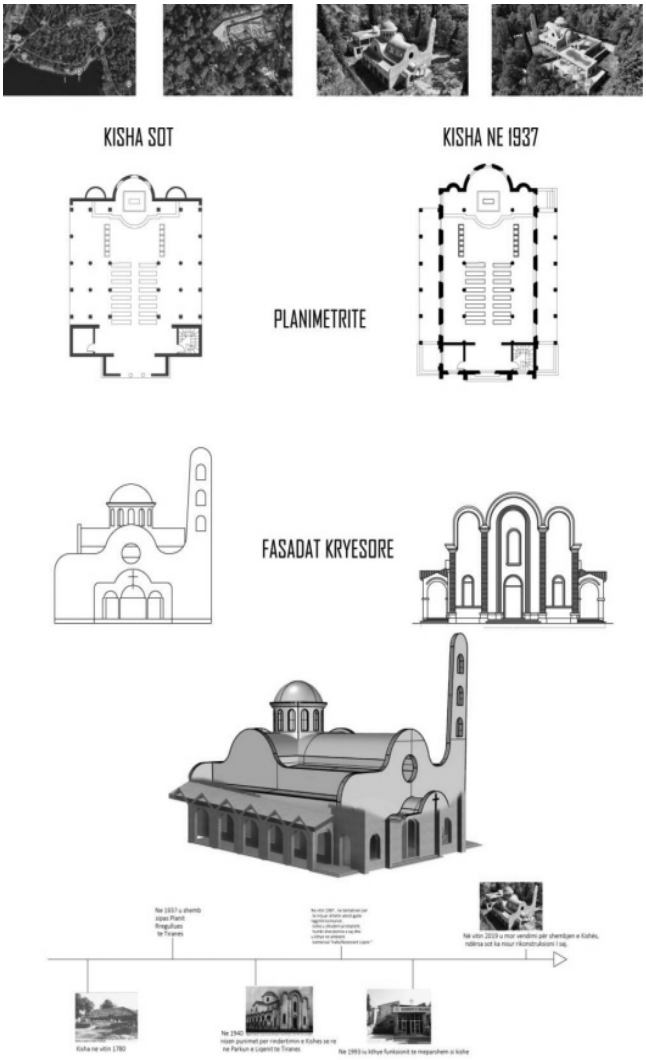
This investigation's main goal was to develop and evaluate sacred spaces, as well as to learn how they were built and what strategies were used to direct the building process

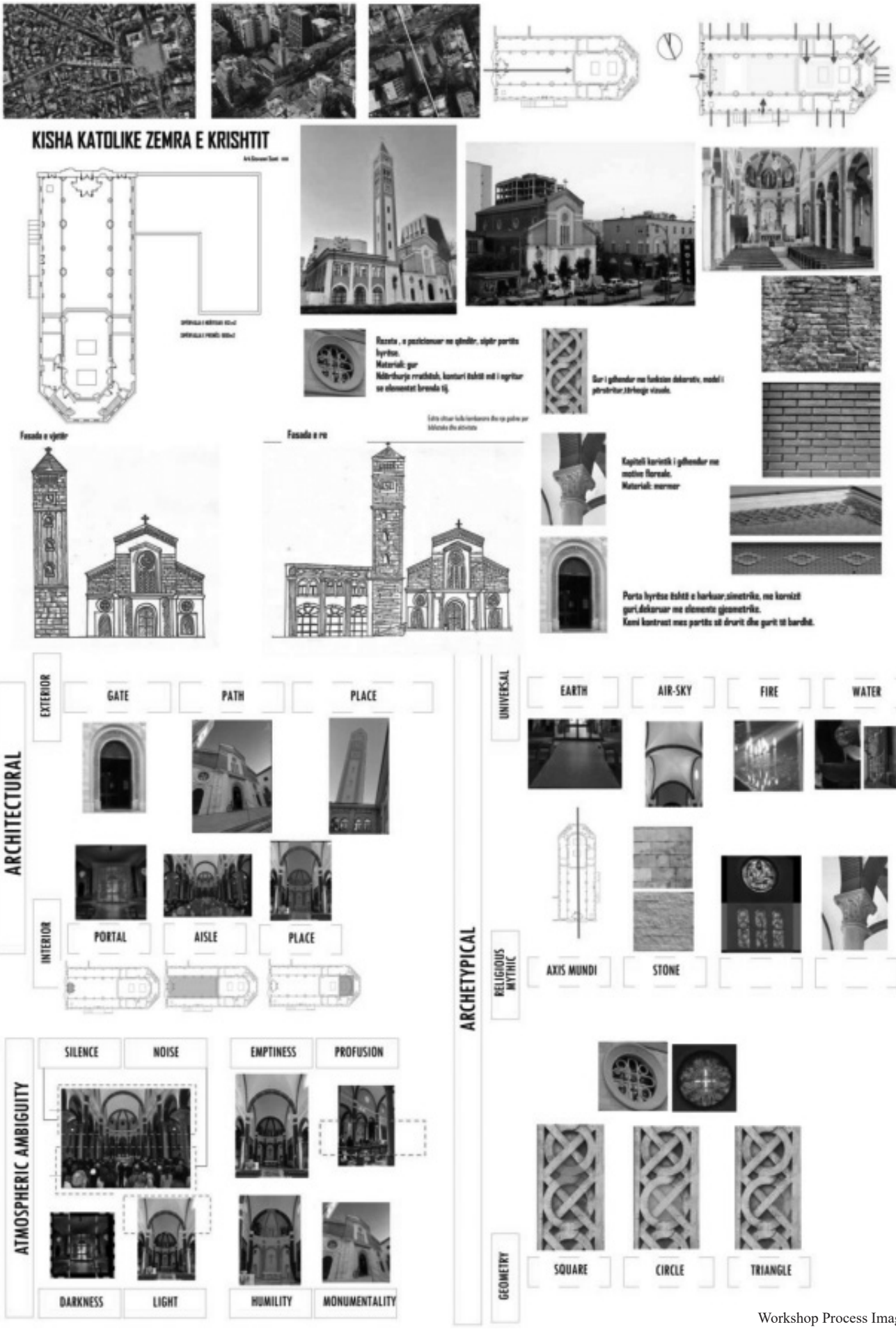
Conclusion

This workshop examined the attributes of many sacred places in Tirana and effectively identified indicators that contribute to the notion of a "sacred space."

The idea that the architecture of these sacred sites can encourage harmony across cultural and religious boundaries is represented by the concept of a universal sacred space that through the evidence of sacred space markers, these sites have the capacity to act as a link of communication and understanding between different religions. They offer a sense of unity and connection between different religions. The idea of a universal sacred space is based on the idea that the architecture of these sacred places can help people of different religions and cultures get along. Sacred space markers show that these places can be used as a way for people of different religions to communicate and understand each other. They offer a sense of unity and connection between different religions.

As religious variety grows, the concept of a global sacred place becomes more significant. By recognizing and utilizing these similarities in architectural practice and design, we may build places that speak to individuals from many cultural and religious backgrounds, therefore encouraging engagement. This notion advances our understanding of sacred space construction while also contributing to the larger objective of making the world a safer place





Workshop Process Image

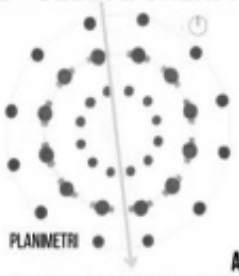
KRYEGJYSHATA BOTERORE BEKTASHIANE - SELIA E SHENJTE







- Perimetri: 1100m
- Siperfacja: 54200m2
- Ndodhet si hapesire e vecuar nga kompleksi ndertimor dhe perfshin nje salle poligonale
- Mejdani ka nje kub qendror dhe 12 me te vogla
- Ornentimi unik i mozaikut me motive yjesh gjeometrike te bera nga mermeri i bardhe, jeshil dhe kafe
- Fasada e mejdanit ka 12 harqe me maje



PLANIMETRI



FASADA

PORTA HYRESE

PLAN



FASADA



- Permasa te njejta
- Mabërili prej druri
- Hyrjet monumentale prej guri
- Hyrja si kasaforté
- Dyert prej druri
- Latersia afersisht 9m
- Sistem hark-order
- Dy dyert qe ndodhen ne dy anet e portes kryesore
- Materiali prej druri

AKSONOMETRIA





ANALIZA E BRENDSHME



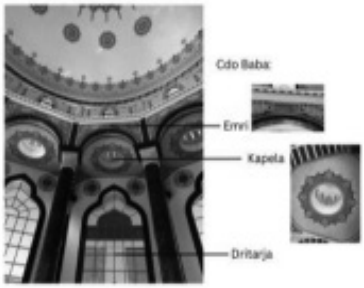
- Lartesia 14 m
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- 12 te tilla gjate gjithe siperfages ne forme rrethi



- 12 dritare brenda selise
- Lartesia 14,5 m
- Gjeresia 5 m
- Dyert : - 4,6 m lartesi - 2 m gjeresi



- Niche ornamentale e bërë nga mermeri
- Muri i gjëlës është i dukshëm dhe kamari është gjysmërreth dhe i konkasuar

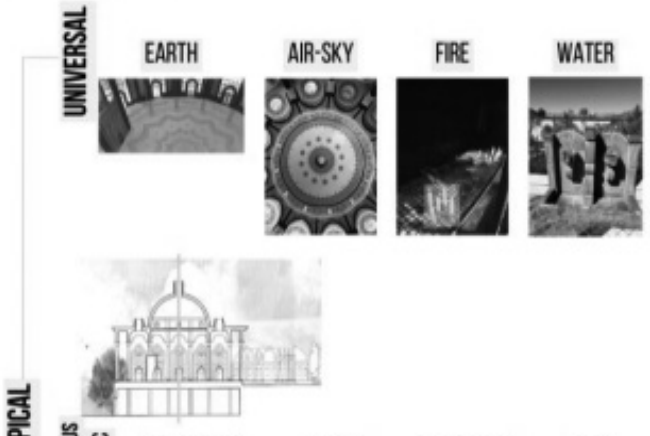


ANALIZA E JASHTME



- Kolionat ne pjesen e jashtme
- Me system hark -order
- Lartesia 18 m







Workshop Process Image

Facade Technology as the Main Cover of the Building

MERITA GURI
POLIS UNIVERSITY
ILDA RUSI
POLIS UNIVERSITY
ALBI ALLIAJ
POLIS UNIVERSITY
ERJON ÇOBANI
POLIS UNIVERSITY
ENVAL XHOXHI
ALUMIL ALBANIA
ENXHI CERPIA
ALUMIL ALBANIA

Objectives

The main objectives of the workshop are to equip students with:

Knowledge of when using the window and glass-façade systems of ALUMIL,

Handling the technical details of these materials,

Knowledge of costs and installation time of these systems.

Methodology

The workshop was comprised in five days, where through the theoretical knowledge presented, factory visit and site visit, the students had the possibility to better assess implementation challenges and policy frameworks that encourage or hinder the adoption of green building practices. By investigating case studies of exemplary green building projects and analyzing the role of regulations, certifications and government incentives in promoting sustainability within the construction industry, students can develop their critical thinking skills for using Alumil's systems in various projects. Through the factory visit and also the site visit, the students were organized in groups and prepared presentations, given as course assignment, for different window and façade systems of ALUMIL, by explaining how they work, in what case are they used, and evidencing their thermal and soundproof characteristics, by evaluating their performance.

Conclusions

Through this workshop, students gained in-depth knowledge regarding the glazing cover of buildings, their importance, and how works the whole industry, behind the curtains, that produces and implements these kind of systems.that I can quote below..



Workshop Process Image



Workshop Process Image

Laboratory of Tirana

FULVIO PAPADHOPULLI
POLIS University
MEGI TAFAJ
POLIS University
JIRI VITEK
Chybik+Kristof Architects & Associates

Objectives

Explore AI-Driven Design: Introduce students to AI tools (Midjourney, Runway) to develop speculative, utopic architectural concepts for Tirana.

Bridge Speculation and Realism: Guide students in transforming visionary ideas into grounded architectural forms through Rhino and Grasshopper.

Enhance Environmental Responsiveness: Instruct students on using Ladybug for climate and sustainability analysis, ensuring designs are both imaginative and environmentally optimized.

Encourage Critical Dialogue: Foster critical thinking on sustainable urban revitalization, challenging students to rethink neglected areas of Tirana.

Professional Presentation Skills: Prepare students for professional critiques by presenting their work to a jury of renowned architects, cultivating confidence and articulation in design discourse.

Methodology

The focus of the workshop was to reinterpret the main objectives

The initial phase focuses on unlocking speculative design potential through Midjourney, an AI-driven platform that uses text prompts to generate high-quality, imaginative visuals. Students are introduced to Midjourney's prompt structure and are encouraged to experiment with various architectural and environmental keywords that evoke utopic possibilities for their chosen sites in Tirana. This phase allows students to ideate without the constraints of traditional form-finding, generating visual concepts that explore unconventional architectural forms, atmospheres, and material expressions. These AI-generated images serve as the visual foundation for each student's project, setting a tone that is both speculative and contextually inspired.

Phase 2: Video Animation and Atmosphere Development in Runway

Building upon the static visuals from Midjourney, students then utilize Runway's video animation capabilities to create short atmospheric narratives that encapsulate the essence of their utopic proposals. By animating AI-generated imagery, students bring their speculative concepts to life, exploring temporal dimensions, movement, and the dynamic interaction between architecture and its surroundings. This phase enhances the conceptual

depth, allowing students to envision how their architectural interventions would transform and activate the selected urban spaces. Runway's intuitive interface facilitates creative experimentation, empowering students to craft compelling visual stories that resonate with viewers on an emotive level.

Phase 3: Transition to Rhino and Digital Massing

After defining their speculative visions, students translate these abstract ideas into tangible architectural forms within the Rhino 3D modeling environment. In this phase, students begin by constructing massing models that capture the essential geometry of their concepts. Rhino's precision tools allow them to refine their forms, transforming AI-generated inspirations into scalable, architecturally coherent models. This step bridges the speculative and the practical, grounding imaginative ideas in the spatial and material realities necessary for further environmental and structural analysis.

Phase 4: Parametric and Environmental Optimization in Grasshopper with Ladybug

With massing models in place, students shift to Grasshopper, Rhino's parametric design plugin, to perform environmental optimizations using Ladybug. This phase introduces a data-driven approach, as students conduct solar, radiation, and wind analyses to enhance the sustainability and performance of their designs. Ladybug's simulations provide real-time feedback on factors such as sun exposure, thermal gain, and shadow impacts, allowing students to refine their geometries for optimal environmental responsiveness. This iterative process emphasizes sustainable design principles, challenging students to adapt their forms to minimize energy consumption and maximize comfort within Tirana's specific climatic conditions.

Phase 5: Visual Refinement through Midjourney and LookX with Reference Imagery

Once the parametric optimizations are complete, students return to Midjourney (or utilize LookX) to further develop their visual language, using reference images that enhance materiality, facade articulation, and overall architectural expression. This phase involves a dialogue between the AI tool and the developed Rhino model, where students test new prompts and refine image outputs to align closely with their optimized geometries. By iterating between Midjourney (or LookX) and their Rhino models, students achieve a refined visual coherence, ensuring that their speculative, utopic aesthetics are faithfully represented within the architectural forms they have designed.

Phase 6: Narrative Building and Presentation Preparation in PowerPoint

The final phase centers on synthesizing the design process into a cohesive narrative for presentation to the jury. Students compile a PowerPoint presentation that traces their journey from AI-generated concepts to optimized architectural forms, integrating visual outputs, environmental analyses, and animation stills to convey their vision clearly and convincingly. Emphasis is placed on crafting a narrative that articulates both the imaginative and pragmatic aspects of their proposals, highlighting sustainability strategies, contextual relevance, and the transformative impact of their designs on Tirana's urban landscape. The PowerPoint presentation serves as a narrative scaffold, guiding the jury through the process and objectives of each project in an organized and professional format.

Conclusion

The Laboratory of Tirana workshop highlighted both the potential and challenges of integrating advanced computational tools and AI in architectural education. While students demonstrated a strong aptitude for creative exploration and AI-driven concept generation, the transition to algorithmic analysis and optimization presented notable learning obstacles. Here are the key conclusions:

Challenges in Algorithmic Analysis and Optimization:

For many students, the algorithmic analysis phase in Grasshopper, particularly using Ladybug and Galapagos, posed a steep learning curve. Ladybug's detailed environmental data visualization tools, while powerful, required a nuanced understanding of parametric relationships and climate responsiveness. Additionally, Galapagos optimization demanded a conceptual shift to iterative, data-driven design thinking, which proved challenging for students accustomed to more intuitive, form-based approaches. Despite these difficulties, students gained valuable insights into sustainable design processes and developed a foundational understanding of environmental responsiveness.

Enhanced Creativity through AI Integration:

The workshop's integration of AI tools, such as Midjourney and Runway, provided a powerful catalyst for creativity. These tools allowed students to explore architectural forms, materials, and atmospheres that pushed beyond conventional design language, opening new aesthetic possibilities. The speculative, visually rich concepts generated through AI acted as springboards for creative thinking, instilling students with a sense of ownership and excitement about their projects. This early-phase creative boost carried through to later stages, helping students to maintain a strong vision as they refined their designs in Rhino and Grasshopper.

Increased Confidence in Presentation:

The combination of AI-generated visuals, video animations, and environmental data allowed students to construct compelling narratives for their projects. Despite initial challenges with algorithmic tools, the visually captivating AI outputs gave students a solid foundation to present confidently before a professional jury. By grounding their utopian concepts in rigorous environmental analysis, students were able to demonstrate not only aesthetic appeal but also sustainability-driven rationales, which resonated with the jury. The ability to blend imaginative visuals with analytical data helped students present with clarity and conviction, enhancing the professional quality of their proposals.

Synthesis of Speculative and Pragmatic Design:

The workshop successfully encouraged students to bridge speculative, AI-driven creativity with practical architectural considerations. Although the shift from utopian concepts to environmental optimization was challenging, it allowed

students to balance imaginative freedom with analytical rigor. This synthesis of creativity and data-driven design enabled them to produce proposals that were both visionary and grounded in realistic urban and environmental contexts.

In summary, while students faced difficulties in mastering algorithmic tools and optimization methods, the infusion of AI-driven creativity and the structured methodology of the workshop ultimately empowered them to present confidently. This experience underscored the value of combining speculative AI exploration with computational analysis, equipping students with a toolkit for navigating the complex demands of contemporary architectural design.



Workshop Process Image



Workshop Process Image



Workshop Process Image



Workshop Process Image

Rethinking Vernacular Architecture in a Contemporary Context

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Objectives

The primary goal of the workshop is to propose a design process based on the analysis of elements and principles of vernacular architecture, with the aim of reinterpreting the derived themes in a contemporary context.The workshop experiments on a design methodology that can serve as the foundation for the architectural design process. It aims to emphasize the need to create a strong and long-lasting dialogue between the new and the predecessor existences.

The objectives are listed below:

Noting the expression of individuality in the vernacular architecture in Albania;

Noting the expression of individuality in modern architecture.

Familiarity with cases that use traditional architectural principles;

Analyzing the architectural form of vernacular houses;

Breaking down the architectural compositional elements;

Applying the principles derived from the analysis into a design exercise;

Methodology

From a methodological point of view, the workshop followed a two-step approach – analysis and project design. The exercises encouraged students to adopt a design methodology inspired from the vernacular architecture.

The workshop was organized over 5 days with brief lectures and seminar sessions including a continuous hands-on laboratory. Students were guided through two complementary tasks, each methodologically distinct yet interconnected in terms of content and outcomes.

The first task centered on the analysis of selected historic buildings that were selected to represent each of the different typologies of vernacular houses present in Albanian speaking territories (see fig.1). Students were required to analyze selected case study buildings of vernacular architecture using different study layers such as Volumetry, Materials, Solid/Void and Served/Servant spaces.

Conclusions

The workshop aimed to experiment on a design methodology starting from the analysis of the vernacular architecture, that can serve as a starting point for the architectural design process. Some key conclusions can be listed as follows:

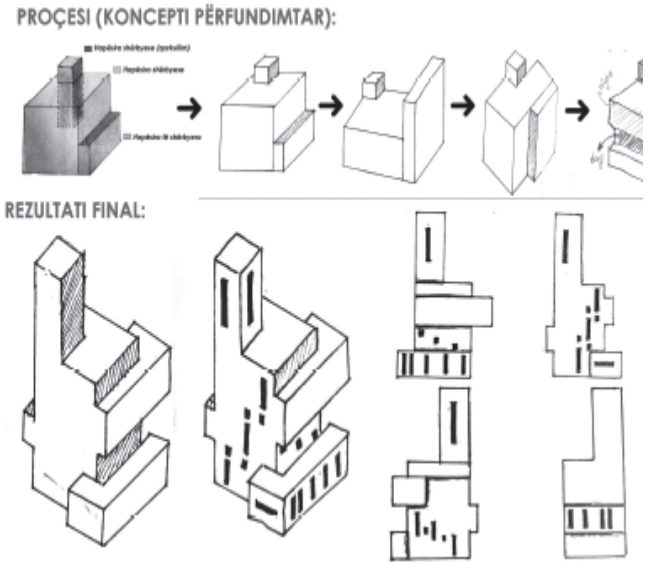
Methodological Approach

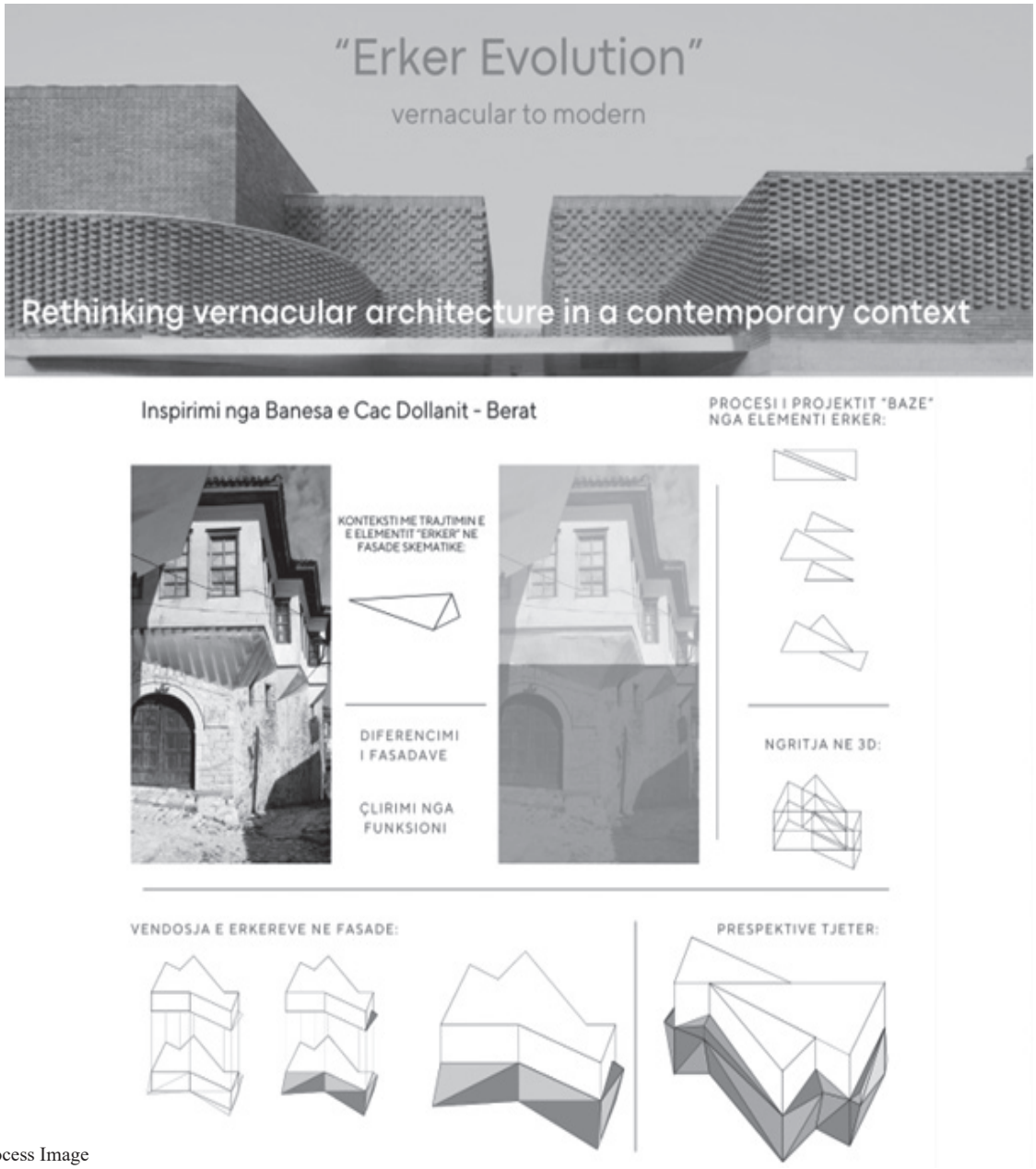
The two step methodological approach - analysis followed by design - demonstrated its efficacy in guiding students through the learning process. Task 1 focused on a formal analysis of selected historic buildings, enabling students to

critically examine and understand the compositional elements of vernacular architecture. Task 2 encouraged students to apply the insights gained from this analysis to a new design project, thereby bridging the gap between traditional architectural principles and contemporary design practices.

Principles of Vernacular Architecture informing Contemporary design

The principles of vernacular architecture provided a valuable basis for contemporary design, reinforcing the importance of a thoughtful, context-driven design process. Through the proposed sequential process of analysis followed by design, the students were able to enhance their skills in conducting formal analysis. This approach allowed them to gain a deeper understanding of architectural composition, which they then applied in the development of contemporary designs. The process encouraged critical thinking and hands-on experimentation, fostering a more comprehensive grasp of how vernacular elements can be adapted and reinterpreted in modern contexts.





Workshop Process Image

Machine Learning for Energy Efficiency Prediction

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Objectives

Develop Practical Machine Learning Skills: Equip participants with hands-on experience in developing machine learning models, from data preprocessing through to model evaluation, specifically tailored for energy efficiency in buildings.

Bridge Disciplines: Foster interdisciplinary collaboration by combining architectural principles with computational techniques, emphasizing the importance of data science in sustainable architecture.

Promote Sustainable Design: Encourage students to understand and address the environmental impacts of building design by providing them with tools to analyze and predict energy performance.

Empower Decision-Making: Enable participants to create predictive models that can assist in design optimization, retrofitting decisions, and environmental policy-making for sustainable urban planning.

Address Real-World Challenges: Provide a platform for students to tackle real-world issues like climate change by developing solutions that contribute to reducing the carbon footprint of buildings.

Methodology

Data Collection and Preparation: Use publicly available datasets on building energy performance, with guidance on cleaning, preprocessing, and understanding the significance of architectural attributes in energy consumption.

Feature Engineering and Selection: Teach participants how to identify and engineer relevant features (e.g., building materials, window-to-wall ratio, insulation properties) that are critical for predicting energy efficiency.

Model Selection and Training: Introduce participants to various machine learning models, such as linear regression, decision trees, and gradient boosting, explaining the strengths and limitations of each for energy performance prediction.

•Model Evaluation and Validation: Guide students on model evaluation techniques using metrics like Mean Absolute Error (MAE), Root Mean Squared Error (RMSE), and R-squared, ensuring they can assess model accuracy and reliability effectively.

Interdisciplinary Application: Conduct collaborative sessions where architecture students and computer science students work together to interpret model predictions, discuss sustainable design implications, and explore architectural strategies for

energy efficiency.

Real-World Application and Case Studies: Provide case studies on energy-efficient buildings and retrofitting strategies to contextualize model predictions, emphasizing the impact of design choices on sustainability outcomes.

Final Project: Participants will apply their knowledge to a capstone project, creating a predictive model for a hypothetical or real building. They will analyze results, propose energy-saving design adjustments, and present their findings.

Conclusions

The workshop successfully integrates machine learning with sustainable architecture, highlighting the potential of data-driven insights in transforming the building industry. Participants gain a comprehensive understanding of how machine learning can be applied to real-world environmental challenges, specifically targeting energy efficiency and carbon footprint reduction in urban development.

Through this interdisciplinary approach, students leave equipped with both technical and analytical skills necessary to tackle sustainability issues within the architectural field. This foundation empowers participants to make data-informed decisions, helping to shape a future where urban spaces are both innovative and environmentally responsible.

Overall, this workshop not only enhances students' technical competencies but also broadens their perspective on the vital role of technology in sustainable design. The knowledge and experience gained can serve as a stepping stone for further exploration into green building technologies, fostering a new generation of professionals dedicated to sustainable urban planning and design.



Workshop Process Image



Workshop Process Image

Ancient Sculpture Art through the use of Clay.

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DORINA XHERIMEJA
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Objectives

This workshop invites participants to explore the art of ancient sculpture through the medium of clay, focusing on creating volumetric forms, silhouettes, and textures inspired by the "Cactus Flower." The cactus, a symbol of resilience and survival, serves as a powerful motif in this creative journey. Its blooming is seen as an act of beauty and renewal, emerging from harsh environments, while in various indigenous traditions, it holds deeper meanings related to protection and health rejuvenation. By transforming clay into sculptures that capture the essence of the cactus and its flower, participants will explore the intersection of creativity, nature, and ancient spiritual symbolism.

Discover the potential of clay as a material for creating volumetric sculptures, focusing on shapes, textures, and forms inspired by nature.

Explore the symbolism of the cactus flower, understanding its cultural significance in relation to resilience, healing, and beauty.

Enhance sculptural skills, focusing on intermediate and advanced techniques in modeling and construction.

Connect with nature through art, incorporating environmental materials into the creative process.

Foster creativity and relaxation by offering clay modeling as a form of recreational and therapeutic artistic practice.

Methodology

Introduction to Cactus Symbolism: A brief overview of the cactus flower's cultural and spiritual meanings across different traditions.

Material Exploration: Participants will be guided in experimenting with clay, learning how to mold volumetric forms, and create textures that mirror natural elements.

Hands-on Practice: Through practical exercises, participants will learn various sculpting techniques to build, refine, and decorate their clay sculptures.

Creative Development: Participants will work on transforming their personal interpretations of the catus and its flower into 3D forms, with the option to incorporate found materials from their surroundings.

Feedback and Review: Group discussions and individual critiques will allow participants to refine their techniques and share insights.

Concluding Reflection: A final session to discuss the artistic journey, the process of creation, and the therapeutic benefits of sculpting with clay.

Conclusion

Enhanced Technical Skills: Participants will leave the workshop with a deeper understanding of sculptural techniques,

particularly in clay modeling, and the ability to create complex, volumetric forms.

Creative Growth: By engaging with the symbolism of the cactus flower and exploring the materials around them, participants will broaden their creative horizons and gain confidence in their artistic expression.

Therapeutic Value: The workshop will emphasize the calming and meditative qualities of working with clay, promoting well-being and offering participants a new outlet for relaxation and creativity.

Cultural and Spiritual Insight: The exploration of the cactus flower's symbolism provides participants with a deeper appreciation of nature and the healing power embedded in ancient cultural practices.









Workshop Process Image



Workshop Process Image

Flows Study

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JUNYUAN CHEN
Royal Academy of Art, The Hague

Flows Study focuses on the systemic understanding of the working of flows in our environment and aims at giving a positive contribution to design through them. Positive in relation to its users' needs, its clients' interests, in their environmental impact, and ultimately in the quality of the resulting design.

Systemic design is a central part of this workshop and it is achieved through field research and systems analysis, which then eventually inform subsequent spatial designs. The two university buildings are used as the simulated context in which students conduct their field research and they comprise the physical architectural basis of the flows' investigation.

Through several iterations of diagrammatic mapping of the processes, systems, and subsystemts within the university buildings, students follow the transformational path and the gradual change and waste production of several flows that enter this simulated context.

Objectives

The workshop objective is to teach architecture students systemic design focused on sustainability. Added value: It exposes students to sustainable architectural practices and encourages interdisciplinary collaboration.

Methodology

The teaching programme will consist of a 4-day workshop titled "Flows Study." The workshop will introduce students to systemic design in architecture, focusing on sustainability and resource flows (e.g., food, water, energy, and building materials). Students will engage in field research, group analysis, and presentations. Each group will focus on a different aspect of sustainability, mapping and analyzing real-world systems to create proposals for improving sustainability in architecture.

Conclusion

The study included the development of critical thinking, systems analysis, and sustainable design skills among students. Participants gained hands-on experience in systemic design, which enhanced their ability to apply sustainability principles to real-world challenges. For the teaching staff, the mobility provided an opportunity for professional development through the exchange of innovative teaching practices and interdisciplinary collaboration. This experience contributed to the creation of a robust international academic network, strengthened cooperation between institutions, and promoted the integration of sustainable practices into architecture curricula.





Workshop Process Image

Prototyping the Sustainability of Urban Form

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Prototype

-a first or preliminary version of a device or vehicle from which other forms are developed.

-the first, original, or typical form of something; an archetype.

This workshop focuses on the topic of the sustainability of urban form, in the context of specific urban projects in Tirana, and it will be based on the results of two previous workshops. By 'sustainability' here we mean the disposition of the urban form to persist at different scales of the city in history and play a formative role in the city's future development at different scales and performative levels, such as symbolically, morphologically, and functionally, among others. This topic can be encapsulated under two research problems:

Objectives

How to read an existing city (or parts of it) in terms of the sustainability of its form at different scales

How to design prototypes a future city (or parts of it) according to the principles of the sustainability of urban form.

How do we measure, evaluate, or demonstrate such predisposition of the form the city?

How much has an initial situation in a given site remained intact in a particular historical interval, and which is the form of this configuration?

What is the predisposition of such landscapes toward the future, based on the formal intelligence addressed through the first questions?

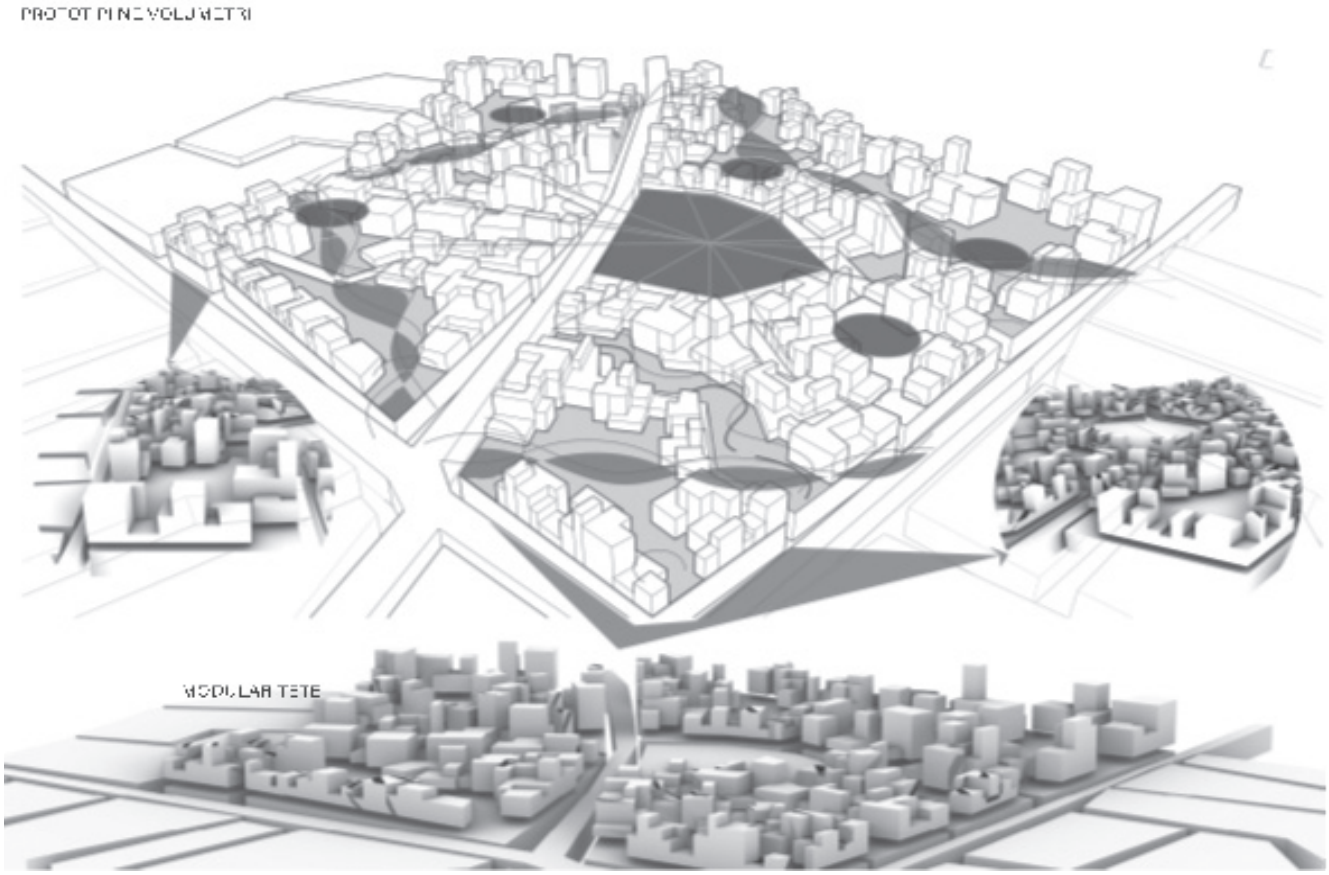
Methodology

This research project is motivated by the urban transformations of cities, like Tirana. This transformation is not only an expansion of the city beyond its former boundaries but also a destruction of the existing historic city from within those boundaries and its substitution with new high-rises. It is observed, however, that some urban areas have been more sustainable and resistant to building speculation and urban degradation than others. The fundamental hypothesis of this proposal is that such sustainability or its lack thereof is an inherent predisposition of the form of the city. It is also our hypothesis that more formal layering and adjacency reciprocates a more sustainable form. In this project we are addressing specific urban sites from Tirana, and we are addressing problems or questions regarding the sustainability of their existing formal predisposition and future potential for transformation at different scales and contexts:

Conclusion

The students expanded their skills in reading the city, conceptually in history produced drawings and models of these prototypes.





Workshop Process Image

New Trends in Data Modeling Systems

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MELISA TUFA
POLIS University

The workshop, titled "New Trends in Data Modeling Systems" focuses on equipping students with skills in predictive data modeling through the practical use of Microsoft Power BI. While Power BI is widely recognized for its visualization capabilities, it also provides robust tools for data transformation, relationship modeling, and basic predictive analytics, making it a versatile platform for exploring modern data modeling trends. In the workshop, students engage in exercises that involve importing, cleaning, and structuring data to align with predictive modeling principles. Through Power BI's relational data modeling features, they learn how to build structured datasets and establish connections that mirror real-world data relationships, a foundational skill in predictive systems.

Objectives

The objectives of this Power BI workshop were designed to equip students with practical skills in data analysis, visualization, and decision-making. Key objectives included:

Data Collection and Preparation – Teach students how to select, import, and clean datasets to ensure data accuracy and usability, preparing data for effective analysis.

Understanding Data Modeling – Enable students to establish and manage relationships between data tables, reinforcing the importance of structured data organization and relational integrity.

Mastering Data Visualization – Guide students in creating various Power BI visualizations, such as bar charts, line graphs, maps, and tables, to represent data insights clearly and effectively.

Developing Interactive Dashboards – Instruct students on building comprehensive dashboards that present data insights in an intuitive and interactive way, fostering user engagement and accessibility.

Building Analytical and Interpretive Skills – Encourage students to analyze their visualizations to uncover patterns, trends, and insights that inform decision-making and strengthen critical thinking.

Application of Findings in Real-World Contexts – Help students connect their analyses to real-world scenarios, reinforcing the relevance and impact of data-driven insights on strategic decisions.

Methodology

This Power BI workshop followed a structured methodology that combined hands-on practice, guided instruction, and applied learning to ensure students gained a well-rounded understanding of data analysis and visualization:

Lecture and Demonstration – The workshop began with an introductory lecture on Power BI fundamentals, covering data import, transformation, visualization, and reporting tools. Live demonstrations illustrated how to use each feature in Power BI.

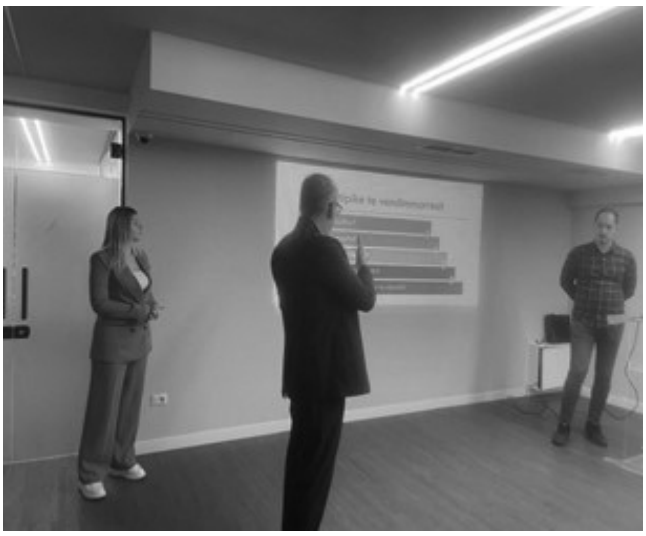
Hands-On Data Import and Preparation – Students were given sample datasets or provided the option to select their own data. They imported the data into Power BI and learned data cleaning techniques, including transforming and formatting data to enhance quality.

Step-by-Step Data Modeling – With guidance, students created relationships between tables to establish a logical data model. This step emphasized relational database principles, enabling them to structure their datasets for more effective analysis.

Guided Visualization Exercises – Students explored different chart and graph types in Power BI, creating visualizations to represent various data points. Exercises included building bar charts, line graphs, pie charts, and maps, with a focus on choosing the right visualization for different data types.

Conclusion

Through this Power BI workshop, students developed a strong foundational understanding of data processing, visualization, and analytical interpretation. The workshop emphasized the following key conclusions: Enhanced Data Literacy – Students gained practical experience in selecting, importing, and cleaning datasets, which improved their ability to assess data quality and relevance. They learned how to transform raw data into meaningful insights.Data Modeling Skills – By creating relationships between datasets, students understood the importance of data structure and relational mapping, enabling more accurate and comprehensive analysis. Visualization Techniques – Using various Power BI visualizations, students practiced representing data insights effectively through bar charts, line graphs, tables, and maps, gaining an understanding of which visual formats best convey different types of information. Interactive Reporting Proficiency – Students learned to compile their visualizations into organized dashboards with interactive elements, enhancing the usability and functionality of reports for end-users. Analytical Interpretation – The workshop allowed students to draw conclusions from their analyses, identifying patterns, trends, and insights that support informed decision-making. This fostered critical thinking and strengthened their data interpretation skills. Overall, this workshop not only equipped students with valuable technical skills in Power BI but also emphasized the importance of a structured, analytical approach to data-driven decision-making.







Workshop Process Image

Mural: The Contestation of Urban Space

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DOI 10.37199/F40002968

Introduction

Contemporary cities increasingly function as visual landscapes in which architecture, media, and public art continuously interact in shaping collective perception. Many urban environments display progressively homogeneous and difficult-to-distinguish characteristics as a consequence of globalization processes and mass culture (Harvey, 2012). Within this context, muralism and street art have emerged as significant forms of urban expression capable of redefining the relationship between citizens and public space. Beyond their decorative dimension, or their use for concealment and the ideological education of the masses, as was often the case in totalitarian regimes, murals function as visual narratives that materialize social tensions, historical memory, political commentary, and collective aspirations (Miles, 1997).

These forms of expression employ the wall as a public surface through which visibility is granted to individual and collective thought. The wall itself functions as a separating and delimiting element of space, defining the boundary between the interior and exterior, and the private and public realms. In this sense, it becomes a form of "urban skin" mediating the relationship between one, architecture, and collectivity. Reconnecting with Lefebvre's thoughts, we can argue that the wall, as a surface exposed to the public gaze, cannot remain neutral; rather, it becomes a symbolic territory upon which the narratives, conflicts, and memories of the city are projected (Lefebre, 1991).

The relationship between the wall, visual representation, memory, and collective consciousness has historically shaped the development of urban cultures and public communication. From the prehistoric drawings of the Lascaux caves in southwestern France to contemporary street art and urban graffiti, muralism may be understood as a recurring urban practice through which familiar visual gestures are reinterpreted within changing architectural and social contexts. Within this framework, mural painting constitutes a particularly significant example, since the act of leaving a mark upon the wall represents one of humanity's earliest and most recurrent artistic gestures, a gesture that simultaneously articulated an awareness of the self within space (Wacławek, 2011)

This paper approaches muralism as both an architectural and cultural phenomenon situated between decoration and artistic gesture. Focusing particularly on the urban context of Tirana, the study examines the ways in which murals contribute to the production of urban identity in cities shaped by transition, informality, and accelerated transformation. At the same time, the article analyzes how public art mediates the relationship between architecture and everyday life, transforming walls into platforms for dialogue and participation.

Only the use of murals beyond purely decorative purposes possesses the potential to transform the wall into a non-static public space, one that becomes contested by viewers and inhabitants alike. Within this framework, murals function as layered urban palimpsests that reveal the temporal tension between permanence and ephemerality, institutional space and public appropriation, collective identity and individual expression (Lefebvre, 1991).

The article employs a theoretical and interpretative approach that draws inspiration from urban studies, architectural theory, and analyses of visual perception. Historical references to mural traditions are combined with reflections on contemporary street art and the urban transformations of Tirana. From this perspective, muralism is conceived not simply as artistic representation, but as an active spatial process, intertwined with the social production of the city.

From Cave Paintings to Urban Walls

Since antiquity, humanity has sought to express itself and leave traces of its creativity. The origins of mural painting may be traced back to prehistoric cave paintings, where wall imagery reflected human experiences and perceptions of reality. Significant testimonies of this awareness are represented by the parietal paintings created during the Late Paleolithic period in the caves of Altamira and Lascaux. These representations demonstrate the human capacity to observe the surrounding world, to become conscious of it through visual perception, and to translate such experience into images intended to document and communicate one's relationship with reality. Understood in this way, mural painting materializes not merely as an aesthetic act but as an experience aimed at leaving traces and constructing collective memory An important factor already evident in these early paintings is spatial perception, which is connected to the individual's awareness of their own existence as a subject observing the world beyond the self. This perception demonstrates the capacity of human beings to understand themselves as bodies situated within space and in relation to the external environment. In response to this need to represent space, mural painting gradually developed the use of perspective as a means of creating spatial depth and the illusion of three-dimensionality. According to art historians, Greek painters of the fifth century BCE are considered among the first to employ linear perspective in theatrical scenography, a technique they referred to as "skenographia" (Kleiner, 2009). The use of perspective later appeared in more articulated forms within Roman art. One of the most renowned examples from antiquity is Room B of the villa of Publius Fannius Synistor in Boscoreale, near the ancient city of Pompeii. Decorated around 50–40 BCE, this space presents a sophisticated use of architectural perspective intended to create the illusion of spatial expansion beyond the actual walls of the room (Bergmann, 2010). Nevertheless, mural painting, frescoes, graffiti, and acts of inscription upon walls were already widespread and highly familiar practices within the Roman Empire, where the coloring of sculptures in temples and the writing upon walls embodied a social need for expression within shared spaces. In the Boscoreale villa, as in many Roman villas of the pars urbana (as well as in spaces such as the Lararium and the Vilicus) (Hodges, 2004), mural painting served to narrate ancestral histories, depict owned lands, represent scenes associated with fertility, mythology, and education, among other themes. At the same time, graffiti on the walls of the Empire functioned as a means of protest and public expression. These markings represented more than decorative acts; they operated as mechanisms of memory and communication connecting individual existence with collective identity. Throughout history, mural representation evolved alongside political and architectural transformations. Ancient civilizations integrated murals into temples, palaces, and public buildings as instruments of ideological and religious authority. During the Paleochristian and Byzantine periods, mural painting privileged predominantly religious themes, while the human figure gradually lost its physical characteristics and became simplified into more symbolic forms. Similarly, in Islamic art, mural representation was reduced primarily to decorative and floral motifs. It was during the Italian Renaissance that the fresco technique established a close relationship between architecture and visual narrative, intensifying the spatial experience of interior environments through illusion and symbolism. Following the trompe-l'œil phase, characterized by illusionistic backgrounds and columns between the seventeenth and nineteenth centuries, mural painting regained significance at the beginning of the twentieth century, no longer centered on religious themes but increasingly oriented toward social content. Muralism acquired a new political dimension through El Muralismo, the Mexican mural movement led by Los Tres Grandes: Diego Rivera, David Alfaro Siqueiros, and José Clemente Orozco. Following the Mexican Revolution, murals were employed as instruments of public education and social transformation, relocating art from elite institutions into urban spaces accessible to the broader public. According to (Cockcroft, 1998)

Mexican muralism established a model through which public art could simultaneously

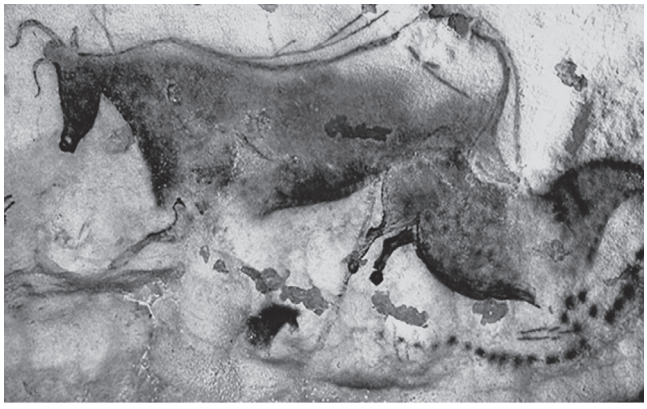


Figure 1 Red Cow & First Chinese Horse, Lascaux Cave. Retrieved from Bradshaw foundation,



Figure 2 Fresko, Dhoma H e Viles se P. Fannius Synistor, in Boscoreale. Retrieved from the Met Museum.

function as cultural memory, political critique, and collective pedagogy.

Subsequently, the Mexican example was adopted in the United States, where muralism developed into an aesthetic practice closely connected to public space, the social dimension of art, and urban identity. Unlike in Europe, muralism in the United States assumed the character of an intervention situated between socio-cultural activism and public art.

A similar development emerged in Eastern countries following the October Revolution in Russia. Initially, murals, posters, and artistic production in general were dedicated to revolutionary ideals and collective struggle, while later they became instruments of imposed art intended to educate the masses ideologically. The wall was selected precisely because its visibility to passersby was unavoidable.

The emergence of graffiti and street art at the end of the twentieth century further transformed mural practices by challenging institutional concepts of authorship and public space. Unlike monumental murals commissioned by institutions, graffiti often occupied neglected urban surfaces and peripheral, unauthorized areas, affirming visibility within environments characterized by inequality and exclusion (Wacławek, 2011).

Contemporary street art continues this tradition through interventions that combine political commentary, graphic experimentation, and architectural engagement. Artists such as Banksy, Shepard Fairey, and JR use urban surfaces to address themes such as surveillance, migration, consumerism, and social justice. Their works demonstrate that murals function not only as visual objects, but also as urban events capable of transforming public perception (Miles, 1997).

Murals and the Production of Urban Identity

Public art plays a significant role in the construction of urban identity because it mediates the relationship between space, memory, and social experience. Murals possess the capacity to transform anonymous architectural surfaces into collective points of reference. Through their scale, visibility, and accessibility, they become integrated into everyday urban life, gradually constituting an essential component of the spatial context of public space.

According to Lefebvre (1991), urban space is not a neutral physical structure but rather a social product constructed through political, economic, and cultural relations. Within this perspective, murals may be understood as practices that intervene directly in the symbolic production of the city. Similarly, Lynch (Lynch, 1960) argues that urban identity is formed through visual elements that generate orientation and collective memory within the experience of the city.

In Tirana's post-socialist context, visual culture assumes particular importance due to the rapid urban transformations that followed the 1990s. The transition from a centralized system toward market-oriented urbanization produced fragmented spatial conditions characterized by informality, intensive construction, and continuously shifting urban identities. Within this reality, the character of interventions in public space carried out on walls remains ambiguous and insufficiently examined. Nevertheless, not every mural intervention succeeds in establishing meaningful relationships with the urban context or collective memory. Many remain at the level of superficial aestheticization and decorative embellishment of the city.

As mentioned previously, mural interventions and street art



Figure 3 Diego Rivera, Dream of a Sunday Afternoon in the Alameda Park, 1947. Fresco, 51 x 15 feet. Hotel del Prado, Mexico City. Photograph by bridgemanimages.com.

practices have assumed different forms, ranging from the institutional aestheticization of urban facades to critical and spontaneous interventions by artists and independent collectives. The works of the collective Çeta, through interventions such as Vojokushi, Tone, and Sulkuqe mbi Mur, as well as the use of the facade as a narrative surface in contemporary projects, demonstrate that the wall continues to function as a terrain of negotiation between institutional control, collective memory, and the public appropriation of space.

Nevertheless, even today, numerous mural interventions continue to be categorized indiscriminately as murals, often without contextual distinction or clear hierarchy, and are therefore reduced within public perception to mere "decorations." At the same time, it cannot be denied that murals in Tirana, excluding the political slogans of the communist period, have generated debate and controversy since the interventions undertaken during the early editions of the Tirana Biennale in the early 2000s. According to Liam Gillick, these interventions aimed to transform the gray surface of the city and diminish the traces of the former communist identity through the use of color, thereby reshaping the perception of public space and producing a new visual identity (Sala, 2003). Several of these interventions on the facades of Tirana's apartment buildings were undertaken by artists such as Liam Gillick, Olafur Eliasson, Carsten Höller, Dominique Gonzalez-Foerster, and Rirkrit Tiravanija, among others. Their objective was to communicate with the broader public by employing facades as large-scale media while simultaneously altering the perception of public space. Such interventions generally did not derive directly from the immediate social realities of the country, but rather adopted a more global approach, although interventions on the facades of Tirana were also carried out by Albanian artists such as Helidon Gjergji and Anri Sala.

Although these murals may initially appear as purely decorative forms, they in fact function by interacting with the viewer and transforming them into an active participant within public space itself. In the case of the work located near the Zogu i Zi area, "These Are Things We Are Fighting For" by Rirkrit Tiravanija places the viewer before an affirmation and responsibility that compels participation. Similarly, the intervention on the facade of the formerly red apartment building marked with white squares by Anri Sala constitutes a clear reference to visual pollution and the ever-growing necessity of air-conditioning units on the facades of the Albanian capital. In this case, the facade no longer functions as a neutral architectural support, but rather as a surface materializing the city's economic, aesthetic, and social transition.

More direct approaches emerging not from top-down institutional structures but rather from the opposite direction can be identified in the guerrilla actions of the collective Çeta and the artist Diversanti. Their interventions do not seek permission from state institutions, nor are they officially approved or subsidized. Instead, through graffiti, stencils, and substantial doses of irony, they appropriate public space and transform the wall into a platform for dialogue.

One such intervention on the walls of Tirana consisted of an altered stencil version of Kolë Idromeno's painting Motra Tone. Rather than holding her veil with her hand, as in the original image symbolizing the restrained emancipation of late-nineteenth-century Albanian conservative society, the figure is depicted holding a headset and microphone, accompanied by the inscription: "Pronto, sono Tone." The work acquires meaning precisely through the debate surrounding the call-center economy and the social transformations of post-socialist Albania.

In different parts of the world, street art, murals, and graffiti have contributed significantly to the formation of urban imagery, from the painted subway trains of New York City to the Berlin Wall and numerous other cases. Similarly, in Tirana, artistic interventions in public space have contributed to the city's aesthetic redefinition while also generating debates about authenticity, memory, and urban spectacle. In this way, murals become part of broader negotiations concerning the right to shape the visual identity of the city (2012).



Figure 4Sala's intervention on Tirana's facade. Photo, courtesy of the author. 2026.



Figure 5 Slogan in Tirana facade "These are the things we are fighting for.", Rikrit Tiravanija, | retrieved by



Figure 6 Painted facades by the municipality of Tirana in the area of the former Shqiperia e Re film studio. photo courtesy of the author. 2026.

The Wall as a Territory of Negotiation

In the contemporary neoliberal city, murals are frequently absorbed into the logic of urban spectacle and the economy of the image. Within this process, public art risks being reduced to an aesthetic instrument of urban "beautification," thereby losing its critical and conflictual potential (Zukin, 1996). For this reason, the distinction between the mural as decoration and the mural as spatial practice remains essential in the interpretation of contemporary urban interventions. In the first case, the mural merely outlines and embellishes urban space as ornamentation, whereas in the second, it transforms the wall into public space through processes of appropriation and contestation, as described by Lefebvre in his reflections on the production of public space.

The works discussed in the previous sections, particularly those realized in Tirana, demonstrate how murals and facade interventions have assumed different forms, oscillating between aesthetic institutionalization and the appropriation of public space. Some of the interventions produced during the Tirana Biennale and the urban projects of the early 2000s, such as those by Rirkrit Tiravanija and Liam Gillick, approached the facade as a medium of public communication and an instrument for transforming the perception of the city. In these cases, the wall no longer functions solely as a decorative surface, but rather as an element activating the relationship between the viewer and urban space, a relationship in which the facade, as the carrier of the artwork, assumes the role of activator, particularly in Tiravanija's inscription These Are Things We Are Fighting For. The viewer is directly transformed into a reader and active participant, positioned before a statement that simultaneously operates as a form of questioning and testimony. The public is invited to read and, through reading, to provide affirmation.

A similar mechanism operated in the inscriptions and graffiti found on the walls of Roman cities in antiquity, acts often associated with dissent and transgression, which nevertheless affirmed collective mentalities and social positions. On another level of communication emerges writing itself, materialized in the form of graffiti or mural text. Michel Foucault addresses a comparable issue in his reflections on the relationship between text and image in painting, particularly in his discussion of René Magritte's work La Trahison des Images (Foucault, 1988). Foucault argues that the written caption destabilizes the presumed equivalence between affirmation and resemblance, insisting that the painted pipe is merely the representation of an object and not the object itself.

This affirmation by Magritte resonates with the practice of On Kawara in his «Date Painting» (Poli, 2006), where writing alone reaffirms the existence of the artist through the act of inscription. The appropriation of space is equally evident in the experiments of hip-hop culture in the United States during the late 1960s, particularly in the work of figures such as Darryl McCray. Together with his peers, McCray began writing his pseudonym across the walls of Philadelphia, an act functioning precisely as a mechanism of territorial demarcation. In a similar spirit, the phenomenon of "Taki 183" in New York City involved the continuous reproduction of the author's signature throughout the city, symbolically marking presence and territory (Focus, 2017).

Such acts of appropriating public space and questioning the boundaries between what is considered public and what may transform a place into public space have appeared repeatedly within the international artistic arena. These practices extend from the textual interventions of Bruce Nauman, realized on relatively small surfaces intended for audiences within art institutions, to the works of Jenny Holzer, who employs billboards and illuminated neon or LED texts. Through these interventions, Holzer confronts the public with critical reflections on contemporary society and the position of women within it. Although these two cases cannot strictly be categorized as muralism or murals, they share the use of text and a comparable strategy of reactivating the wall as an active space in which memory, collective experience, and public space itself are continuously questioned.

Within this framework, one may also mention Banksy, whose works consistently offer counter-responses to mechanisms of social control and surveillance. One of his interventions, What Are You Looking At?, may serve as an analogy to Tiravanija's intervention in Tirana, insofar as it challenges public perception and interrogates the relationship between the individual, space, and authority.

Similarly, interventions such as the facade realized by Anri Sala interpret the wall as a symptom of Tirana's post-socialist transformations. References to visual pollution, air-conditioning units, antennas, and the overload of facades with various infrastructural objects transform architecture into an indicator of the city's economic and social transition. Ultimately, this logic informed the entire facade project developed during the Tirana Biennale period, where the painting of facades aimed to reactivate society through color and, as noted by Liam Gillick (Sala, 2003), to alter the identity of the city itself, based on the metaphorical assertion that a gray city could not continue to exist. Here, "gray" referred less to a literal chromatic condition than to a metaphor for stagnation and social inertia. The murals produced within this project were predominantly composed of geometric forms

intended to establish a degree of interaction with the viewer, as in the works of Sala, Tiravanija, and others.

On this basis, additional murals were later realized through subsidies from the Municipality of Tirana or through the Municipal Decoration Enterprise, consolidating the presence of this artistic form within the city's public space. Simultaneously, mural production evolved into a broader trend, whereby construction companies themselves began painting newly completed facades with motifs, figures, and textual elements. At first glance, this development may appear positive. Nevertheless, these "works," if they may indeed be called such, largely remain decorative interventions with primarily aesthetic functions, often sliding toward a kitsch sensibility. In most cases, the content they present is devoid of deeper artistic or critical significance. Furthermore, the fact that these works are commissioned by public institutions implies that they are products of controlled processes in which subject matter, message, and forms of expression are determined within the limits of institutional acceptability. It cannot be denied that they contribute to the creation of atmosphere and break the homogeneity of repetitive urban buildings; however, their purpose remains decorative rather than oriented toward activating the wall as public space.

In contrast to these institutional interventions, financed and supported primarily by public or private structures, the guerrilla practices of artists and collectives such as Çeta or Diversanti operate through graffiti, stencil techniques, and urban irony, appropriating public space without institutional mediation. In these cases, the wall becomes a space of dialogue and public contestation. Such interventions frequently occupy the ambiguous boundaries of legality precisely because they target decision-makers through provocative and critical messages. Here, the wall functions as a communicative medium capable of addressing the viewer directly, whether passive or active.

Guerrilla interventions of this kind have historically been associated with the oppressed, with the epic struggle of the small against the powerful, and of the dominated against domination itself, as in the works of John Heartfield, Ben Shahn, Tomi Ungerer, and many others. These interventions



Figure 7 NYC subway with Taki183's slogan, retrieved by Wikiart.

are not graffiti in the strict sense of the term, but rather posters and printed images attached to walls. In this context, the wall becomes a site that directs the gaze, demanding to be seen and interpreted.

As previously mentioned, similar interventions may be identified in other urban contexts as well, ranging from the graffiti-covered subway trains of New York City to the Berlin Wall, where murals and street art have functioned as forms of collective memory, protest, and urban identity production.

Conclusions

As widely documented in this text, mural painting goes beyond the aesthetic-decorative dimension as a practice that directly intervenes in the production and visual perception of public space. From mural paintings to contemporary street art, the wall has continually functioned as a communication surface where collective memories, social tensions, and power relations are articulated. In this sense, public space, which comes to us in the form of signs on the wall, does not present itself as a neutral territory but as a field of ongoing negotiation between institutions, citizens, and various forms of urban appropriation. Murals and graffiti intervene precisely in this process, transforming the wall from a passive architectural element to an active medium of dialogue and protest.

If we embrace this statement, it is natural to say that interventions on the walls of Tirana, as a case study, can effectively produce public space. However, at the same time, the case of Tirana demonstrates that not all mural interventions



Figure 8, Banksy – What are you looking at? photo retrieved from Datapanik, 2026.



Figure 9, Çeta, "Pronto sono Tone. Sticker. Tirana, Albania. Imag courtesy of Çeta Collective. 2026.

on walls can effectively produce public space. While some institutional muralism remains limited to controlled urban beautification, spontaneous and guerrilla practices are more often able to activate the relationship between the viewer and the city, transforming the wall into a place of interaction, reflection, and collective debate. For this reason, contemporary muralism should be seen not only as urban decoration but also as a spatial practice that questions the very meaning of 'public' and the way the city is produced and experienced by its inhabitants.

In conclusion, Tirana requires more spontaneous, organic artistic interventions (murals). This approach transforms the wall into a contested space, allowing for equal experiences and ultimately establishing it as a public space.



Figure 10, Çeta, "Smash the Walls of Privilege (Remember the 1st of May)," 2016. Sticker. Tirana, Albania. Image retrieved from artmargins, 2026.

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From Static Envelope to Adaptive Skins Reoccurring Novelties in Façade Education, Industry and Kinetic

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DOI 10.37199/F40002969

Introduction

Architecture keeps rediscovering the façade as though it were new. From masonry walls to curtain walls, from double-skin envelopes to kinetic and responsive systems, each period seems to introduce a new way of mediating between building and environment. And yet the questions behind these innovations remain remarkably persistent: how does architecture negotiate climate, light, view, protection, structure, material economy, and human comfort? This text reflects on these questions through the experience of the workshop "Façade technology as the main cover of the building", run during Tirana Architecture Week 2024 with second-year Bachelor students of Civil Engineering at POLIS University, in cooperation with ALUMIL Albania.

Rather than treating the workshop as a closed pedagogical event, this reflection reads it as a threshold between three interconnected domains: façade education, industrial knowledge, and ongoing research into adaptive building skins. Across lectures, technical presentations, a factory visit, a construction-site visit and group work, students encountered the façade not as a flat architectural image, but as a layered system of profiles, joints, glass, thermal breaks, acoustic performance, cost, installation time, and structural behavior. This contact with the material and industrial reality of façade production becomes essential once the conversation moves toward more speculative territory as kinetic façades, tensegrity-based systems, fractal geometries.

The central argument is that the passage from static envelope to adaptive skin should not be understood as a rupture with conventional construction culture – quite the opposite. Future adaptive façades depend on a renewed, deepened understanding of the existing systems. Kinetic movement, tensegrity equilibrium, and fractal repetition can each be read as a reoccurring novelty: a contemporary reformulation of older architectural concerns about enclosure, lightness, rhythm, adaptability, and environmental mediation. In that sense, the workshop becomes simultaneously a teaching experience and a conceptual seed for future façade research.

The Façade That Keeps Returning

Architecture repeatedly returns to the façade. It comes back to it as surface, as limit, as image, as climatic device, as technical assembly, and as cultural statement. Few architectural elements carry so many responsibilities while looking, at first glance, so simple. The façade is what the city sees – but it is also what the building uses to breathe, resist, filter, illuminate, shade, and perform, usually all at once and without anyone noticing the effort involved. This double condition explains why the façade is such grounded subject for a theme like "Reoccurring Novelties". Every generation likes to believe its façade technologies are unprecedented. Glass walls, ventilated façades, double skins, intelligent envelopes, responsive systems, kinetic surfaces – each gets presented, in its moment, as a sign of progress. But scratch the surface (an unavoidable pun, in this case) and the deeper ambition is not new at all. These innovations revisit old architectural questions with new tools. A shutter operated by hand and a kinetic screen driven by sensors come from entirely different technological worlds, yet both answer to the same architectural instinct: to adjust the relationship between interior life and exterior conditions. The contemporary discourse on adaptive architecture has stretched that instinct further than ever. Buildings are no longer expected merely to stand, protect, and represent; they are increasingly expected to react. Kinetic and interactive systems introduce movement into architecture, transforming the envelope into an active interface rather than a fixed separator

(Fox & Kemp, 2009; Moloney, 2011). Still, no adaptive skin can be understood through movement alone. Before a façade can move intelligently, it first has to be built intelligently. That is where education, industry, and research meet.

Learning The Envelope Through Its Details

The workshop "Façade technology as the main cover of the building" was developed during Tirana Architecture Week 2024 with second-year bachelor students of Civil Engineering at POLIS University, in cooperation with ALUMIL Albania. Even the title carried a pedagogical stance worth pausing on: the façade was not introduced as decoration but as the building's primary covering system. It was treated, from the outset, as a constructive and performative layer rather that a pretty visual elevation.

The workshop was organized over five days, moving between syllabus presentation, technical lectures, a factory visit, a glass façade presentation, construction-site visit, student presentations, and final evaluation. The sequencing mattered more than it might appear on paper. It carried students from terminology to observation, from products to processes, and only then from technical information to critical interpretation. In the classroom, students were introduced to window and glass façade systems – their uses, technical details, costs, installation time, and performance criteria. The assignment required them to also analyze selected ALUMIL systems, present their findings in groups, and work through technical aspects such as thermal and acoustic behavior, system typologies, profile characteristics, and moment of inertia. Next to the often-spectacular language surrounding façade innovation, tasks like these can look modest, even a little dry. Yet they represent the exact ground on which meaningful









Figure 1: Opening session of the workshop at POLIS University, introducing the syllabus, objectives and collaboration framework. (Image © POLIS University / ALUMIL Albania / Author)

innovation has to stand on – there is no shortcut around it.A façade is never just a drawing. It is a negotiated agreement between design intention and material possibility. It is a layered system made of profiles, glass layers, gaskets, anchors, screws, tolerances, drainage paths, thermal bridges, coatings, and installation sequences. Textbooks on façade construction are insistent on this point: the envelope has to be understood as a coordinated assembly, its performance as function of how the parts relate to one another (Knaack et al., 2007). For civil engineering students specifically, this is especially relevant, because it shifts the façade from the realm of appearance into the realm of measurable behavior.

The Factory As An Architectural Classroom

The factory visit was one of the workshop's central moments – arguably its center of gravity. It displaced learning from the academic room into the industrial environment, where students could observe façade components being produced, processed, tested, stored, and prepared for application. This matters because construction education often gets stuck between abstract calculation on one side and the finished architectural image on the other, with nothing in between. The factory interrupts both. It shows that between drawing and building lies a dense, unglamorous world of machines, profiles, materials, labor, logistics, and quality control – the part of work that rarely makes it into the magazine spread.

For the students, the façade became legible as a product of precision. The apparent lightness of glass depends entirely on the accuracy of the aluminum profiles holding it. The



Figure 2: Students during the factory visit at ALUMIL Albania, observing production processes, façade samples, and system components. (Image © POLIS University / ALUMIL Albania / Author)

transparency of an opening depends on hidden elements that seal, support, connect, and drain – none of which anyone is meant to notice. The elegance of a finished façade is decided long before installation. The building looks effortless precisely because none of this was.

This kind of knowledge is not a side note to architectural thinking – it is one of its conditions. The more advanced the façade, the more its technical reliability matters. This is particularly true for adaptive envelopes, where movement adds its own layer of questions around durability, maintenance, control, energy use, safety, and long-term performance. A kinetic façade that ignores production logic remains a beautiful diagram, nothing more. A responsive skin that cannot be assembled, repaired, or afforded is an image of innovation, not innovation itself.

The site as a place of negotiation

The construction-site visit completed the workshop's pedagogical triangle. If the classroom supplied principles and the factory revealed production, the site exposed the complexity of application. On site, façade systems have to

negotiate with structure, weather, workmanship, dimensional tolerances, construction sequence, safety requirements, and time pressure – all the variables a catalogue cannot anticipate. Here the façade stops being a system in a binder and becomes an architectural event, with all the improvisation that implies.



Figure 3: Site visit with students observing installed façade materials and applied building-envelope systems. (Image © POLIS University / ALUMIL Albania / Author).

This encounter is crucial for students because it demonstrates, in a away no lecture can, that technical knowledge is not fixed – it is situational. A system performs well only when it has been correctly selected, detailed, coordinated, and installed. The same profile, glass unit, or curtain-wall logic can produce very different results depending on orientation, building type, structural support, climate, maintenance culture, and budget. The façade, in other words, is not an object. It is a relationship, and like most relationships, its success depends on context as much as on the parties involved.

In this sense, the workshop encouraged a form of professional literacy that is often difficult to be perceived inside the classroom alone. Students were not asked simply to memorize systems. They were asked to understand when and why systems are used, what they cost, how long they take to install, and how their performance is evaluated. That combination – technical observation paired with critical judgement – is the necessary foundation for any later conversation about kinetic or adaptive systems. Skip it, and the conversation floats.

From static envelope to adaptive skin

Although the workshop focused mainly on existing window and glass façade systems, it opened onto a larger question: how does a static envelope become an adaptive skin?

At first glance the distinction looks obvious. A static façade is fixed; an adaptive one changes. But the difference is more subtle than that binary suggests. Even conventional façade systems are already forms of environmental response. A thermal break responds to heat transfer. A gasket responds to air and water infiltration. A glass specification responds to daylight, safety, acoustics, and solar gain. A shading element responds to exposure. A profile responds to load and span. The static envelope, properly understood, is not passive – it is a stable answer to changing conditions.

Adaptive façades intensify this logic rather than invent it. They do not introduce the problem of response; they make response visible and dynamic. In kinetic systems, movement becomes part of environmental mediation: panels rotate, screens fold, modules slide, surfaces open and close in step with changing conditions. That movement can be manual, mechanical digital, or hybrid, but its architectural value depends on one thing only – whether it actually improves the relationship between building, user, and environment (Moloney, 2011; Wigginton & Harris, 2002). Motion for its own sake is choreography, not architecture.

The workshop, then becomes a useful entry point for future research. Students first need to understand how façade systems behave when fixed. Only after that can they begin to imagine what happens when the same systems are asked to move, adapt, transform. Without this foundation, kinetic design risks becoming formal spectacle – architecture as performance art. With it, movement can become a disciplined extension of construction knowledge instead.

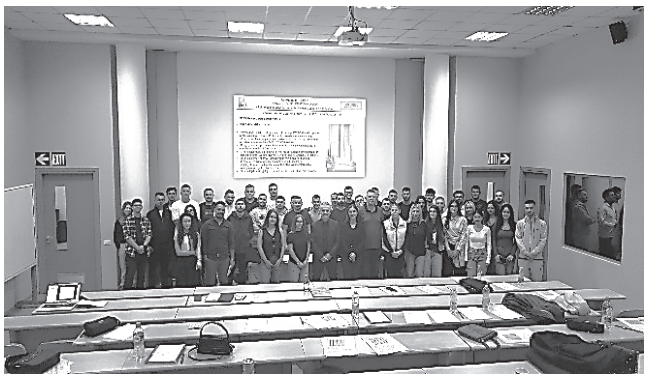
Tensegrity and fractal g eometriesa as Reoccuring Novelties

The link to tensegrity and fractal geometry grows out of this same passage between stability and transformation. Tensegrity system rest on the equilibrium between discontinuous compression elements and a continuous tension network. Their architectural interest is not only structural efficiency; it is the way they make force, lightness, and balance spatially visible – you can, in a real sense, see the physics holding the thing up. (Motro, 2003; Pugh, 1976). For façade research, tensegrity offers a way to rethink the envelope's supporting logic. Instead of picturing the façade only as a rigid frame carrying panels, one can start to picture it as a field of forces – cables, struts, nodes, pre-stress, and controlled deformation. This is not a claim that every façade should become a tensegrity structure; that would be its own kind of formal spectacle. Rather, tensegrity gives the researcher a way back into an old architectural ambition: stability achieved with less material "less is more", more openness, and greater adaptability. Fractal geometry introduces a different kind of recurrence. Architecture has always worked through repetition – columns, beams, openings, panels, ornaments, screens, and grids. Fractals add hierarchy to that repetition, showing how complex forms emerge from recursive rules and self-similar patterns (Mandelbrot, 1982). This is especially relevant to façade design because the envelope is simultaneously unit and field. One module matters on its own terms, but so does the larger pattern produced once many modules are read together. Linked to kinetic thinking, fractal logic can help organize movement across scales. A single element rotates or folds, while the façade as a whole produces a larger rhythm of light, shade, porosity, opacity. Once again, the novelty here is not absolute – it is the return of older architectural themes (rhythm, proportion, modulation, ornament, environmental control) filtered through contemporary

geometry, computation, and material systems. The vocabulary changes; the grammar underneath is stubbornly familiar.

Toward a pedagogy of adaptive façades

The workshop points to a useful pedagogical model for façade education more broadly: start from reality, then move toward speculation – not the other way around. Students first met actual systems, industrial production, applied details, technical parameters. Only on that basis does it become possible to ask more ambitious questions. How could a fixed façade module become a moving one? How could a standard profile take part in a transformable system? How might curtain-wall logic be reinterpreted through tensegrity? How could fractal repetition support shading, ventilation, or visual permeability? These questions are not detached from practice – they depend on it entirely. The future of adaptive façades will not come



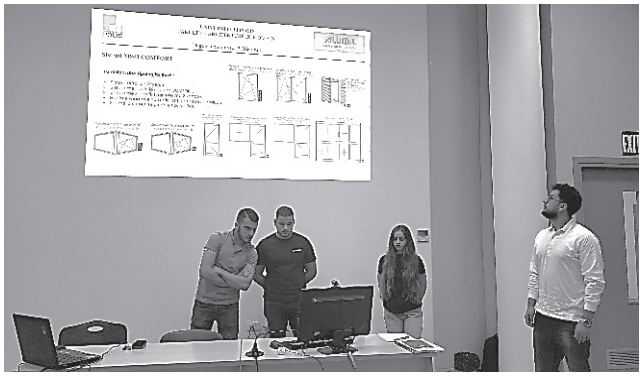


Figure 4: Final student presentations and technical discussion of selected window and glass façade systems. (Image © POLIS University / ALUMIL Albania / Author).

only from digital simulations or conceptual diagrams. It will also come from factories, catalogues, details, workshops, prototypes, construction sites, and collaborations between universities and industry. In that light, the experience with ALUMIL Albania was not simply a partnership; it was a reminder that architectural education gets stronger, not weaker, when it meets the intelligence already embedded in production. For Albania and the wider regional context, this point carries some weight. Advanced façade research does not have to be understood as something imported wholesale from global examples. It can also grow locally – from academic initiatives, from collaboration with established industrial actors, and from students who learn to see the building envelope as both a technical system and a field of invention.

Conclusion: the novelty of returning

The façade keeps coming back because the problems it addresses never actually leave. Architecture will always have to mediate between interior and exterior, permanence and change, protection and openness, structure and atmosphere. What changes are the tools, material, systems, and forms through which that mediation gets attempted – the costume changes; the character underneath does not. The workshop developed during Tirana Architecture Week 2024, offered a concrete way into this continuity. Through lectures, visits, group analysis, and final presentations, students met the façade as a real construction system rather than an abstraction. They learned that the building skin is not a neutral surface but a dense interface where performance, detail, cost, installation, and architectural expression all have to be settled at once. At the same time, the workshop opened onto a wider research horizon. Kinetic façades, tensegrity systems, and fractal geometries can be read as extensions of the same recurring questions already at work in conventional façade systems. They are renewed attempts to make the envelope lighter, smarter, more responsive, and more attentive to its relationship with environment and user. The passage from static envelope to adaptive skin, then calls for neither rejection nor infatuation. It calls for continuity, criticism, and technical imagination – in that order. The static façade teaches the discipline of construction. The adaptive skin projects that discipline forward, toward movement and transformation. Between the two sits the real space of reoccurring novelty: the moment an old architectural question becomes visible again, as if for the first time.

Acknowledgement

This text is based on the author's teaching experience, workshop documentation, and ongoing doctoral research interests. AI-assisted tools were used for language refinement, translation support, and academic phrasing adaption; the conceptual position, workshop experience, and critical interpretation remain the responsibility of the author.

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Invited Papers

Urban Environmental Noise in Tirana: Spatial and Temporal Patterns from Field Measurements at Three Major Traffic Junctions

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DOI 10.37199/F40002970

Abstract
Background: Road traffic noise is a major environmental concern in urban areas, contributing to noise pollution and affecting the quality of the urban environment. Objective: To characterize spatial and labelled time-of-day variability at three major traffic junctions in Tirana, Albania, using the underlying field-measurement workbook. Methods: Timestamped readings from Zogu i Zi, 21 Dhjetori, and Kamza Terminal were summarized descriptively using counts, arithmetic means, standard deviations, medians, and observed ranges. Measurements were collected using a Testo 816-1 sound-level meter and the Noise Capture smartphone application. Results: Across 8,400 readings from 45 labelled sessions, Zogu i Zi (n=2,700) had a mean of 65.21 dB (SD 4.22; range 47.9–93.5), 21 Dhjetori (n=2,700) 65.62 dB (SD 5.72; range 47.5–97.3), and Kamza Terminal (n=3,000) 67.54 dB (SD 3.32; range 37.1–89.9). The workbook also contains 600 separately described neighbourhood observations. Differences across labelled daytime periods were modest, but some headings and timestamps were inconsistent. Conclusions: These records offer a site-specific descriptive baseline. Arithmetic means cannot be designated LAeq (Equivalent Continuous Sound Level) or compared directly with long-term guideline indicators without verified measurement settings and sampling design.

Keywords: *urban noise; traffic junctions; Tirana; Albania; environmental acoustics; descriptive analysis; field monitoring*

Introduction

Environmental noise from transport is a major component of urban soundscapes. Traffic volume, fleet composition, vehicle acceleration, road surfaces and the geometry of surrounding buildings can influence the sound level at a measurement point. Research has linked sustained road traffic noise exposure with annoyance, sleep disturbance and cardiovascular outcomes; these population-level findings cannot be inferred from brief roadside readings (Basner et al., 2014; WHO, 2018; Münzel et al., 2018).

The European Environmental Noise Directive (END) establishes long-term indicators and strategic mapping requirements, while ISO 1996 provides a framework for describing and measuring environmental sound. The present study instead uses available timestamped field records to characterize sampled periods at three selected Tirana traffic nodes. Its contribution is to make the sample size, variability, and recorded sampling dates explicit, and to identify documentation gaps relevant to subsequent monitoring.

Road traffic noise and urban form

Road traffic noise is influenced by traffic volume and composition, acceleration and braking, vehicle speed, road-surface condition, junction geometry and the configuration of surrounding buildings. At busy intersections, relatively continuous traffic sound may be punctuated by short events such as horn use and the passage of heavy vehicles. Land-use patterns and proximity to residential or other noise-sensitive buildings affect potential exposure. These mechanisms provide a conceptual framework for interpreting the three Tirana junctions, but the present dataset contains no synchronized traffic counts, source annotations or building-geometry measurements that would permit causal attribution (WHO, 2018; EEA, 2020).

Road traffic noise and urban form

Evidence synthesized by Basner et al. (2014) links environmental noise exposure with annoyance, sleep disturbance and other auditory and non-auditory outcomes. Münzel et al. (2018) discuss potential cardiovascular pathways associated with chronic environmental noise. The WHO (2018) recommends reducing long-term road-traffic noise exposure below 53 dB Lden and 45 dB Lnight. These recommendations concern source-specific, long-term exposure indicators: they cannot be compared directly with arithmetic averages of short roadside readings. No health outcomes, individual exposure histories or residential receptor measurements were collected in this study.

Road traffic noise and urban form

The European Environmental Noise Directive (2002/49/EC) establishes common approaches to strategic noise assessment, public information and action planning, including Lden and Lnight indicators; it does not impose one universal EU-wide limit for every short field measurement. ISO 1996-1:2016 and ISO 1996-2:2017 provide principles for describing, measuring and assessing environmental sound. A regulatory compliance assessment for Albania would additionally require verification of applicable national provisions, land-use classification, prescribed indicators, and standardized measurement conditions. This article presents a descriptive field assessment, not a legal determination.

Literature review

Road traffic as a source of environmental noise

Road traffic is a major contributor to environmental noise in urban areas. Its acoustic profile depends not only on the volume of vehicles but also on fleet composition, operating speed, acceleration and braking, pavement condition, and the geometry of the street. At junctions, stop–start movements, queuing, and intermittent events may produce different sound patterns from those observed along uninterrupted road segments. The European Environment Agency (EEA, 2020) identifies transport noise as a substantial environmental concern across Europe and emphasizes the need to assess exposure at the population level. These factors provide a conceptual framework for examining environmental noise at Zogu i Zi, 21 Dhjetori and Kamza Terminal, offering insights into the spatial and temporal variations in noise levels across the selected urban locations.

Health effects and the importance of exposure duration

The public-health literature distinguishes the immediate acoustic characteristics of a measurement location from a person's cumulative exposure. Basner et al. (2014) review auditory and non-auditory effects of environmental noise, including annoyance and sleep disturbance, and describe evidence concerning cardiovascular and cognitive outcomes. Münzel et al. (2018) examine epidemiological and mechanistic research linking chronic environmental noise to cardiovascular pathways, including stress-related responses. These findings support environmental noise as a public-health research topic, but they do not establish health effects among people living or working near the three sampled Tirana junctions; this study did not measure personal exposure, residential sound levels, sleep or clinical outcomes.

The WHO Regional Office for Europe (2018) recommends reducing long-term road-traffic exposure below 53 dB Lden and 45 dB Lnight. Lden incorporates day, evening and night exposure with evening and night penalties, whereas Lnight represents night-time exposure over a long-term assessment period. Neither indicator can be reconstructed from the arithmetic means of the short, partly discontinuous field readings reported here. Consequently, WHO recommendations provide a rationale for more complete monitoring rather than a direct threshold test for this dataset. The measurements conducted at Zogu i Zi, 21 Dhjetori and Kamza Terminal provide empirical evidence of environmental noise conditions at three major traffic junctions in Tirana. Mean recorded sound levels ranged from 65.21 to 67.54 dB, with variations across monitoring locations and sampling periods. In the context of the WHO environmental noise guidelines, these findings highlight the relevance of urban traffic noise monitoring and provide a basis for further assessment of long-term exposure. Future monitoring incorporating evening and night-time measurements would enable a more comprehensive

evaluation using internationally recognized indicators such as Lden and Lnight.

Measurement indicators and methodological comparability

Environmental-noise research relies on clearly specified acoustic indicators and reproducible measurement conditions. ISO 1996-1:2016 establishes basic quantities and assessment procedures, while ISO 1996-2:2017 addresses determination of environmental sound-pressure levels. Energy-equivalent sound levels such as LAeq,T require defined frequency weighting, measurement duration, and energy-based averaging; the arithmetic mean of values already expressed in decibels is not automatically equivalent to LAeq,T. The measurement height and position, instrument settings, weather conditions, and calibration documentation also affect comparability across campaigns. These considerations are particularly important when comparing traffic junctions monitored on different dates or with more than one measurement instrument.

Environmental noise measurements in Tirana were conducted using both the Testo 816-1 sound-level meter and the Noise Capture smartphone application. The resulting dataset provides a substantial empirical basis for examining spatial and temporal variations in noise levels across the selected monitoring locations. The analysis focuses on descriptive statistics of the recorded sound levels, providing a clear characterization of the observed acoustic conditions and establishing a foundation for future standardized monitoring and comparative assessments.

European assessment and urban noise management

Directive 2002/49/EC, the Environmental Noise Directive, establishes a shared framework for assessing and managing environmental noise through strategic noise mapping, public information and action planning. It uses long-term indicators, including Lden and Lnight, to support comparisons and management decisions. The EEA (2020) places such assessment within a broader European picture of transport-related exposure and its consequences. Neither the Directive nor the WHO guidance provides a universal legal limit against which every short roadside observation can be assessed; any determination of regulatory compliance in Albania would additionally require the applicable national rules and prescribed measurement protocol.

For urban planning, the literature implies a progression from identifying potentially noisy locations to characterizing sources, estimating exposure at sensitive receptors and evaluating interventions. At intersections, potential measures may include traffic-flow management, changes to vehicle speed or composition, pavement maintenance and design changes, but their suitability depends on local evidence. The three-junction dataset is an initial descriptive step in that progression, not a before-and-after evaluation of any intervention.

Research gap and contribution of the Tirana case study

International evidence on traffic noise and health is extensive, but its findings cannot replace locally documented measurement protocols and site-specific observations. The present study contributes a transparent descriptive account of 8,400 timestamped readings collected at three selected Tirana traffic junctions, including the number of observations, recorded date coverage, variability, and labelled daytime patterns. It also identifies discrepancies between spreadsheet period headings and recorded timestamps. These strengths and limitations jointly define the research gap addressed here: establishing a reproducible local baseline and specifying the additional acoustic, traffic and temporal information required for future exposure-oriented studies.

Research objectives

The primary objective of this study is to assess the spatial and temporal variability of environmental noise at three major traffic junctions in Tirana: Zogu i Zi, 21 Dhjetori and Kamza Terminal. Drawing on a dataset of 8,400 recorded sound-level measurements, the research aims to provide a comprehensive descriptive assessment of noise conditions across the selected locations and establish an empirical baseline for future urban environmental monitoring.

More specifically, the study seeks to:

1. Characterize environmental noise levels at each monitoring location through a detailed statistical analysis of the recorded measurements, including arithmetic means, standard deviations, medians, and observed ranges.

2. Examine spatial differences in environmental noise across the three traffic junctions, identifying variations in average recorded sound levels, the distribution of measurements, and the occurrence of particularly high noise events.

3. Investigate temporal variability by analyzing measurements grouped into morning, midday, and afternoon periods, identifying patterns and differences in recorded sound levels throughout the sampled daytime sessions.

4. Assess the variability and intensity of recorded noise events, distinguishing between locations characterized by relatively consistent sound levels and those exhibiting greater fluctuations and pronounced individual readings.

5. Establish an empirical foundation for urban noise monitoring and management by identifying site-specific acoustic patterns and providing evidence to inform future monitoring programs, traffic-management measures and urban planning initiatives in Tirana.

By integrating spatial and temporal perspectives, the study contributes to a more detailed understanding of environmental noise conditions at major urban traffic junctions and supports the development of systematic, evidence-based approaches to environmental noise assessment in Tirana.

Materials and methods

Study sites and source data

The supplied Excel workbook contains four worksheets. Three named worksheets correspond to Zogu i Zi roundabout, 21 Dhjetori intersection, and Kamza Terminal junction. The fourth, labelled “Ne lagje” (“In the neighbourhood”), contains 600 readings but lacks sufficient documented site context for inclusion in the three-junction comparison; it is described separately in the supplementary data note. The junction records span 16 December 2024 to 17 February 2025 at the first two sites

and 17 December 2024 to 3 February 2025 at Kamza Terminal. The workbook groups readings into weekday columns and nominal morning (08:00–10:00), midday (13:00–15:00), and afternoon (17:00–19:00) windows[1].

Data extraction and descriptive statistics

Each numerical decibel value was paired with its adjacent timestamp; non-measurement header and blank cells were excluded. Observations were summarized by site and by the period label assigned in the spreadsheet. Arithmetic mean, sample standard deviation, minimum, maximum, and median were calculated for recorded decibel values. These are descriptive statistics of the workbook entries and must not be interpreted as energy-equivalent LAeq,T without confirmed instrument settings, weighting, sampling interval and calculation method. Repeated readings within a recording session are correlated; they are not independent replicates suitable for simple inferential site comparisons.

Measurement provenance and quality considerations

Environmental noise measurements in Tirana were conducted using the Testo 816-1 sound-level meter and the Noise Capture smartphone application. Both instruments were used during field data collection, and the resulting readings were organized in the supplied workbook. The analysis draws on the combined dataset collected using both instruments, focusing on the recorded sound levels and their spatial and temporal variability rather than instrument-specific comparisons or calibration assessments. Workbook weekday and nominal morning (08:00–10:00), midday (13:00–15:00) and afternoon (17:00–19:00) headings were retained for descriptive grouping. Recorded timestamps were systematically examined to assess consistency with the designated measurement periods. Identified discrepancies were taken into account when interpreting temporal variations, ensuring a consistent and transparent analysis of the dataset. The analysis is observational and exploratory.

Results

Site-level descriptive statistics

The largest arithmetic mean among the selected junctions was recorded at Kamza Terminal (67.54 dB), 2.33 dB above Zogu i Zi (65.21 dB). The largest observed reading, 97.3 dB, occurred in the 21 Dhjetori worksheet, which also had the largest standard deviation (5.72 dB). The differing maximum and average patterns show why one extreme reading should not be substituted for a typical sampled level.

At Zogu i Zi, midday had the largest labelled-period mean (65.93 dB) and afternoon the lowest (64.66 dB). At 21 Dhjetori, the morning mean was 66.23 dB and the afternoon mean 64.54 dB. Kamza Terminal showed a narrow spread between its labelled morning (67.57 dB), midday (67.75 dB) and afternoon (67.31 dB) means. These patterns reflect the recorded sessions only; the sampling windows do not establish continuous exposure between measurements.

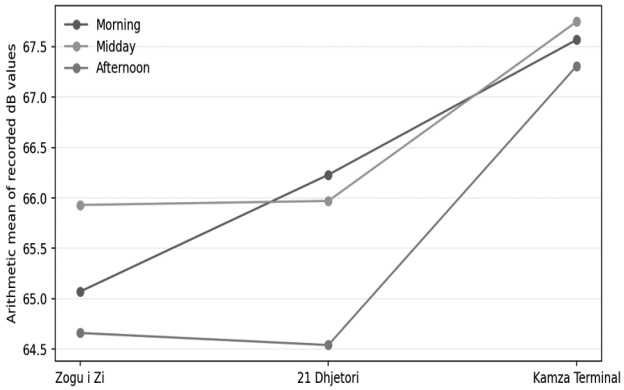


Figure 1. Arithmetic means of recorded dB values by workbook period label and site.

Site	Readings (n)	Mean (dB)	SD	Median	Minimum	Maximum
Zogu i Zi	2,700	65.21	4.22	65.20	47.9	93.5
21 Dhjetori	2,700	65.62	5.72	65.90	47.5	97.3
Kamza Terminal	3,000	67.54	3.32	67.70	37.1	89.9

Table 1. Descriptive statistics calculated from timestamped workbook values; arithmetic dB means are not LAeq.

Labelled time-of-day patterns

Site	Morning: n / mean	Midday: n / mean	Afternoon: n / mean
Zogu i Zi	1,000 / 65.07	850 / 65.93	850 / 64.66
21 Dhjetori	1,000 / 66.23	850 / 65.97	850 / 64.54
Kamza Terminal	1,000 / 67.57	1,000 / 67.75	1,000 / 67.31

Table 2. Number of readings and arithmetic mean (dB) by the workbook's period labels. Some timestamp/label discrepancies require verification.

[1]*The data were collected by students led by MSc student Kelvi Peti.*

Sampling dates and temporal metadata The spreadsheet

Site	Distinct recorded dates	Labelled sessions	Recorded date range
Zogu i Zi	7	15	2024-12-16 to 2025-02-17
21 Dhjetori	7	15	2024-12-16 to 2025-02-17
Kamza Terminal	8	15	2024-12-17 to 2025-02-03

Table 3. Date coverage and number of worksheet-column/date recording groups. The nominal weekday and period headings do not always match time-stamp metadata.

contains repeated readings separated by short intervals within each labelled recording column. Because the duration and instrument response settings are not independently documented, the number of rows should not be interpreted as hours of exposure or as independent monitoring visits. In the Kamza Terminal sheet, at least one column labelled afternoon contains morning timestamps; any strict clock-time analysis requires correction against field logs.

Supplementary neighborhood observations

The additional "Ne lagje" worksheet contains 600 timestamped values recorded on 2025-01-23, with an arithmetic mean of 53.12 dB (SD 5.98; range 43.0–71.0 dB). Because the precise location, acoustic setting, and relationship to the three traffic-junction protocol are not established, these observations are not pooled with the principal 8,400 readings.

Discussion

Interpretation of variability

The expanded workbook confirms that site-level averages in the original manuscript were rounded summaries of much larger sets of recorded values. Kamza Terminal had the highest arithmetic mean but the smallest standard deviation among the three sites; 21 Dhjetori displayed the greatest dispersion and the highest single reading. These distinctions are useful for prioritizing follow-up measurements, but they do not identify a particular traffic source or show that a site has greater long-term population exposure.

Public-health and policy context

Environmental noise is an important public-health and urban environmental concern. The WHO Regional Office for Europe (2018) recommends reducing long-term road-traffic noise exposure below 53 dB Lden and 45 dB Lnight. These health-based recommendations address long-term exposure, while Directive 2002/49/EC establishes a European framework for environmental noise assessment, strategic noise mapping and action planning. Albania has established a national regulatory framework for environmental noise through Law No. 9774 of 12 July 2007, on the Assessment and Management of Environmental Noise, as amended. This framework addresses the assessment, monitoring and management of environmental noise, including noise associated with road transport. It is complemented by secondary legislation establishing monitoring procedures and noise limits for specified environments and activities. The measurements conducted at Zogu i Zi, 21 Dhjetori and Kamza Terminal contribute empirical evidence on environmental noise conditions at three major traffic junctions in Tirana. The recorded mean sound levels, ranging from 65.21 to 67.54 dB, demonstrate differences across the selected locations and provide a basis for identifying priorities for further monitoring. These findings are relevant to the implementation of national environmental noise management measures and to the development of evidence-based urban planning strategies. However, assessing compliance with national limits or WHO recommendations requires the appropriate acoustic indicators, measurement periods and land-use classifications.

Interpretation in relation to the wider literature

The distinction between average conditions and episodic loud events is relevant to environmental noise assessment. Kamza Terminal had the largest arithmetic mean but the lowest site-level standard deviation, whereas 21 Dhjetori had the largest standard deviation and the highest single recorded reading. Such contrasting patterns may reflect differences in the mix of persistent and intermittent sources; however, without source logs or validated time histories, they cannot identify particular vehicles or activities. The findings align with the broader literature in highlighting the need to characterize both temporal variability and longer-term exposure, while remaining restricted to the sampled locations and dates (Basner et al., 2014; WHO, 2018).

Implications for Urban Noise Monitoring

The findings highlight the importance of establishing a systematic and standardized environmental noise monitoring framework in Tirana. Future monitoring should integrate calibrated sound level measurements with traffic volume and composition, vehicle speeds, horn events, meteorological conditions, and precise microphone locations. A consistent sampling protocol covering weekdays, weekends, different times of day, and seasonal variations would enable a more comprehensive assessment of spatial and temporal noise patterns. In accordance with ISO 1996, future studies should incorporate

standardized acoustic indicators, including LAeq,T, Lmax and relevant percentile levels, to support reliable comparisons across monitoring locations and measurement periods.

Implications for Urban Planning and Intervention Evaluation

The results provide an empirical basis for integrating environmental noise considerations into urban planning and traffic management in Tirana. Potential interventions include traffic flow optimization, speed management, improvements to road surfaces and measures to reduce noise exposure near residential areas and other noise-sensitive locations. The selection of appropriate interventions should reflect the specific characteristics and dominant noise sources of each junction. Their effectiveness can be evaluated through comparative measurements conducted before and after implementation under comparable traffic and meteorological conditions. Such an approach would support evidence-based decision-making and contribute to improving the acoustic quality of Tirana's urban environment.

Limitations

The study provides a substantial empirical dataset of 8,400 timestamped noise measurements across three major traffic junctions in Tirana, offering valuable insights into spatial and temporal variations in the urban acoustic environment. The analysis is based on the recorded sound levels and their descriptive statistical characteristics. Differences in sampling periods, measurement dates, and the distribution of observations across locations are considered when interpreting the findings. The available data support a comparative assessment of the selected monitoring locations, while a comprehensive evaluation of long-term environmental noise exposure would require additional measurements, including night-time monitoring, standardized acoustic indicators and complementary traffic and meteorological data. Accordingly, the findings establish a site-specific empirical baseline for future environmental noise research and urban monitoring in Tirana, rather than a citywide exposure assessment.

Conclusions

The comparative analysis identifies Kamza Terminal as the location with the highest average recorded noise level, while 21 Dhjetori exhibited the greatest variability and the highest individual reading. Differences across the designated daytime measurement periods further illustrate the dynamic nature of environmental noise at urban traffic junctions. Together, these findings provide a detailed characterization of the acoustic conditions observed at the three selected locations and contribute valuable empirical evidence to environmental noise research in Tirana.

Beyond documenting existing noise conditions, the study highlights the importance of integrating environmental noise assessment into urban planning, transport management and environmental policy. The findings establish a baseline for systematic monitoring and support the development of targeted measures addressing traffic-related noise in densely used urban areas. Future research incorporating standardized acoustic indicators, extended monitoring periods and complementary traffic data would strengthen the assessment of long-term exposure and enable more comprehensive evaluations of noise-reduction interventions. Overall, the study contributes to a better understanding of urban environmental noise in Tirana and provides a foundation for evidence-based strategies aimed at improving the acoustic quality, environmental sustainability and live ability of the city's urban spaces.

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"The Emancipation of Form nd Plastic Humanism: The Artistic Legacy of Thoma Thomai (Dhamo) in Albanian Sculpture"

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DOI 10.37199/F40002971

Abstract
Albanian monumental art produced between 1968 and 1985 represents one of the most dynamic yet highly constrained periods in the country's art history. Guided predominantly by the norms of Socialist Realism and shaped by an atmosphere of strong ideological control, the monumental sculpture of this era frequently oscillates between formal cliché and efforts toward aesthetic emancipation. Within this context, the figure of Thoma Thomai (Dhamo) emerges as one of the most distinctive and inventive voices of his generation—an artist who, quietly but persistently, sought to preserve professional integrity and the autonomy of plastic expression.
In comparison with his contemporaries—such as Mumtas Dhrami, Shaban Hadëri, Kristaq Rama, and Hektor Dule—Thomai works within a space that is less monumentalizing and more intimate, pursuing more human and emotionally resonant dimensions of sculptural representation. Unlike those artists whose practice became closely aligned with ideological sculpture, Thomai cultivates an approach that intertwines psychological observation, formal sensitivity, and greater freedom in shaping the portrait and the human figure.
This study aims to analyze Thomai's creative output within the constraints and opportunities of the period, highlighting the key features of his artistic language, his relationship to Socialist Realism, and the traces of European modernism that, although limited, surface in several of his works. Through an examination of the historical context, a plastic analysis of selected key sculptures, and references to contemporary theoretical and critical discourse, the article seeks to illuminate the creative dimension of an artist who quietly challenged the boundaries of the official artistic method.
The study also demonstrates the wide spectrum of formal approaches within Socialist Realism, showing that despite thematic uniformity, style was not fully standardized. Alongside the heroic pathos of certain monuments, one encounters more expressive tendencies, psychological depth, and intimate treatments of the human figure. Within this framework, Thomai's oeuvre stands out as one of the most original voices of the period, contributing to the expansion of the boundaries of Albanian monumental art.

Keywords: *Sculpture, Monumental Art, Socialist Realism, Humanism, Expressiveness*

Introduction

Albanian monumental sculpture of the Socialist Realist period reveals a persistent tension between ideological imperatives and artists' individual efforts to preserve professional integrity and plastic expression. While public themes were clearly prescribed, artistic form was never strictly codified, allowing room for formal and aesthetic exploration.

Artists retained a certain degree of freedom in terms of formal language, which led to works that, although officially commissioned and exhibited in state-sponsored exhibitions, did not fully adhere to the official artistic method. A representative example of this diversity is the relief The Peasantry Upheavals of 1915–1920, installed in the National Historic Museum in 1981 by Thoma Thomai. This work is notable for its dynamism and expressive power. According to sculptor Dhrami (1983), these are characteristics that also appear in other works by the same artist: they "…also display internal tension and original plastic solutions." (Figure 1).

Using what conventionally he has been allowed to and sticking to what the relief demands from him, the sculptor Thoma Thomai Dhamo gives to us through his original, many-faceted and energetic composition the social revolt of the people. "All this is shown thanks to the drawing and modelling, which are clean, laconic, and rich in movement and possessing an internal dramatic strength. Distinguishable, in the centre, stands out the best figure of the relief: the villager of Middle Albania who pushes forward barefoot but full of tension and passion. This central figure focuses with artistic force the anger, bravery..." according to Andon Kuqali (1982).

The 1970s and 1980s are characterized by an interplay between monumental scale and more introspective, humanizing treatments of the figure, in which expressiveness, internal dynamism, and psychological analysis increasingly prevail over schematic and folkloric approaches. Artists such as Thoma Thomai, Shaban Hadëri, Mumtaz Dhrami, and Kristaq Rama developed diverse artistic trajectories: some emphasized heroism and dramatization, while others sought to harmonize monumentality with emotional and psychological depth.

This period also marks a shift toward psychological characterization rather than ethnographic detail, accompanied by an expansion of monumental portraiture that reflects a measured humanism and a freer plastic idiom. These developments demonstrate that, even within the confines of a rigid ideological system, Albanian art could evolve and enrich the formal language of national sculpture.

Within this context, the monumental sculpture of Rrapo Hekali (1977), created by Thoma Thomai, stands as one of the most compelling examples of the interplay between monumentality and emotional expression in Albanian Socialist Realist sculpture (Figure 2).

The figure of Hekali integrates heroic strength with an inner composure, avoiding the excessive dramatization and emphatic gestures often associated with representations of historical heroes. The composition is distinguished by a balanced volumetric rhythm and an emphasis on the psychological dimension of the subject, rendering the figure not merely a symbol of heroism but a sensitive and profoundly human presence.

This approach illustrates Thomai's ability to maintain artistic integrity within ideological constraints, shaping a plastic language that merges monumentality with humanism and formal elegance. Rrapo Hekali exemplifies a type of sculpture that conveys emotional intensity without compromising the historical grandeur of its subject.

Cultural and Artistic Context of the Years 1965–1985

During this period, Albanian monumental art was shaped primarily by the norms of Socialist Realism, while also drawing on the Eastern academic training that most sculptors had received. Many works gravitated toward decorativism and ideological schematization, frequently reducing creative individuality in favor of political narrative. As noted by the scholar Andon Kuqali (1971), "themes held great importance in the context of socialism," emphasizing that plastic approach and vivid colors were employed in the service of ideological interpretation rather than aesthetic inquiry. Influences from Soviet, Czech, Polish, and Romanian art were evident in numerous works, though often without clear references to the avant-garde experiences of Western Europe. Exceptions were rare and generally associated with artists who sought to preserve alternative spaces for expression.

Within this narrow horizon, the work of Thoma Thomai gains particular significance. He represents a form of quiet aesthetic resistance; one that does not openly challenge the system but transcends it through artistic quality. Thomai was not a "monumental sculptor" in the classical sense defined by socialist doctrine. He belonged to a group of artists who found greater freedom in portraiture, maquettes, and intimate compositions, areas that were less burdened by grand ideological rhetoric. In this sense, his position contrasts sharply with that of his contemporaries:

- Mumtas Dhrami – oriented toward heroic monuments and dynamic plastic structure;
- Shaban Hadëri – known for an epic and declamatory tone in historical compositions;
- Hektor Dule – author of monumental scenes marked by mythologization of the figure;
- Kristaq Rama – noted for aesthetic sublimation and the pursuit of monumental freedom.

Thomai offers a different approach: less grandiose, more human, and more introspective. He maintains a balance between the demands of the official method and the need for artistic authenticity. "He belongs to the younger members of the older generation". According to painter Basim Tula (1996), such interventions reflect Thomai's passion. In his later interviews, Thomai emphasizes that the effort to avoid overt ideologization was a continuous, often invisible, yet constant process embedded in the conceptual structure of his works (Figure 3).

According to scholar Stefan Çapaliku (2019), it was precisely this focus on "the real theme" and the avoidance of folklorization or glorification that preserved Thomai's artistic integrity. While

other figures became defined by monumentalism, Thomai safeguarded the human scale of the figure, distancing it from the heroic intoxication of the time. This period, although constrained by ideological norms, served as the stage upon which the artist constructed the foundations of his plastic language. In the portrait Girl Singing (1971), Kristaq Rama observes an attempt to "translate a song through sculpture," highlighting the synesthetic dimension of the work. It is not merely a portrait; it constitutes an inquiry into rhythm, musicality, and the figure's internal movement (Figure 4). The quality of formal synthesis and the search for equilibrium between form and spirit set Thomai on a path distinct from official aesthetics.



Figure 1. Thoma Thomai (Dhamo): The Peasantry Upheavals of 1915–1920, (1981) installed in the National Historic Museum



Figure 2. Thoma Thomai (Dhamo): Rrapo Hekali. Plaster sculpture (1977). Source taken from the author's file: Tirana 2019.

In the art of a nation, especially interesting works that represent more than just the author but a historical event, an act of nature or a notable period emerge from time to time. Such works may even serve as pioneers of a conceptual shift. As noted by painter and art historian Llambi Blido (1995), "The Singing Girl is a sculpture — a symbol of freedom, art, and the modern emancipation of women. And all of this has been conveyed, for the first time in Albanian sculpture, from beginning to end, as a purely plastic idea." This innovative spirit is also reflected in other sculptures by Thomait, such as and the portrait of Tefta Tashko Koço (1974), both of which display a remarkable sense of freedom in their volumetric modeling and the dynamic rhythm of their surfaces (Figure 5).

These works reflect the spirit of the "liberalization" of 1968–1973, a period during which ideological control softened and the arts briefly gained room for experimentation. Thomai's works of the early 1970s exhibit a refined approach to form and expression, visible in several essential characteristics.

One of the most prominent is the reduction of rhetoric in favor of emotion: the artist avoids propagandistic hyperbole and the exaggerated gestures typical of Socialist Realism, focusing instead on conveying internal emotion and naturalness of presence. Another distinguishing element is the gentle and balanced rhythm of the surfaces, where each volumetric value and interplay of forms follows a harmonic logic that maintains calm and visual equilibrium. This approach contributes to the construction of a pure and coherent plastic language, avoiding unnecessary decorative excess. Thomai also demonstrates an acute psychological observation of the subject—a rarity in Albanian art of the time. Through the analysis of facial expression, posture, and composition, the figure articulates an inner state and individual character, imparting vibrancy and sensitivity to the work.

These elements reflect a movement toward a plastic language that, although rooted in academic realism, seeks emotional depth and the communication of inner experience. Thomai thus emerges as one of the most innovative artists of the period, contributing to the development of a freer, more harmonious, and more contemplative sculptural language in Albanian art of the era. The culmination of Thoma Thomai's artistic emancipation is embodied in Portrait of the Student (1972), a maquette that the sculptor himself described as a plastic solution "that could have been realized in any European city." This statement underscores his aspiration to align with contemporary European artistic developments (Figura 6).

The portrait is distinguished by its free gesture, simplified composition, volumetric clarity, and overall sense of fluidity, eliminating any ideological or decorative burden. The scholarly value of this study lies in demonstrating the divide between the artist's professional formation and the constraints imposed by the official canon. It opens an analytical space for understanding the complex relationship between art and ideology—between the sculptor's individual aspirations and institutional norms. The Portrait of the Student represents a brief yet pivotal moment of modernity within Albanian sculpture of the early 1970s.

During the 1980s, Thomai described himself as increasingly free to explore themes that required a more pronounced expressive language. The gradual decline of political control and the broader social transformations of the period created opportunities for works with a more reflective, dramatic, and individualized character. His sculpture from this time reveals heightened expressiveness, a more liberated treatment of volumes, and a tendency toward subtle abstraction—an evolution made possible by themes centered on pain, sacrifice, and human drama.



Figure 3. Photograph with sculptor Thoma Thomai, during the interview. Tirana 19. 07. 2018



Figure 4. Thoma Thomai (Dhamo): Vajza që Këndon (The Singing Girl). Bronze, portrait presented at the exhibition "Primavera" (1973).

Plastic Structure and Artistic Expression in the Monument The ambush of Barmash (1984)

Works such as The Fire of Borova and the The ambush of Barmash acquire deeper emotional resonance, distancing themselves from heroic schematism and reflecting the artist's rejection of folklorism and gigantism, traits emphasized by Çapaliku as central to Thomai's artistic identity.

The Fire of Borova (1988), this work in bronze has been placed in an important point of Borova village in southern Albania. Two



Figure 5. Thoma Thomai (Dhamo): Tefta Tashko Koço (1974) Bronze. National Gallery of Art.



Figure 6. Thoma Thomai (Dhamo): Student (1972) plaster sculpture, 160 x 45 x 33 cm. National Gallery of Art.

arched surfaces of wrought stone facing each other have been built on an elevated point of the village. This was the idea of the architect Vladimir Bregu. In one of the walls, the sculpture Borova, July 6 1943, has been fixed upon. It tells the whole story of that tragic history. It extends horizontally to about four metres and its quadrangle form ends in an irregular way, an effect created by the compositional decision of the author. The subject of the work tells of the three most poignant episodes from that event. Each of them entails a separate impressive subject but in the entirety of the work they are covered by another element that has been turned into a symbol, the Flame. The author, who has not underestimated each of the three moments, has realized them experiencing all the emotions of pain and the anxiety that has overcome the victims.

The ambush of Barmash (1984), created by Thoma Thomai (Dhamo), holds a distinctive place within the repertoire of Albanian socialist-period monumental art. Positioned at a strategic overlook in the Barmash valley, the work seeks to materialize partisan heroism through a dynamic plastic vocabulary and a composition that unites territory, historical narrative, and ideological symbolism.

Conceived within an artistic climate in which monumental sculpture served as an instrument of collective memory and political legitimization, the The ambush of Barmash refers to an episode of the National Liberation War. Through two typified partisan figures depicted in the midst of battle, Dhamo articulates a heroic narrative of sacrifice, solidarity, and the unyielding spirit of resistance (Figure 7).

In this sense, the work conforms to the dominant iconographic model of the 1960s–1980s: athletic, tension-filled figures oriented toward a teleological horizon that projects the socialist future.

The monument is not merely commemorative; it is performative, re-enacting through a frozen form the unbroken energy of struggle. The sculpture presents two male figures atop a rocky block, forming a wide, energetic triangular structure. The foremost figure rises with an outstretched arm and clenched fist—a gesture embodying calling, mobilization, and triumph.

The second figure, crouched and holding a rifle horizontally, completes the vector of tension and dramatic charge (Figure 8). These two axes—the vertical of uplift and the horizontal of combat—construct a powerful symbolic system: moral elevation and material resistance. The sculptor employs a strong diagonal rhythm, imparting to the monument a centrifugal energy that seems to burst forth from the bronze mass. Dhamo follows the principles of heroic realism: animated bodies, pronounced musculature, and rigid drapery that enhance monumental grandeur.

The faces are focused and synthesized yet expressive, avoiding individualized portrayal in order to confer upon the figures the status of archetypal fighters. Plastic weight is distributed through clearly defined volumetric blocks, balancing the figures' heavy mass with their dramatic motion. The monument is set upon a stone platform, minimally detached from the natural terrain. This seamless integration grants the work a topographic character: the figures appear to emerge from the mountain itself, forming an organic part of the landscape.



Figure 7. Thoma Thomai (Dhamo): The ambush of Barmash, (1984). Bronze sculpture; Barmash- Albanian.

This connection to nature becomes a metaphor for the partisan's bond with land, soil, and identity. Heroism is articulated not through rhetorical pathos but through a dynamic generated from within the form. The frozen movement of the figures becomes a shared visual language that communicates energy, sacrifice, and resolve. In theoretical terms, the work embodies the paradigm of the "socialist heroic subject," in which the individual dissolves into the collective and rises to a mythical dimension.

The Barmash landscape constitutes an inseparable element of the conceptual composition. The open space and the mountain opposite create a natural scenography that expands the sculpture beyond its physical limits (Figure 9).

The principal figure, with raised arm, establishes a dialogue between earth (the realm of real struggle) and sky (ideal, historical projection). The two figures construct a clear dialectic: the first (with the weapon) represents immediate combat, defense, and tactical action; the second (with the raised arm) embodies calling, idealization, and spiritual leadership. This duality transforms the monument into a conceptual schema: the foundation is physical sacrifice, upon which ideological mobilization rises.

The ambush of Barmash (1984) by Thoma Thomai (Dhamo) stands as one of the significant achievements of twentieth-century Albanian monumental sculpture. It synthesizes the principles of socialist realism with a distinct artistic individuality, forming a work in which form, movement, ideology, and nature converge into a powerful unified structure. The sculpture remains a reference point for its use of diagonal dynamism in composition, its integration of monumental figures with landscape, and its plastic elaboration of the concept of collective heroism. Through this work, Dhamo created not only a monument but also a visual

mechanism of memory and historical identity—one that continues to communicate a potent aesthetic and symbolic energy today.

Thomai's artistic production during this period must be understood as a form of resistance against the schematization typical of monumental sculpture at the time. His resistance was not political but aesthetic and methodological. By preserving his artistic individuality, he forged the model of an artist who, despite existing boundaries, seeks to keep professional inquiry alive.

The analysis of his early-1970s works reveals several key elements that demonstrate a conscious distancing from the dogmatic aesthetics of Socialist Realism and a movement toward a modern plastic syntax. His resistance, far from ideological dissent, was grounded in aesthetic conviction and methodological integrity—an affirmation of individual artistic agency within the constraints of the system.

First, the plastic vocabulary he employs reveals a mode of thinking about form that transcends rigid ideological schemes. Thomai prioritizes the interplay between volume, movement, and compositional simplicity, constructing the figure on the basis of contemporary visual principles rather than rhetorical imperatives.

Second, a significant transformation can be observed in his treatment of the human figure.

Rather than presenting the subject as a monumental hero or a propagandistic instrument, Thomai depicts a real, tangible individual—an everyday human being. This shift toward humanism distances the artist from the theatrical heroization that dominated official sculpture of the era. Another distinctive aspect is the deliberate reduction of pathos, an intentional avoidance of overly dramatic or exaggerated gestures. Instead of relying on artificial tensions, Thomai favors structural calmness and an inner intensity that emanates from the form itself. This approach aligns him with modern European practices, where expression is achieved through an economy of means rather than through scenic hyperbole. His figures communicate through the sovereignty of pure form, avoiding unnecessary narrative intrusion. Silence, as an aesthetic concept, becomes a strategy for articulating presence and emotional depth.

These elements modern plastic syntax, humanization of the figure, reduction of pathos, and an aesthetics of silence; position Thoma Thomai as one of the artists who articulated a distinct moment of emancipation within the constraints of the system, expanding the formal horizon of Albanian sculpture of that period. In this sense, Thomai embodies the typology of an artist who preserves himself and part of the tradition from ideological degradation, generating alternatives that would later serve as preconditions for the aesthetic transition after 1990.

Thomai's principal contribution lies in reintroducing psychological and emotional depth into the portrait genre, distancing it from formal heroism. As noted by art scholar Suzana Varvarica Kuka (1998), the sculptor Dhamo preserves "…a precious sensibility within himself, which he conveys in every one of his works, turning it into the distinctive mark of his artistic individuality and a testimony to an aesthetic phenomenon in culture." At a time when the human figure functioned primarily as a propagandistic tool, he restores it as an intimate and timeless subject. His visual language, while rooted in classical foundations, subtly absorbs elements of modernity. This is where the artist's greatest historical value resides: he exemplifies a disciplined creativity that resists the distortions of the era and upholds professional integrity.

Conclusions

The artistic output of Thoma Thomai (Dhamo) represents one of the most significant chapters in Albanian sculpture during the second half of the twentieth century. Through a sustained and sincere formal inquiry, he succeeded in crafting a distinct artistic profile, distancing himself from the monumental rhetoric and decorative schemata that characterized much of the period's official art. His sculptures demonstrate that, even within a closed ideological system, art can find ways to communicate human depth, sensibility, and aesthetic imagination.

Thomai stands among the few artists who developed a coherent and credible plastic language, preserving professional integrity even in the most challenging phases of Albania's cultural life.

His artistic thinking—nourished by close observation and personal experience—constitutes a creative laboratory through which Albanian sculpture may be studied not only as an ideological instrument but also as a reflection of the human spirit. In this context, the analysis of Thomai's oeuvre contributes to a critical reassessment of Albanian art history, restoring to the center the figure of the individual artist who, quietly yet decisively, altered the trajectory of sculpture in his time.

The chapter dedicated to Thomai's creativity and sculptural evolution between 1968 and 1974 examines a crucial phase in the development of Albanian monumental sculpture, a period in which the art of Socialist Realism intersected with modernizing impulses and refined formal experimentation. The analysis of his monumental works, maquettes, and studies shows that this interval constitutes an experimental moment in which ideological constraints coexisted with mature creativity and advanced technical mastery.

Central to this period is Thomai's artistic activity, which—despite the thematic obligations imposed by official canons—managed to sustain a modern sensibility and a high degree of plastic integrity. His works are characterized by an internal dynamism, original volumetric solutions, and the deliberate reduction of decorative elements. This orientation produced a sculptural language that avoided dominant schematism and promoted a more human, purified, and expressive treatment of the monumental figure. In sum, the article situates Albanian monumental sculpture of 1965–1985 within a framework that integrates formal analysis, political context, and the evolution of artistic language, underscoring the fact that Thomai's contribution marks a critical moment in the consolidation of sculptural modernity in Albania.

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Figure 8. Thoma Thomai (Dhamo): The ambush of Barmash, (1984), detail of the sculpture; Barmash- Albanian.



Figure 9. Thoma Thomai (Dhamo): The ambush of Barmash, (1984). Bronze sculpture; Barmash- Albanian

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Influence of Video in Shaping the Perception of the Albanian

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DOI 10.37199/F40002972

Abstract
This study investigates the influence of video on shaping the perception of public space, with a particular emphasis on how video and film during Albania's transitional period (1991–2017) contributed to altering the understanding of these spaces. The everyday interaction with visual media—whether through videos, films, advertisements, or public displays—demonstrates that video has evolved into both a reflective and a manipulative instrument in the conceptualization of public space. Following the fall of the communist regime, Albania underwent rapid sociocultural and technological transformations that significantly reshaped its urban landscape and the way it was perceived by its inhabitants. Public spaces, such as Skanderbeg Square, emerged as critical arenas where these changes were both reflected and contested. Within this context, film and video art served as mediums to explore the tensions and intersections between space, identity, and collective memory. The study highlights that video functions not merely as a tool for documenting reality but as an active agent in crafting new spatial experiences. Through artistic techniques akin to the cinematic approaches of Andrei Tarkovsky, Wes Anderson, and Ridley Scott, as well as experimental practices in video art by local authors, video renders public spaces perceptible in novel ways. The study employs a phenomenological methodology, integrating archival research with comparative analysis. Film sequences are deconstructed and translated into graphic analyses, creating spatial representation schemes that reveal how visual perception and collective memory are shaped through video. Skanderbeg Square serves as the primary case study, illustrating the visible transformations in both its form and symbolic content. This square exemplifies how video fosters a dialogue between individuals and public spaces, enhancing the understanding of their interconnectedness. By adopting an interdisciplinary lens, this study addresses a significant gap in the literature at the intersection of video, architecture, and collective memory. It offers valuable insights for architects, urban planners, anthropologists, and scholars of visual arts, underlining the role of video as a powerful medium for interpreting and reimagining public space.

Keywords: *Architecture, Design, Sustainability, Artificial Intelligence (AI), Generative Design, Building Information Modelling (BIM), Life Cycle Assessment (LCA).*

Introduction

In our contemporaneity, the presence of the image as a constant in daily life is indisputable. Images that appear on streets, clothing, or magazines—and, above all, those conveyed through video, projections, and screens—exert a profound influence on our perception of reality. Our interaction with physical space and its representation through video imagery generates diverse perceptions that do not always align with the actual spaces being depicted.

Following the fall of the communist dictatorship, Albania underwent significant social, cultural, and economic transformations, opening itself to Western influences. Within this context, technology and visual arts experienced rapid development. The introduction of color television and foreign broadcasts into every household marked a significant cultural shift. At the same time, urban transformations, often carried out informally by residents—such as converting apartments into shops or constructing incongruous architectural additions—altered the visual identity of cities profoundly.

In the early 1990s, contemporary Western art forms, including performance, installation, and video art, began to penetrate the Albanian artistic landscape. Unlike painting, video offered unique advantages such as the manipulation of time, the integration of audio, and the dynamic mobility of imagery, creating a more impactful experience for viewers. The dystopian realities of the transitional period inspired Albanian artists, who used video to document urban transformations, the erosion of public space, and crises of identity.

Public spaces, such as Skanderbeg Square, emerged as critical arenas for these transformations and central themes for artists like Stefano Romano, Ergin Zaloshnja, Anri Sala, Alban Hajdinaj, Gentian Shkurti, and Irgin Sena. Their video works reflect on architectural interventions and the processes of public space erosion, transforming video into a public platform for experimenting with perceptions and artistic approaches. Film footage, video chronicles, and video art not only contextualize public spaces but, through editing and montage techniques, also enhance spatial perception, offering a more profound understanding of the dynamics of public space.

Research on Public Space through Moving Images

This study examines videos and films as tools that, through cinematic techniques, reshape our perception of public space. The primary objective is to juxtapose the architectural and monumental descriptions of public space with the dynamic interactions of the people inhabiting it. The research addresses two key questions: How do videos and films, from the onset of Albania's transitional period to the present day, manipulate reality in their representation of public space? And what cinematic and perceptual techniques are employed to depict public space in the era of neoliberalism?

Through a perceptual and spatial analysis of chronicles, films, and videos from the period 1991–2017, with a particular focus on Skanderbeg Square, the study highlights how moving images serve as instruments for preserving collective memory and emphasizing the significance of public space in the face of its erosion.

Objectives and Methodology of the Research

This research aims to explore the impact of moving images on the perception of public space and their role in its representation during Albania's transitional period. The primary objective is to analyze the cinematic and perceptual techniques employed to construct a narrative about public space, portraying it as a dynamic arena for social and political life.

The methodology involves analyzing film sequences depicting Skanderbeg Square, comparing them to the physical space, and reviewing relevant literature on these locations. Through drawings and visual analyses, the study seeks to identify recurring patterns in the representation and perception of public space, thereby contributing to a deeper understanding of urban and artistic transformations during the transition period.

The perception of Space

The perception and documentation of space are central themes in this writing. It is, therefore, essential to establish definitions of visual perception, particularly in relation to moving images and public space.

The concept of perception has deep historical roots and has been extensively theorized in philosophy. Perception refers to the awareness or recognition of something external to oneself or the realization of the existence of entities beyond the self. At its core, perception serves as an intermediary between reality and its representation, functioning as a process that enables new forms of understanding derived from sensory or empirical data. Perception can be categorized in various ways, two of which include cognitive perception and Gestalt perception.

Since antiquity, visual perception has been regarded as an inherent faculty enabling engagement with the external world, providing a means of transitioning between external experiences and internal reflections, and vice versa. Early thinkers approached perception primarily as a physiological phenomenon tied to the eye and the sense of sight. Scholars such as Alhazen, Copernicus, Galileo Galilei, and others investigated the workings of the visual apparatus (the eye) and the nature of light, which, upon entering the eye, facilitates the perception of the external world. In parallel, philosophers like Baumgarten, Kant, and Schopenhauer examined visual perception from a philosophical standpoint, emphasizing the role of "choice" in aesthetic judgment and identifying perception as a variable shaped by subjective discernment.

The frescoes of Villa Boscoreale exemplify this perspective, extending interior spaces into exterior realms through the use of perspective, thereby expanding the viewer's perception beyond the confines of physical walls. In this context, as in other instances where artistic media are employed, visual perception is mediated through artifice, such as Brunelleschi's linear perspective and Leonardo da Vinci's atmospheric perspective. The latter complements linear perspective by adding a greater

sense of naturalism to images, enhancing the perceived authenticity of visual stimuli. Diverse viewpoints reveal different possibilities, creating suspense, surprise, and a sense of discovery, while also providing spatial reference points.

Visual perception is not merely the act of seeing; it also involves memory and acquired visual understanding. It encompasses a range of factors, including subjective awareness, attention, interpretation, and the integration of visual stimuli. It involves not only processing received information but also the subjective experience and the construction of meaning. Thus, visual perception can be described as a dynamic and complex process that reflects the interplay between sensory inputs, cognitive processes, and subjective experience.

The Essential Role of Visual Perception in Documentation

Central to visual perception is the documentation of impressions derived from specific moments, which reach us through sensory data extracted from a particular place or event, affirming our presence within it. This documentation of visual perception has historically led to the creation of images as representations of the visible world, positioning the observer as a recipient of visual impressions shaped by another. This parallels the role that painting assumed in translating visual perceptions from reality until the advent of the first photographic image by Niépce. The invention of photography liberated painting from its mimetic function, enabling it to engage more freely with the interpretation of visual perception.

Photography quickly replaced painting as the primary medium for capturing reality, offering previously unimaginable perspectives, such as aerial photographs by Nadar. These images provided an objective and immediate view of the world from above, where everything appeared static, allowing humanity to see itself from an entirely new vantage point at a specific moment in time, free from the awareness of being observed. Similarly, photographs from remote expeditions or wartime—such as those by Alexander Gardner—brought the visual perception of grim events occurring in a specific moment to a wide audience. These viewers, rather than perceiving the events as distant or abstract, assimilated the photographer's visual perception as if it were proximate, both in space and time.

However, as Merleau-Ponty notes, Rodin argued that photography deceives because it attempts to halt time, an endeavor that is inherently futile since time never ceases. (Merleau-Ponty, 1993) Indeed, time is in perpetual motion, and everything is continuously evolving. This concept was explored in the sequential studies of movement by photographer Eadweard Muybridge, who depicted a galloping horse through a series of photographs. These successive images conveyed the essence of motion. With the advent of moving images, visual perception ceased to be confined to a static representation frozen in time, becoming instead an interpretation drawn from the physical world and presented dynamically to the viewer.

Even the simple act of observing something and etching it into memory constitutes a form of documenting visual perception. Moreover, when we fix our visual perception onto a physical surface, it transforms into a reinterpretation of perception, layered with what Baumgarten refers to as the "judgment of beauty." This overlay enriches the act of documentation, blending subjective interpretation with objective representation.

Visual Representation Differences: Video and Painting

Following the logic of the preceding section, it can be argued that video adheres to the same foundational principles as painting. However, as demonstrated by scholars such as Merleau-Ponty and Benjamin, significant differences emerge in how these two mediums reflect the visual perception of public space. Both possess the capacity to alter their reference by producing an image that, while resembling its source, aligns with the synthesized visual perception derived from it.

Painting documents the visual perception of reality through the internal filter of the artist, incorporating their moral and aesthetic judgments. Consequently, a painting's depiction of the public space mirrors the artist's subjective visual interpretations.

Video, on the other hand, as Benjamin argues, is inherently



Figure 1. Ideal City, Florentine (Italian), after design by Giulio da San Gallo (Artist) ca. 1480-1484 (Renaissance), oil and tempera on panel

shaped by the artist's choices, such as camera angles and the editing of sequences, which actively guide the viewer's gaze (Benjamin, 1968) Despite this artistic mediation, video retains the detachment of a technological medium and the authenticity of its image as a reflection of reality. In this sense, the artist's role in video is not merely to create an image based on their own visual perception but to manipulate and reconfigure sequences extracted from reality.

As suggested by Ladaga and Manteiga, video has the potential to re-evaluate public space by serving as a surface for reflection and reinterpretation (Alexandro Ladaga, 2006) Nonetheless, the focus in this analysis lies in the representation of public space through video and the visual perception it generates for its audience. Through this lens, video is examined not just as a documentary medium but as a transformative tool for engaging with the perception of public spaces.

Visual Perception and Its Role in Artistic Representation

Visual perception employs various techniques and methods to function as a visual language, whether in drawing, photography, or film. These methods also serve to alter our visual perception, a subject that has been addressed by numerous authors. In his book Art and Visual Perception: A Psychology of the Creative Eye, (Arnheim, 2004), Rudolf Arnheim argues that language cannot freely express what we see in an image, as it serves only to name what we have seen, heard, or thought. He introduces several categories for the exploration of images in the visual arts, such as balance, harmony, weight, contrast, space, dynamics, form, and light, which artists use to construct images.

Similarly, Bernard Tschumi, an American architect, acknowledges the importance of movement and dynamism in public spaces. He employs graphic tracing to describe frames in sequence and to maintain dynamism, creating dynamic patterns extended in time with rhythm, which he then transforms into objects, sculptures, or structures (Abdel-Ghani, 2020). His methodology aligns with the Gestalt principles employed by Arnheim to describe composition and its rules.

Graphical transcription tools are also utilized in this work, such as drawing and markings, to analyze how Skanderbeg Square is depicted in Albanian films and videos. Tschumi's approach is inspired by Eisenstein's montage theory, and his methodology is comparable to that of Arnheim

The technical tools analyzed thus far serve the purpose of capturing, processing, and producing images. Through these tools, the artist can also alter the visual perception of the reference in the creation of a new image. For instance, by changing the angle from which a public space is filmed or drawn, the artist can present a different perspective. Therefore, one of the most important aspects to be explored in this research is manipulation as a creative act; it plays a fundamental role in our visual perception of public space. However, how do we refer to manipulation beyond its application through technical tools in image creation?

In general, manipulation refers to the act of influencing or controlling someone or something. It can be applied in various contexts. Art, for example, is one of the clearest examples of manipulation, as it manipulates the image to achieve the desired effect. It manipulates using "techne," meaning technique. The technique may be manual or involve mechanical or digital technical tools, but it always involves an image that is manipulated, or to use another more technical term, "edited." However, manipulation is not always a process involving technical image tools; it can also be a conceptual manipulation, where the image and the word do not correspond to what is visible or known.

Returning to the core of our theme, manipulation/editing has played a decisive role in cinematographic works that have significantly influenced our perception of public space, employing techniques that manipulate our understanding of this space. Wes Anderson uses symmetry and color to enhance the perception of public space with symmetrical designs and scene framing. He also uses chromatic schemes, creating a cohesive visual impression with saturated contrasts.

Andrei Tarkovsky employs prolonged shots to capture scenes for extended periods, disrupting our temporary connection. His cinematography often plays with transitions between spaces, both internal and external, and uses color to convey changes in space. Metropolis by Fritz Lang uses architecture to define the distinction between two social classes, with the working class confined to the lower city and the ruling class situated in the upper city.

In Blade Runner, color schemes and the confrontation between the upper and lower classes are employed to capture public spaces through symmetrical angles and massive volumes. The fluorescent geometries and perspective views reveal a distant horizon of the city with towering vertical structures.

In A Matter of Life and Death, extreme chromatic divergence is used, shifting between the black-and-white depiction of heaven and the vibrant colors of earthly life, creating turbulence between color and monochrome, symmetry and asymmetry, thus casting doubt on the authenticity of the presented space.



Figure 2. Frame sequence by Andrei Tarkovsky's Zone, in Stalker, 1979

Defining Public Space in the Context of this Study

For the purpose of the study, it is necessary to define in what connotation we use the word public space, as far as this study is concerned. Public space is a term that includes an area between architectural elements where people can move and engage with each other. It is an environment where personal visual memories converge to form collective expressions. Scholars such as Rosalyn Deutsche, Henri Lefebvre, and Claude Lefort have contributed to the understanding of public space. Deutsche emphasizes its political nature and power dynamics (Deutsche, 1998). while Lefebvre defines it as a place of meeting, passage, socialization, and cultural interaction. (Lefebvre, 1968) Lefort claims that public space serves as a symbolic arena for contesting and affirming political legitimacy, (Lefort, 1986).

Colomina's work on the relationship between media and architecture emphasizes the mediated nature of public space and the way in which different visual cultures construct and represent it (Colomina, 1994). Lefebvre's definition of public space is that it can only be defined as such when it serves as a place for encounters, passage, socialization, and cultural interaction. Deutsche argues that true public spaces are dynamic and contested, providing a platform for the expression of democratic ideals and the negotiation of social meanings.

Skanderbeg Square as a Cultural and Spatial Symbol

Skanderbeg Square, the central part of the monumental complex in Tirana, occupies a central place in the collective memory of Albania. The square has its origins in 1917 with the construction of the first parliament of Albania but was only named as such in 1968, when the Skanderbeg monument was placed there. It has undergone numerous transformations over the decades, which have been reflected in videos, films, photographs, and paintings. These media document its evolving identity, preserving its significance as a shared space. The memories of generations, expressed through elements like the square's fountains, demonstrate how perceptions change over time, shaped by personal experiences and architectural alterations. For example, previous generations' memories may evoke nostalgia, but they may not resonate with newer ones.

The square serves not only as a physical space but also as an environment layered with emotional and sensory experiences. Kevin Lynch's theories on urban images highlight the interaction between the observer and the environment in the formation of place-based memories (Lynch, 2020). Similarly, Ardian Vehbiu's analysis of the Clock Tower emphasizes its role as a stable, unchanging symbol amidst the flow of the square, compared to a cinematographic lens that witnesses and records the passage of time (Vehbiu, 2018).

The analysis is further enriched by elements of space representation. Photography and video are the primary mediums for documenting Skanderbeg Square, each offering different ways to preserve and reinterpret its public space. While photography captures single moments, video presents movement and temporal continuity, adding layers of narrative and emotional depth. Nevertheless, both media shape perceptions of architecture and public space through compositional techniques, framing, and manipulation of light and color.

The depiction of Skanderbeg Square in Albanian films, particularly during the dictatorship era, and in photographs by citizens, shows how technical elements like framing and perspective influence the public understanding of its architectural and spatial identity. A comparative analysis of video sequences further emphasizes how compositional



Figure 3. Skanderbeg Square, before War World II. The picture shows the area before the drastically changes in the landscape of the communist era

styles—such as symmetry or atmospheric effects inspired by filmmakers like Wes Anderson and Tarkovsky—can alter our perception of the square, creating a dynamic interaction between reality and the mediated image. Ultimately, these visual representations serve as historical evidence and as tools for reimagining the public space.

Video Sequence Analyses from: Chronicle of February 2 1991.

In the original study, 7 film materials with different sequential views were treated, but in this summary, we will only treat one film material, that of the chronicle of February 2, 1991. In the video footage of this chronicle, the entire event of the protest during the fall of communist regime that occurred on February 2, 1991, stands out. The video chronicle is a recording of Albanian Radio Television, the only existing television at the time. This video chronicle comprehensively encapsulates all the facts that happened on that day, focusing on the key events that occurred with a significant portion of the sequences referring to the strike in Skanderbeg Square. The events, from the gathering of people to the toppling of the bust of former dictator Enver Hoxha, are depicted. The video sequences portray various viewpoints, and in all cases, the architecture of the square functions as a theater of the events of the time. These video images have symbolically become emblems of the change in the communist system in Albania. Therefore, the video enacts the idea of the public space not as static but as dynamic, something that only the video with its inner characteristics can achieve with the image in movement. The chronicle enhances a representation of what a public space is, a site of contestation that becomes only visible when people reclaim it and not merely an architectural or monumental space (in the traditional sense of these words). Indeed, the fact that the viewpoint is not unique but is plural together with the use of peripherical portions of the square to depict the entirety contributes to this idea of the public space described above. Therefore, the public space is made, used, reclaimed by people and not, again, by the simple representation of its architectural or monumental components.

In Figure (4), the viewpoint offered is from the colonnade of the Palace of Culture, with the camera moving from left to right, focusing on the square and the crowd of people gathered around the space where the dictator's statue once stood. This viewpoint provides a transition between spaces; although both spaces may be considered external, the viewpoint in this case is within the columns, so it can be said to be within the structure of the building. The columns, in a way, offer a kind of transition or division of the two spaces. In the sequence, this is evident through the separation of graphic elements and as traces, and by the geometric elements, the geometric columns that traverse the image vertically (but in motion), providing a strong structural representation of the image and space, as they, as elements, help to bear the weight and break the horizontal traces created by the square's landscape and the crowds of people. The image is in motion, and the columns also form a rhythm that gives strength to the image. From this sequence, due to the columns in the foreground and the space of the square in the background, the scale of perspective is also determined; in relation to this, the dimensions of the square and the architectural elements offered in this sequence help in the monumental perception of this space. This contrast between the architectural/monumental and the space of people again makes evident the notion of the public space as dynamic and in motion. It is the human crowd that we see through the columns what makes us perceive the public space in a 'non-traditional' and architectural way highlighting its human nature.

In this first scene of the chronicle we can experience a different perception of the public space as a social claim space thanks to some cinematic technique used such as for instance the distance that the viewpoint enhances between the representation of the public space and the spectator; the position of the same spectator who sees from a 'safe place' the event of the contestation (through the spaces in-between the columns); the use of the symmetry that facilitates the perception of distances and movements, without which such public space wouldn't exist; the view from the top.

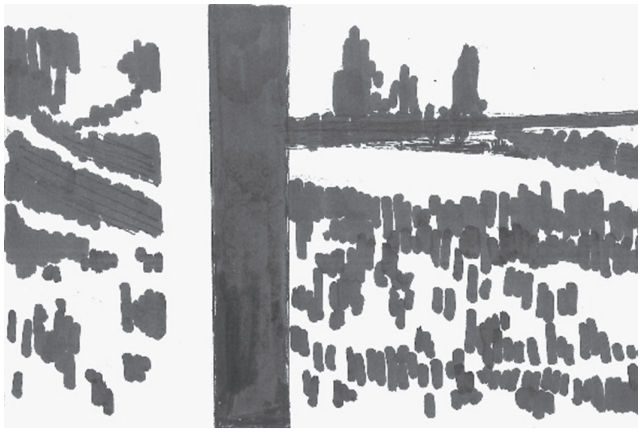
All these, a viewpoint that put the spectator in a position of distance, rather than a subject immerses into the crowd, contribute to see the crowd and not merely the architectural elements as the protagonist. Once again, the space becomes public when is inhabited by people and in this case, when is reclaimed as such.

Both drawings present graphically the image of figure 4. It is important to keep in mind that these represent a video sequence, so the elements are moving (from left to right). In the first illustration, a graphical translation of the image is observed with solid verticals and irregular horizontals. The verticals offer a solution that gives order to the graphical representation of this image, giving it greater stability.

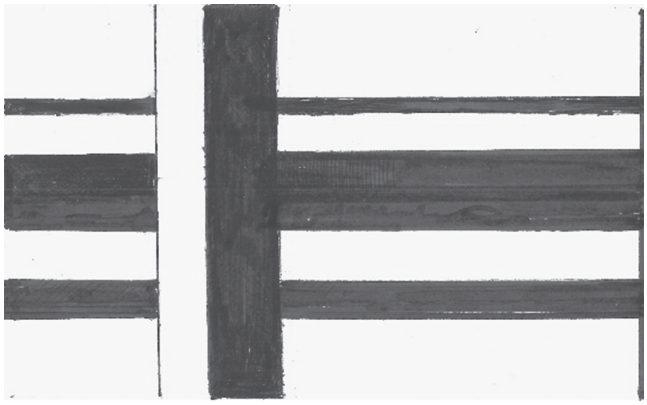
In the second illustration, the visual centrality is translated into a graphical model, where the verticals, moving with the



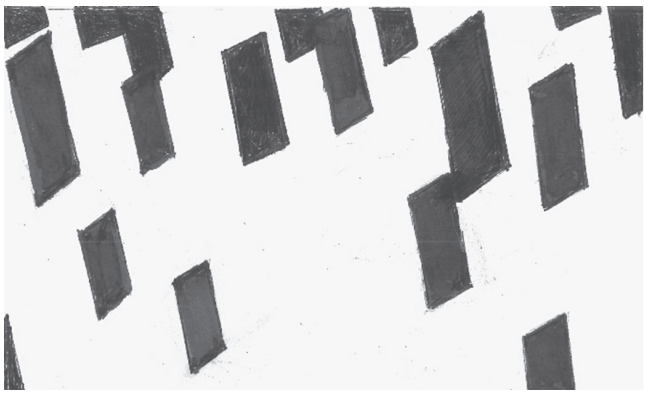
Figure 4. Retrieved from: The video clip from the 'Opinion' broadcast documenting the strike that occurred on February 20, 1991. (sequence from Culture Palace).



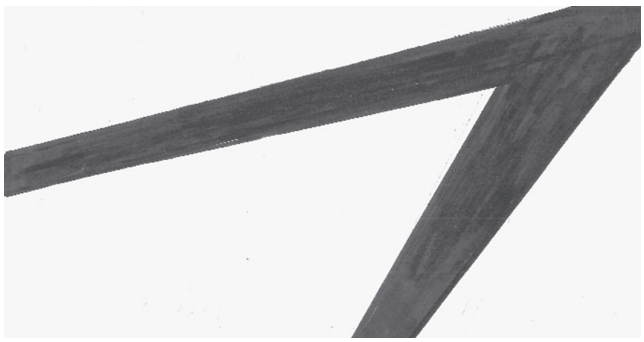
Drawing 1. Graphic drawing of figure 4, detecting graphic contrasts, in black and white, ink on paper, curtesy, of the author.



Drawing 2. Graphic representation of figure 4, illustrating a graphic flow in black and white, rendered in ink on paper, courtesy of the author.



Drawing 3. Graphic drawing of figure 5 (The Square), detecting graphic contrasts, in black and white, ink on paper, curtesy, of the author



Drawing 4. Graphic representation of figure 72, illustrating a graphic flow in black and white, rendered in ink on paper, courtesy of the author.



Figure 5. Retrieved from: The video clip from the 'Opinion' broadcast documenting the strike that occurred on February 20, 1991. (sequence showing the Square).

camera, act as sequence balancers, connecting not only the two sides of the image but also the internal and external space to it. The graphical elements of the visual field are translated into static horizontal lines. This second illustration synthesizes, through graphical elements, the sequence photogram that appears in figure 4.

It remains to be seen through other examples if the graphic elements that make up this sequence are repeated and if this pattern follows any visual scheme.

In the video sequence frame on figure (5), what is observed is a portion of the scene when the German shepherd dogs are attacking from the side of the police towards the protesters on February 2, 1990. The scene is constructed with dynamic sequences, where the subject is the public space of the square and the people that are moving with dynamism. From this viewpoint, the contours of the space (the square) are not discernible as a grid; if it were not for the people moving on it, the space would be alienated and indistinguishable because reference points would be lacking; the human subject in this case allows for the differentiation of the perspective of this square space. However, the video sequence we are watching is quite old, and as a result, the square is achromatic and devoid of color, and the entire image is like a kind of graphic play due to the technical means. At that time, the square was composed of small tiles and asphalt; however, the pattern and color of those did not allow for easy differentiation from the perspective of the eye. Unlike today, where the square consists of a grid or a well-arranged network of tiles, they are symmetrical and make the perception of space more comprehensible.

In the drawing number 4, a pattern has been created referring to figure 5, which represents with geometric shapes the graphic traces of people and animals present in that figure. The positioning of the rectangle is not in a clean vertical position because the graphic traces in the figure tend to be dynamic rather than static, so the non-verticality of the rectangles came as a reference from the image. As mentioned earlier, the drawing does not present distinguishable contours of the

square; in this case, the camera has used the graphic traces created by individuals in the square to create compositional balance. This is also evident in the subsequent drawing number 5 (below), where the trace of the visual weight carried by that sequence is apparent, and it serves best to describe the space, in a sense of visual weight and visual composition. The horizontal V shape carried out in this drawing serves also as an instrument for visual representation of the movement in the space of the square.

Conclusions

The graphic schemes extracted must be constantly considered as the results of sequences coming from a medium like video, which essentially captures movement and temporal progression. These sequences create patterns of spatial perception, where vertical shapes and indicators provide rhythmic repetition in the temporal perception of the event, thus evoking geometric elements, especially vertical ones, with stability that defines spatial coordinates, as illustrated in the drawings. The symbolism of the presence of the observation of vertical elements often redirects the focal point of the camera to have the verticals as a reference precisely because they provide stability. Another distinctive element is the element of proportional scaling, which does not always correspond to the vertical elements, however the following analysis reveals that in the realization of video materials, proportional scaling is widely used to best convey the impression of spatial depth.

In most of these videos, geometric shapes are used as reference points for the eye. It is precisely the use of these abstract forms that makes these artworks effective in changing our perception of public space. In fact, these forms, once again used as reference points, become aesthetic tools not only to describe architectural compositions, but more importantly to delineate the two subjects of these videos, the viewer and the spectator. These works invite us to see Skanderbeg Square from a perspective, from the most peripheral perspectives to see the entirety of the square, including the people who inhabit it, that is, to perceive the public space.

The video chronicle illustrates how Skanderbeg Square transcends its architectural elements to become a social and dynamic public space, shaped by human activity and historical events. The interplay of cinematic techniques, graphic representation, and human presence reveals the transformation of the square into a symbol of collective action and the reclaiming of public space.

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Restoration of Modern Architecture
The Case of the Modern Villas in Tirana, 1925-1945

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DOI 10.37199/F40002973

Abstract
This study is oriented and is part of the research on the discovery, recognition and restoration of buildings belonging to the modern period of the years 25'-45' in Tirana. Buildings with respective construction periods give a place its identity. Architects, at this time, played animportant role in the construction of villas. The study of villas that are already cultural monuments is very important for this study.
The methodology used shows how through new methods we will be able to turn these villas into villas of a contemporary model. The methodology will be developed around the history ofrestoration in Albania and for this I will compare different case studies about this theme. These interventions will be made without touching its history but by preserving and developing it so it can sustain generation after generation.
The aim is to study the city of Tirana, to bring back to attention, a part of its history, the old capital houses, which today enjoy the status of Cultural Monument of the First Category. The pain of this story is that there are not many of these over 100 years old houses that have survived, and that could stand the test of time. Many factors have influenced these houses to berare today. The initial hypothesis is related to the material and historical benefit that the city of Tirana will have after their restoration. First of all, the history of these villas of the modern period will be known in relation to the history of restoration. The methodology will be based on the analysis. about the modern architecture of the XX century as a novelty to the XX century Tirana, defining more clearly the study on a villa that is already a cultural monument, given how these will turn into a contemporary model. The results are expected to show the study on the history, the categorization of the buildings that are preserved as well as the list with the respective names of these historic villas. Results onthe restoration study of other countries with Albania. How these villas will be part of a contemporary model as a cultural heritage.

Keywords: *Tirana, Restoration, Principles of Restoration, Modern Architecture, History*

Introduction

This study will focus on the context of Tirana, exactly on the Villas of the years 1925-1945. During this period, the first architectural and urban changes took place in Albania, of which very few traces remain today, therefore in this study we will learn how modern architecture can be restored based on the interpretation of the restoration charter and researching through restoration methodology, approach and theories. First of all, we need to familiarize ourselves with Albania, it's history and where Tirana is positioned in this state. What are the influences that are in Albania until the modern period? Albania's history is extensive and intricate, having been molded over millennia by a wide range of cultural, political, and geographic influences. Albania's history is a tapestry of varied influences and events that have shaped its identity and destiny, from ancient Illyrian tribes to modern nationhood. Albania is bordered by Montenegro to the northwest, Kosovo to the north, North Macedonia to the east and Greece to the south. On the western natural border, Albania has open access to the Adriatic Sea and to the southwest to the Ionian Sea. Albania is a country that has lived among the interaction of different cultures which have influenced its creation until today such as: Ancient Illyrians, Greek and Roman Influence, Byzantine, Ottoman Empire, National Awakening, Independence, Republic establishment, The Italian Influence and Zog's Monarchy, Italian Occupation 1939–1943- Italy, World War II and the Communist Era, 1944–1945: The Communist Regime's, Post-Communist Transition, Albania in the modern era. In this way, after Albania passed all these political influences, the attention should be focused on preserving these values which are still existing today in the city of Tirana. Today, the preservation of these modernist gems stands as a testament to Albania's architectural heritage, requiring special attention to conservation strategies that respect their historical context. Differently from the classical restoration of buildings, the restoration of modern architecture plays an important role in the preservation and revitalization of structures that are representative of the modernist movement.

The architectural development of Tirana during this period should also be understood as part of a broader process of modernization. Changes in political administration, urban planning, and architectural education contributed to the introduction of new forms and construction approaches. The villas constructed during these decades therefore provide physical evidence of the social and cultural transformations taking place in the capital. Their study allows researchers to understand how international architectural tendencies were interpreted and adapted to local conditions. This makes the villas valuable not only as individual buildings but also as components of a larger urban and historical narrative.

Today, restoration refers to the identification, preservation, and documentation of cultural heritage sites that represent national values. But before we can delve deeper into the restoration procedures, we must first define phrases like "cultural monuments[1]," "heritage[2] with national values," "conservation and restoration[3]," "revitalization of cultural heritage monuments," etc. (Figure3)

These concepts establish the theoretical framework within which the selected villas can be analyzed. A clear definition of conservation and restoration principles is particularly important because modern buildings often require a different interpretation of authenticity and material value. Unlike some older monuments, modernist buildings may contain industrial materials, reinforced concrete, steel, glass, and other elements that deteriorate in specific ways. Their conservation therefore requires both historical understanding and technical knowledge. Establishing these definitions also helps distinguish between conservation, restoration, rehabilitation, adaptation, and reconstruction.

The objectives and purpose will be realized through the interpretation of the literature, the collection of information, the collection of documentation and treating 4 case studies (Villas in Tirana during the period 1925-1945). Another very strong point is the connection that these villas will have with urban spaces and the impact that these objects have on the city, their positioning, the location, their history. Since they are buildings of the modern period, often the materials used are unique to that time, and today the restorer must find a way to make these materials as similar as possible to the original state, and for this it is a challenge in itself.

The analysis of the four selected cases also provides an opportunity to compare different architectural conditions and different degrees of transformation. Each villa can reveal particular problems related to material deterioration, changes

[1]Monument- an old building or place that is an important part of a country's history. (Source Cambridge Dictionary)

[2]Heritage- features belonging to the culture of a particular society, such as traditions, languages, or buildings, that were created in the past and still have historical importance. (Source Cambridge Dictionary)

[3]Restoration- the act or process of returning something to its earlier good condition or position. (Source Cambridge Dictionary)

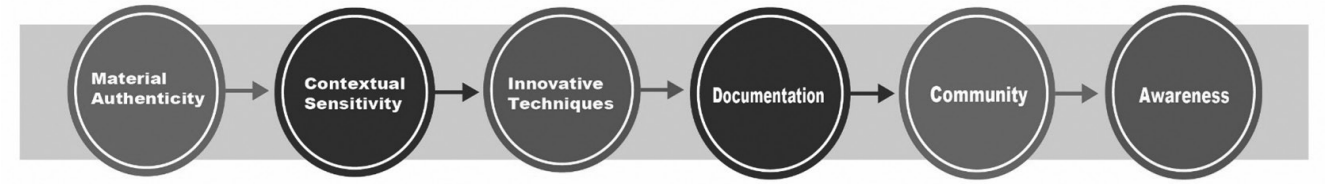


Figure 1. Diagram of the principles on which modern architecture is based. (Source Diagram: Author)

in use, alterations to façades, or modifications of interior spaces. By comparing these conditions, the research can identify recurring challenges as well as specific solutions that may be applicable to other modernist buildings in Tirana. The relationship between the building and its urban surroundings is considered equally important because the architectural value of a villa is influenced by its context.

Instead, it is important to choose the right restoration vision and philosophy for each individual effect, taking into account all the historical, archaeological, and aesthetic circumstances surrounding this effect. In the case of looking into the potential application of modern technology, the article suggests that there should be some standards and restrictions for this application.

The use of contemporary technologies should therefore be based on a careful assessment of necessity, compatibility, reversibility, and visual impact. Digital documentation, material analysis, three-dimensional surveying, and other contemporary techniques can support the understanding and monitoring of historic buildings. However, technological intervention should remain subordinate to the cultural and architectural values of the monument. The objective should always be to support conservation rather than allowing technology to dominate the historical character of the building.

Objectives and Methodology of the Research

The purpose of the study is to restore, revitalize, and conserve the architectural and cultural legacy of modernist buildings through a variety of strategies. The restoration of modern architecture seeks to achieve a delicate balance between maintaining the past and guaranteeing the ongoing relevance and vitality of these architectural treasures in the present and the future by aligning these goals.

The objectives and purpose will be realized through the interpretation of the literature, the collection of information, the collection of documentation and treating 4 case studies (Villas in Tirana during the period 1925-1945). Another very strong point is the connection that these villas will have with urban spaces and the impact that these objects have on the city, their positioning, the location, their history. Since they are buildings of the modern period, often the materials used are unique to that time, and today the restorer must find a way to make these materials as similar as possible to the original state, and for this it is a challenge in itself.

Therefore, conserving cultural heritage, modifying buildings for modern use, introducing cutting-edge technology and environmentally friendly methods, involving communities, carrying out in-depth research, encouraging teamwork, raising cultural consciousness, and fusing the principles of art and design are all important aspects of modern architecture restoration. This comprehensive strategy aims to achieve a harmonious balance between safeguarding modernist structures', sustainability and relevance in today's changing environments and maintaining their originality.

The historical context of the city of Tirana 1925-1945

To understand the origins of modern architecture and urban planning in Albania, we must first understand the prerequisites for the birth and development of the elements of this architecture, which happened during the period of the monarchy and further during the fascist occupation. In the first paragraphs, it will be analyzed the period after the declaration of independence of the monarchy, between the years 1923-1939, and that until the end of the Italian occupation 1939-1943. Based on research on the history of Tirana (Frasheri, 2000) and it's further developments (Dhamo. S, Thomai. Gj, Aliaj. B, 2016) from 1925 onwards, we can say that architects, initially Figure 3. Diagram of Hypothesis and research question. (Diagram source: Author) 8 from Austria, Italy and Albanian urban planners, who were employed in state offices direction of architectural solutions in Tirana, have made a significant contribution to urban and architectural planning in Tirana.

This period represents an important stage in the transformation of Tirana from a relatively small urban settlement into the political and administrative center of the country. The involvement of foreign architects and planners introduced new approaches to street organization, public buildings, residential architecture, and urban composition. At the same time, local professionals



Figure 2. Boulevard "Zogu I Pare" 1929



Figure 3. Boulevard "Deshmoret e Kombit" 2023

and craftsmen contributed to adapting these ideas to the physical and cultural conditions of Tirana. The resulting architecture was therefore not simply an imitation of foreign models but part of a complex process of adaptation and transformation

In order to identify the problems and changes that have occurred in Tirana since 1923 until today, we must understand the changes that occur in the Villas in terms of their functionality and physical changes, as well as the changes in the Urbanistic aspect and the problems that have appeared in their restoration. An important role of these changes is the interaction between preservation and intervention in those villas which have been classified as cultural monuments of the second category. The challenge is how the elements of the modern current will still be preserved today while protecting the values of the cultural heritage. In this subtitle of chapter two, it is important to emphasize the role of cultural identity between the preservation of modern elements and the efforts to assimilate them nowadays

The passage of time has introduced several layers of change to these buildings. Some transformations may reflect necessary adaptations to changing lifestyles, while others may have resulted from neglect or inappropriate interventions. Understanding these layers is essential because not every alteration necessarily represents a loss of value. Some changes may themselves have become part of the history of the building. The restoration process must therefore evaluate each transformation carefully rather than automatically attempting to return every villa to a single historical moment.

In conclusion, based on the above-mentioned problems, on the elements of the modern trend, the importance that these villas have given to the time, for the language used in their construction, as well as the urban connection that these villas have with the city, I have selected 4 case studies from the period 1925-1945 which are: 1- Villa 21 ("INSIG"), Jul Variboba' Street, 2- Villa of "Social Democratic Party in Tirana", Fortuzi Street, 3- Villa Nepravishta, Kavaja Street, 4- Villa of "Old French Embassy" Elbasani street.

These four case studies provide a representative basis for examining the relationship between modern architectural principles and the historical development of Tirana. Their locations within different urban environments also make it possible to investigate how changes in the surrounding city have influenced the perception and physical condition of the buildings. The selection therefore supports a comparative analysis of architectural form, urban context, material condition, and restoration potential.

Restoration Charter and Villas of Tirana

A key document that sets standards and guidelines for the protection and restoration of cultural property is the Restoration Charter. It acts as a guide for experts involved in the conservation of historic structures, sites and monuments, ensuring that restoration efforts are carried out in a manner that honors the cultural, historical and aesthetic values of the property. Figure 5. Boulevard "Zogu I Pare" 1929 Figure 4. Boulevard "Deshmoret e Kombit" 2023 9 The Charter places a strong emphasis on the necessity of preserving the integrity and authenticity of historic sites while making the necessary modifications to meet modern requirements. It promotes a careful strategy that prioritizes original materials, methods and design elements.

For the selected villas, these principles provide a framework for assessing the degree of intervention that can be considered appropriate. The historical significance of a building should remain the primary reference when determining restoration strategies. At the same time, the practical requirements of contemporary use cannot be ignored. The challenge is therefore to develop interventions that improve safety, functionality, and durability while maintaining the architectural identity of the original structure.

When intervention is required, the charter suggests making minor changes that are still identifiable as part of the original design, so that future generations can understand how the site has changed over time and this research is based on the restoration charter such as: Athens Charter, Venice Charter, Krakow Charter, Camillo Boito 1883. The Restoration Charter functions as an



Figure 4. Positioning diagram map of case study villas in Tirana. (Source: Diagram map by Author)

all-inclusive manual for preserving cultural assets. It advocates for public participation and advances the ideas of authenticity, minimal intervention, and interdisciplinary collaboration. To guarantee that restoration procedures respect the historical and cultural significance ingrained in heritage sites and enable their preservation for the benefit of future generations, the charter is a crucial instrument The importance of interdisciplinary

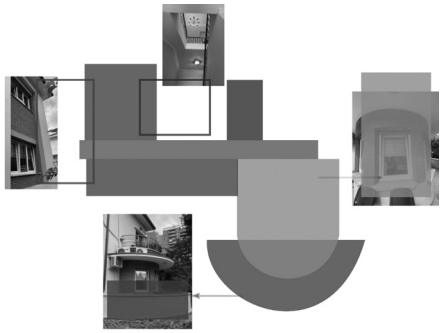


Figure 5. Analytical Diagram for second floor. (Source: Drawing by Author)

cooperation is also emphasized in the charter, involving professionals from a range of disciplines, including engineering, architecture, archaeology, and art history. Because of this multidisciplinary approach, decisions about restoration are well informed and take into account the many different aspects that go into making heritage sites culturally significant. The main emphasis of the thesis research is related to the manipulation of restoration charter by inferring what the repair standards would be for historic structures during the time between 1925 and 1945, when the architecture was referred to as "modern architecture".

The principles described above can be applied to the villas

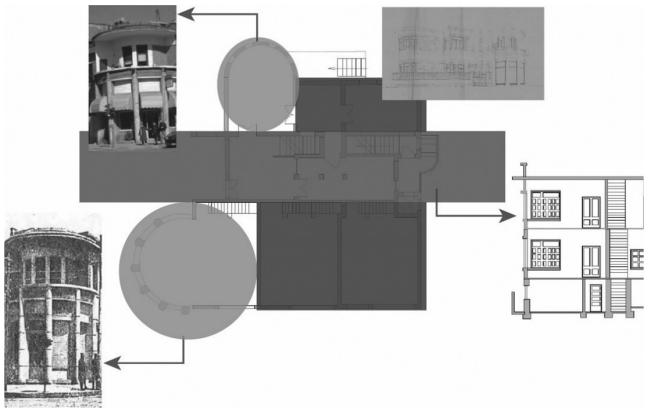


Figure 6. Analytical Diagram for first floor. (Source: Drawing by Author)

through a process of careful assessment and prioritization. Authentic materials should be retained whenever their condition allows, while damaged elements should be repaired using compatible techniques. Where replacement becomes necessary, the new intervention should be distinguishable without becoming visually dominant. Such an approach allows the building to communicate both its original architectural character and the history of its subsequent conservation.

These historic structures of historical and artistic importance have suffered much damage since research began in the area at the end of the 20th century. Since there is no established and mature system for modern architectural restoration, I create standards for modern architectural restoration in Albania using Western theories and standards/codes. Restoring an object to its original state aims to make it more readable or retain its original meaning.

The development of specific standards for modern architecture in Albania could provide a useful framework for future conservation projects. Modern buildings often require particular technical solutions because of the behavior of concrete, steel, plaster, glass, and other materials associated with twentieth-century construction. A restoration methodology adapted to these characteristics could improve decision-making and reduce the risk of inappropriate interventions. It could also support heritage professionals, architects, engineers, and public institutions in establishing a more consistent approach.

On the basis of respect for the original material, archaeological evidence, original design, and authentic records, restoration and reintegration of details and features frequently take place. For the restoration to avoid falsifying aesthetic or historical evidence, replacements for lost or deteriorated pans must blend in seamlessly with the overall design while yet being easily distinct from the original.

This principle is particularly important when dealing with missing architectural components. Historical photographs, drawings, archival information, and surviving fragments can help determine the original appearance of lost elements. Where evidence is insufficient, reconstruction should remain cautious and should not introduce speculative details. The distinction between original and new material can provide future researchers with valuable information about the building's conservation history. The theory of restoration of modern architecture also emphasizes the significance of green restoration techniques. To ensure that the restored building or site is both environmentally 10 sustainable and commercially successful, this entails employing environmentally friendly materials and procedures as well as implementing energy- efficient technologies.

Energy performance is especially relevant for buildings that continue to function today. Improvements in insulation, ventilation, lighting, and energy systems can be considered when they can be introduced without damaging significant

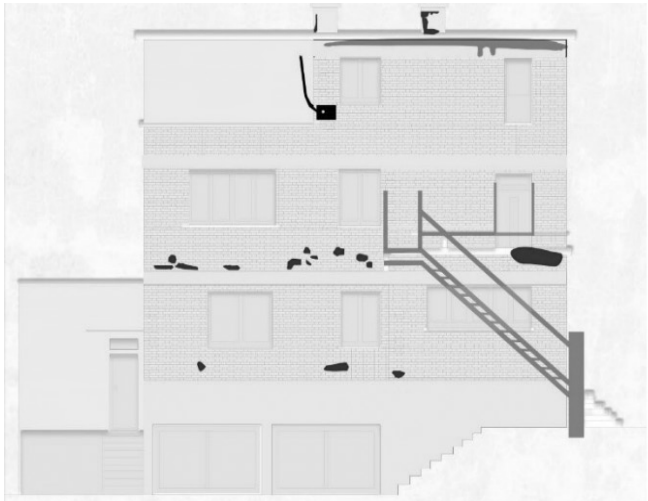




Figure 7. Façades today with the relevant pathologies (Source: Drawing by Author)

historic elements. Sustainable restoration can therefore combine environmental objectives with the preservation of architectural heritage. Reusing existing structures can also reduce the consumption of resources associated with constructing completely new buildings.

In order to guarantee the ongoing preservation of our cultural heritage, it highlights the necessity of a multidisciplinary approach, rigorous research and documentation, and sustainable restoration procedures, which is why several restoration theorists such as: "Eugene Emmanuel Viollet Le Duc", " John Rustic", "Camillo Boito", "Cesare Brandi".

The theories associated with these authors provide different perspectives on how historical buildings should be understood and treated. Their ideas demonstrate that restoration is not a single universal process but rather a field involving different interpretations of authenticity, historical continuity, artistic value, and intervention. Applying these theories to modern villas can help establish a critical framework for deciding how much intervention is appropriate in each individual case.

Case Study Villas in Tirana 1925-1943

Based on these theoretical frameworks, the restoration of Tirana's villas calls for a multi-layered strategy that honors the eclectic style of the architecture. Important insights can be gained from the accuracy of Boito, the minimalism of Ruskin, the inventiveness of Viollet-le-Duc, and the harmony of historical and aesthetic values in Brandi. It is important to view the villas as cultural artifacts that combine traditional Albanian craftsmanship with foreign influences.

The architectural analysis of these villas also demonstrates how international modernist principles were integrated into a local environment. Their proportions, balconies, windows, circulation patterns, and relationships with courtyards can be interpreted as expressions of changing architectural ideas. At the same time, local construction practices and social expectations influenced the final form of the buildings. This combination contributes to the uniqueness of Tirana's modern architectural heritage.

As such, restoring the villas requires both architectural innovation and cultural preservation. As a result, the theoretical approaches to restoration emphasize how crucial it is to treat the villas as both historical records and useful buildings. This calls for the careful and methodical application of restoration techniques that respects their special position in Tirana's architectural history while accommodating modern requirements. The villas of Tirana, Albania, are enduring representations of the city's rich architectural legacy; they testify to a turbulent past while also exhibiting decadence and resilience that have stood the test of time. Recent years have seen significant restoration efforts put into many of Tirana's villas, as evidenced by their painstaking preservation and revitalization. The goal of restorations is to bring back these historic structures' original elegance and charm while protecting their structural integrity for appreciation by future generations.

The continued use of these buildings can be an important factor in their preservation. Adaptive reuse may provide opportunities to accommodate contemporary functions while retaining important architectural characteristics. In this context, restoration becomes part of a broader process of urban regeneration. The villas can contribute to the identity and diversity of the city by remaining active elements of the urban landscape rather than becoming disconnected historical objects. These villas provide as concrete reminders of Tirana's cultural legacy and provide insights into the historical and architectural development of the city. Every villa has a distinct narrative that reflects the goals, preferences, and way of life of the people and families who have lived there in the past. 11 Thus, Tirana's villas represent a complex blend of history, resiliency, and extravagance.

Their individual histories can also help explain the social transformation of Tirana during the twentieth century. Residential architecture provides information about patterns of domestic life, social status, family organization, and relationships between private and public space. Consequently, documenting these villas can contribute not only to architectural history but also to the broader understanding of the city's social history.

They have been revived and preserved, demonstrating their ageless elegance and cultural significance, as demonstrated by signs of restoration. These villas are timeless representations of Tirana's architectural legacy that enthrall and inspire both locals and tourists, acting as a window into the city's bright future and colorful past

The visibility of these buildings within the contemporary city can also strengthen public awareness of architectural heritage. Their presence provides an opportunity for educational activities, architectural research, cultural tourism, and community engagement. When appropriately restored and interpreted, the villas can demonstrate how historic buildings can coexist with contemporary urban development while maintaining their individual identity.

This case studies are: Villa 21 (“INSIG”), Jul Variboba' Street

The architectural transition from the traditional plan to modernist principles is reflected in this floor plan. The functionalist principles of Modernism, which emphasize practicality, simplicity and interaction between indoor and outdoor spaces, are often evident in these villas. ‘’Villa Nepravishta’’, Kavaja Street

The organization of the interior spaces can be understood as an expression of changing social and functional requirements during the period. The relationship between rooms, circulation areas, balconies, and exterior spaces demonstrates the increasing importance of functionality within residential architecture. Such characteristics can help identify the modernist qualities of the villa and establish priorities for its conservation.

‘’Villa Nepravishta”, Kavaja Street

This villa was awarded in 1935 to Mr. Abedin Nepravishta by architect Berte. Mr. Abedinwas the mayor of the Municipality of Tirana and entrusted the plan of his house to Architect Berte, who was also dealing with the city center at that time. This villa has a semi-cylindrical wall, corner windows which are similar to other villas of that time with modern typology.

The architectural elements of the villa illustrate the gradual introduction of modernist forms into the residential architecture of Tirana. The semi-cylindrical wall creates a distinctive formal expression, while the corner windows contribute to the relationship between interior spaces and natural light. These features should be carefully documented because they contribute significantly to the architectural identity of the building.

This villa was very connected with the urban space as it is located between two main roads and as such took the shape of a trapezoid and also with an inner courtyard. Large balconies are not absent in this villa either.

The position of the villa between two important roads gives it a strong urban presence. Its trapezoidal configuration demonstrates how the architectural form responded to the specific conditions of the plot. The inner courtyard also contributes to the organization of private and semi-private space and can be considered an important element in understanding the original residential concept. The balconies strengthen the connection between the interior and exterior and are characteristic elements that deserve particular attention during restoration.

Villa Simionidhi", Elbasani Street

This villa was built in 1933 for Mr. Dr. Simonidi was built by the architect W. Kolher, a villa which was later used as a Residence for the French Embassy. This villa is typical of the modern period with clean lines with a 90-degree angle and a clean facade with long balconies.

The history of the villa demonstrates how buildings can acquire new functions while maintaining important aspects of their original architectural character. Its later use as a diplomatic residence adds another layer to its historical significance. The clean geometry and long balconies create a strong visual identity that reflects the architectural tendencies of the period. These elements can serve as important references when evaluating the existing condition of the façade

The outdoor spaces of the upper floors are used as usable terraces. Like every villa in Tirana of this period, this villa consists of a basement, first floor, second floor, third floorand today it is still in use as an international school. In the interior of this villa, there are traces that have not changed the details of the stairs, the doors, the door handle andthe railing of the stairs, which is made of steel.

The continued use of the building demonstrates the potential of adaptive reuse as a conservation strategy. The survival of original interior details provides valuable evidence about the construction and design practices of the period. Elements such as stairs, doors, handles, and steel railings can contribute significantly to the authenticity of the interior and should therefore be documented and protected whenever possible. The combination of active use and preserved historical elements demonstrates that conservation and contemporary functionality can coexist.

Results

The restoration of modern architecture reveals a complex and multifaceted project, with particular attention paid to the modern villas in Tirana between 1925 and 1945. The findings of this investigation highlight how crucial it is to maintain the distinctive character of these architectural treasures while tackling the problems brought on by aging cities, changing population demands, and time.

The analysis indicates that the conservation of these villas requires an approach that considers architectural, historical, material, social, and urban dimensions simultaneously. Their value cannot be reduced to their façades alone because their spatial organization, materials, construction details, and relationship with the surrounding urban environment are equally significant. A successful restoration strategy should therefore be based on a comprehensive understanding of the building and its history.

An important part of Albania's architectural history is the restoration of modern architecture in the villas of Tirana important conclusions about heritage conservation, urban transformation, and architectural preservation. In conclusion, a comprehensive and flexible strategy is required for the restoration of Tirana's modern villas built between 1925 and 1945. Through recognition of the historical relevance, Figure 10.

The results also demonstrate the importance of establishing clear documentation before any physical intervention takes place. Existing conditions, historical layers, materials, and architectural details should be recorded systematically. Such documentation can become a reference for future conservation work and can reduce the risk of irreversible decisions. It can also create a valuable archive for future researchers studying the modern architectural heritage of Tirana.

Façades today with the relevant pathologies (Source: Drawing by Author) 14 resolution of preservation issues, community involvement, and incorporation of contemporary technologies, Tirana can effectively manage the precarious equilibrium between development and preservation of cultural heritage.

The treatment of façade pathologies should be based on identifying their causes rather than addressing only their visible symptoms. Moisture, inappropriate repairs, pollution, structural movement, material aging, and incompatible interventions can all affect the condition of modernist façades. A detailed diagnosis can help determine appropriate repair methods while reducing unnecessary replacement of original material. This approach is particularly important for buildings where the façade is one of the main elements defining their architectural identity.

The study's conclusions, which highlight the significance of preserving architectural treasures that add to the city's distinct character and historical narrative, provide a basis for future initiatives.

Future research can expand the number of case studies and examine additional modernist buildings throughout Tirana and other Albanian cities. Comparative studies with international examples could further contribute to the development of restoration standards specifically adapted to the Albanian context. The research can also support the creation of a systematic inventory of modern architectural heritage, including historical documentation, architectural surveys, material information, pathology mapping, and proposed conservation strategies. In this way, the restoration of modern villas can become part of a

broader strategy for protecting the architectural identity of Tirana while allowing the city to continue developing.

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Governance by design
Rethinking urban morphologies through AI simulation

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DOI 10.37199/F40002974

Abstract
Urban planning is entering a new phase as environmental instability, population dynamics and geographical complexity are confronting traditional governance frameworks. Cities are adopting technologies to transform spatial performance and morphological patterns into actionable knowledge for decision-makers. This research examines the integration of urban morphology analysis with real-time assessments of accessibility, density and proximity, highlighting how AI-supported spatial simulation via the Spacio.ai platform may promote adaptive government. This work illustrates that morphological simulation can elucidate hidden spatial characteristics, expose governance deficiencies and foster more transparent and proactive decision-making, utilizing Tirana and Barcelona as significant case studies.
The research utilizes a mixed-method approach that combines block-scale measurements, policy analysis, AI simulation operations, and morphological typology. Barcelona has a structured planning framework with set rules for mobility and regulated block layouts. In comparison, Tirana is a fast-growing post-socialist city with erratic expansion. This comparison shows how different governance cultures may be studied using the same analytical framework, which makes it possible to make planning suggestions that are specific to each situation.
The results show that urban planners can use AI-supported spatial simulation to look at morphological parameters including permeability, built-from density, and centrality in new ways. They should be viewed as governance-related variables that influence public communication, scenario development, and strategic priority, rather than as immutable descriptions. The results indicate that morphological simulation functions as a supplementary decision support instrument that improves transparency and integrates discipline expertise, rather than replacing planning experience.
The study posits that adaptive governance arises when simulation results are incorporated into iterative, deliberative planning procedures, allowing stakeholders to discuss prospective possibilities grounded in spatial performance rather than abstract policy terminology. The research adds to the ongoing conversations about how to make urban growth fit with governance techniques that are open to everyone, flexible, and based on facts.

Keywords: *morphological typologies, inclusive governance, AI-driven spatial simulation, decision-making urban metrics, land use efficiency*

INTRODUCTION

Urban form is more than the imprint of buildings on land; it represents the spatial grammar through which people, resources, ideas and services circulate. It influences both the physical fabric of cities and their ability to facilitate accessibility, mobility, social cohesion, and sustainability.

Urban governance faces contemporary challenges such as climate change, demographic shifts, and rapid economic transformation, highlighting the necessity of reinterpreting morphology as an active component in urban resilience rather than a static entity.

Masterplans, land-use legislation, and sectoral strategies represent traditional planning tools established in an era characterized by relatively predictable urban dynamics. Their inflexibility often hinders the adaptable, iterative, and collaborative approaches required by contemporary urban environments. Scholars such as Healey (2006) and Albrechts (2010) have long argued for a transition in governance towards frameworks that prioritize flexibility, cooperation, and evidence-based practices. Nonetheless, the specific evidence needed and its effective integration into decision-making remain ambiguous.

Morphology has been thoroughly examined as a descriptive field (Hillier, 2007; Marshall, 2012). Recent research has progressed from mere description to operationalization, establishing connections between morphological metrics and factors such as walkability, social interaction, thermal comfort, and accessibility (Porta et al., 2014; Mehaffy et.al., 2010). A persistent barrier exists: municipal decision-makers frequently lack possible tools to translate morphological insights into actionable policies.

The comparative analysis of various morphological typologies in European contexts elucidates how cities with differing histories, governance structures, and design traditions react to these pressures. In order to perform this analysis and to reinterpret the study of morphology, a new category of design tools is incorporated into the research methodology. Simulation technologies enhanced by AI have enabled a redefinition of morphology as an integral component of governance. AI-based models allow planners to examine the impact of variations in density, permeability and proximity on flows and interactions, rather than representing the city as a static physical configuration. This corresponds with broader proposals for "anticipatory governance" (Boyd et al., 2015), wherein decision-makers engage with multiple features via iterative feedback loops rather than relying on static forecasts.

Specifically, the research tests Spacio.ai, an AI-driven generative design and simulation platform, as an instrument for examining proximity and permeability, flows and governance, as well as inclusion and exclusion. The empirical testbeds include Tirana, Albania, characterized by rapid transition, and Barcelona, Spain, known for its long-standing compact and permeable urban form. The study emphasizes the tool as a method to evaluate morphological differences between two contrasting cities and assess the potential of an AI-supported visualization tool in improving governance and participation.

Tirana and Barcelona serve as case studies due to their representation of two different governance contexts. Barcelona's extensive history of public space design and the superblock (superilla) concept create a complex planning environment in which governance and morphology are closely interconnected (Rueda, 2019). Tirana exemplifies a dynamic post-socialist context characterized by uneven street networks, fragmented parcel patterns, and uncontrolled urbanization, which pose both opportunities and challenges for innovative governance (Lulo, 2017). The aim is to engage with three discussions by situating morphological simulation within the context of governance rhetoric:

(1) The role of AI simulation in enhancing transparency and deliberation;

(2) The operationalization of morphology as governance knowledge; and,

(3) The use of contrasting cities to illustrate context-dependent applications of new planning tools.

In this context, Spacio.ai presents itself as a viable methodological platform. Initially developed as design-support platform, it enables users to input building footprints, networks, and parcels in order to produce simulations of shadow patterns, accessibility metrics, pedestrian flow potentials, and proximity indicators. The tool's visual outputs are impressive; however, its significant contribution is in democratizing spatial simulation, thereby making analytical processes that previously necessitated advanced GIS expertise accessible to planners, architects, and policymakers.

METHODOLOGY

The methodological framework guiding this research incorporates qualitative, quantitative, and computational elements. The study situates AI simulation within a comprehensive governance-oriented analytical framework, rather than considering it an isolated technical task. The methodology is structured into four interconnected layers:

[1] selection and preparation of case study areas;

[2] morphological data structuring;

[3] AI-supported simulation using Spacio.ai; and

[4] interpretive governance analysis.

This strategy, which operates on multiple levels, guarantees that computational results are interpreted in a meaningful manner within policy frameworks.

Tirana vs Barcelona

Tirana and Barcelona were selected due to their differing morphological and governance characteristics. Tirana, a rapidly urbanizing post-socialist capital, presents a complex array of formal and informal developments, evolving regulatory frameworks, and dynamic street networks. The city's swift transformation in the past three decades has exceeded institutional capacities, leading to governance structures that tend to be reactive rather than anticipatory. This context provides an opportunity to evaluate the effectiveness of AI-supported morphological simulation in stabilizing knowledge flows and

enhancing decision-making consistency. Barcelona offers a contrasting perspective. The foundational Cerdà grid, along with the contemporary superblock policy framework, has fostered a planning culture that integrates morphological reasoning into governance. The city's enduring dedication to the expansion of public spaces illustrates how AI simulation can enhance established planning frameworks.

Data collection and spatial processing

Data inputs were sourced from publicly accessible spatial repositories and municipal datasets. Building footprints, street networks, and block geometries for Barcelona were obtained from the Ajunament de Barcelona's open data portal. Data for Tirana were collected from OpenStreetMap, the Municipality of Tirana webpage, and through field verification. All datasets were standardized to a uniform projection and processed to eliminate irregular geometries. The preprocessing steps comprised:

-Reducing computational load by simplifying building footprints,

-Ensuring topological continuity through the rationalization of street centerlines,

-Segmenting blocks according to parcel boundaries or visible morphological units,

-Exporting the refined geometries in GeoJSON format for ingestion by Spacio.ai.

The methodological approach has combined two complementary components: a comparative morphological analysis of Tirana and Barcelona, alongside simulation and visualization utilizing Spacio.ai.

First, the research compiled open-source spatial datasets, urban plans, and recent studies to determine the predominant morphological types in each city. As a result, are evidenced four distinct types of residential blocks:

(a) Informal or fragmented neighborhoods,

(b) Socialist-era apartment blocks,

(c) Recent high-rise developments,

(d) Mixed courtyard or perimeter blocks.

The samples from Tirana are presented in Figure 2, while those from Barcelona, which focus on the Cerdà grid, superblock

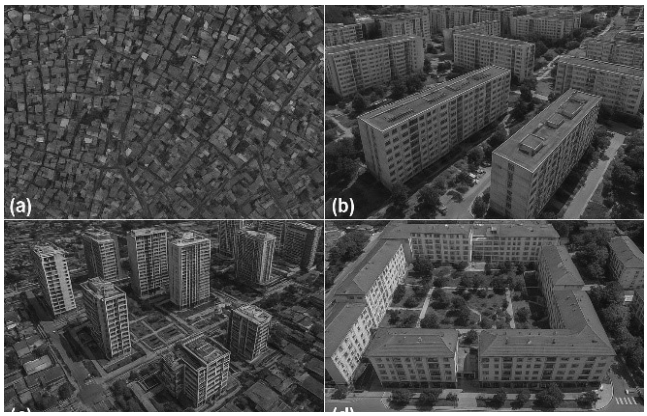


Figure 1. . The four predominant urban morphological types evidenced in both cities. (Image © Authors)

program, and specific waterfront redevelopments, are depicted in Figure 3, including both plan and orthographic views. These images function as methodological artifacts. They serve as both evidence and tools for discourse. Visual production in Spacio.ai was both ancillary and integral.

The next step that the methodology followed, after evidencing, is that all four morphological types were modeled and manipulated within Spacio.ai, through its innovative tools.

The exercise focused on generating new morphological blocks using AI tools, analogous to the documented cases of Tirana and Barcelona, while facilitating dynamic decision-making. The platform was utilized in two complementary modes. In generative mode, parameter sweeps yielded various massing configurations, including differing footprints, courtyard sizes and pedestrian flows. During the analysis phase, the platform produced key performance indicators (KPIs) including floor area ration (FAR), site use, open space ratio, and basic daylight metrics. High-resolution images and CSV reports were generated for qualitative analysis and comparison.

Simulation Workflow in Spacio.ai

Spacio.ai was selected for its blend of parametric massing and KPI export functions. Four different urban block layouts were generated under comparable regulatory and programmatic constrains, with block size 100x100m (1ha). Spacio.ai, as a web-based generative design platform, integrates parametric modeling with AI-assisted optimization. It is considered as a black-box generative design engine.The site boundary was firstly delineated, the automatically generated urban environment and terrain were imported, and zoning regulations (including maximum heights, setbacks, maximum coverage, and target floor-area ratio) were established for each case-study block. The software generated several building massing options by iteratively adjusting footprints, locations and heights to comply with restrictions while optimizing density and environmental performance indicators.

The initial stage involves defining inputs and parametrization. The user imports or delineates the site boundary in Spacio (parcel or urban block), prompting the automatic loading of integrated datasets that encompass the surrounding context, including adjacent buildings, terrain, and the street network, altogether with sidewalks and green areas. After establishing the spatial foundation, the user specifies a set of regulatory and design constraints, including maximum building heights per zone, required setbacks for building facades from property lines, permissible site coverage, Floor Area Ratio (FAR) targets, programmatic mix (residential, commercial, and services), and additional requirements such as parking and bicycles. The subsequent phase involved the definition of morphological parameters. The block "type" may be categorized as either irregular, characterized by non-orthogonal edges and street network, varying footprints, and fractures parcel structures, or regular, defined by orthogonal grids, aligned façades, and uniform footprints. The requirements are refined through a set of control factors, which include footprint size, building height distribution (minimum, maximum, and variance), coverage ratio,

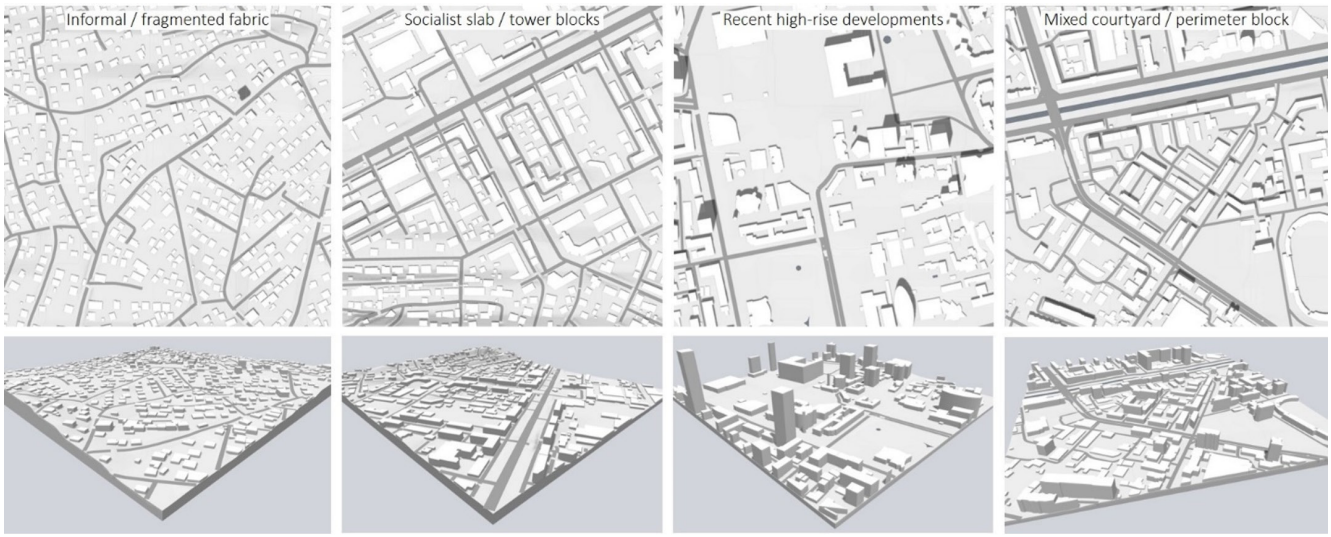


Figure 2. Urban morphological types in Tirana. (Image © Authors)

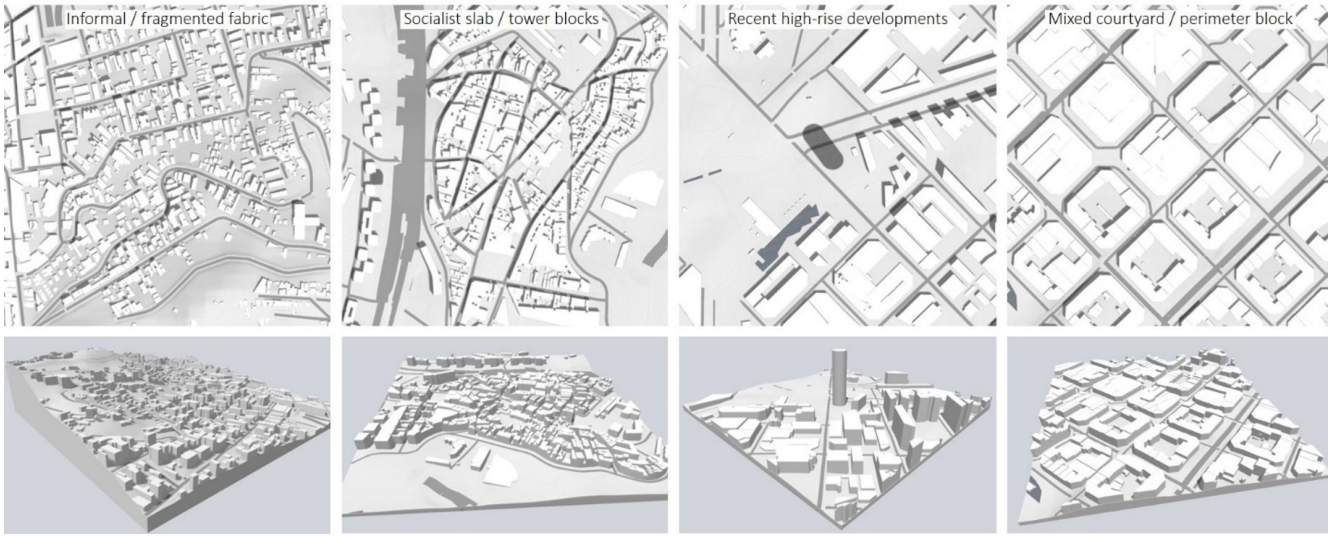


Figure 3. Urban morphological types in Barcelona. (Image © Authors)

open-space ratio, and building spacing or street width.

The simulation workflow comprised three stages:

1.Baseline reconstruction involved the reconstruction of existing morphology for selected neighborhoods in each city. This established a preliminary comparative baseline, encompassing current FAR, building height distribution, open-space ratio, and pedestrian network typology. Barcelona features the most the Cerda grid and at least one superblock, while Tirana encompasses informal hill neighborhoods, socialist slab zones, and recent high-rise developments.

2.Parametric experimentation involved conducting parameter sweeps for each baseline area, varying block porosity by introducing or removing pedestrian links, adjusting courtyard size within courtyard block typologies, and modifying building height envelopes to assess incremental densification. The sweeps were limited by plausibility rules that aligned with local massing geometry and exported all performance indicators. The main KPIs exported are: site area (m2), building footprint (m2), GFA – Gross Floor Area (m2), site use (%), FAR – Floor Area Ratio (%) and roof surface (m2).

3.Scenario packaging: Each neighborhood was assigned three scenarios to enhance policy relevance. (a) Baseline – current morphology; (b) Optimized – interventions that enhance permeability and micro-accessibility (e.g. new pedestrian connectors, active ground floors); (c) Extreme – densification or privatization scenarios that examine system extremes (e.g., increased FAR through vertical development or gated developments that decrease permeability).

The simulations were deliberately designed with a straightforward visual representation while being conceptually rooted in planning theory to enhance their relevance for policymaking. Each simulation produced outputs that were rendered as high-resolution images and integrated for analysis. Simulations facilitate the visualization of urban growth scenarios, thereby assisting policymakers in making informed decisions regarding zoning and land use. They assist in evaluating the effects of proposed infrastructure projects on traffic patterns and environmental sustainability. These simulations offer a clear visual representation, enabling stakeholders to understand and assess the potential outcomes of different policy options effectively.

Interpretive Governance Framework

The study connects simulation outputs to governance decision-making through a hybrid interpretive framework that incorporates theories of adaptive governance (Boyd et al., 2015), collaborative planning (Healey, 2006), and spatial decision-support systems (Geertman & Stillwell, 2009). The primary analytic question directing the interpretation was:

How do morphological simulations reveal governance-relevant spatial conditions that are not readily apparent through traditional planning instruments?

The framework emphasizes three interpretive dimensions:

a.Governance Blind Spots

"Governance" refers to the processes, structures, and mechanisms through which organizations or societies are directed and controlled. It encompasses the decision-making frameworks and the relationships among various stakeholders involved in the management of resources and policies. "Blind Spots" refer to spatial performance conditions that are inadequately defined in existing policy or remain unnoticed by current institutional practices.

b.Governance Leverage Points

Governance leverage points include localized morphological interventions such as connector insertion, courtyard activation, and FAR regulation modulation, which produce significant policy impacts at a low cost.

c.Deliberative Narratives

Deliberative narratives consist of storylines and visual frames generated from simulations, which can enhance stakeholder engagement and political negotiation.

Ethical considerations and replication

The research complies with the principles of transparency and reproducibility. All parameter settings, scenario rules, export logs, and KPIs tables have been archived. In instances where municipal data was not accessible, contributions from OpenStreetMap were utilized, with appropriate acknowledgement. The work emphasizes equity by examining distribution outcomes, specifically how changes impact various neighborhoods and socio-economic groups, in order to circumvent techno-solutionism.

RESULTS

This section integrates the simulation results and governance analyses from the two cities. The outcomes are structured along three axes: permeability and network dynamics, proximity and accessibility, and density and built-form trade-offs. The findings indicate that AI-assisted morphological simulation produces insights that vary markedly between Tirana and Barcelona, attributable to their differing governance contexts. The identical analytical workflow was utilized in both cities; however, interpretations differ due to variations in local planning cultures and spatial challenges.

Permeability and network dynamics

Tirana: Baseline simulations for selected neighborhoods in Tirana indicated the presence of fragmented pedestrian networks. The permeability index, calculated as pedestrian link length divided by block perimeter, exhibited significant variation. Informal neighborhoods demonstrated irregular yet locally dense linkages, characterized by individuals creating pathways through blocks. In contrast, gated recent developments displayed low permeability indices ranging from 0.12 – 0.18, indicative of enclosure. The parameter sweeps indicated that the addition of a limited number of connectors (5-8 per square kilometer) significantly decreased local travel times to essential services by as much as 18% in certain neighborhoods, representing an effective leverage point for municipal intervention.

Barcelona: Baseline runs validated the high permeability of the Cerdà grid; the permeability index ranged from 0.45 - 0.62, with flow potentials distributed more uniformly. Within superblock perimeters, the optimization scenario that expanded pedestrianized interior space resulted in concentrated high-comfort pedestrian cores, while slightly diminishing through-block connectivity for longer trips. Isochrones indicated a nuanced redistribution or flow rather than a general loss of accessibility.

Proximity and accessibility

Tirana: Accessibility surfaces demonstrated significant intra-city variation. Central neighborhoods, despite their density, experienced service clustering, with schools and clinics located nearby but overwhelmed. In contrast, many peripheral areas lacked accessibility. Optimized scenarios that strategically enhanced micro-services, such as mobile clinics and satellite markets, within 5-10-minute isochrones significantly improved accessibility for marginalized areas without substantial capital investment. The extreme densification scenario, characterized by the addition of vertical units without enhancing ground-level permeability, has exacerbated micro-accessibility by introducing physical barriers and congested street segments.

Barcelona: Its robust transportation network results in elevated levels of accessibility. Simulations revealed emerging edge zones in Sant Martí and peripheral nodes where rapid redevelopment posed a risk of surpassing the availability of nearby services. Scenario testing indicated that densification, when coupled with targeted micro-infrastructure investments such as pedestrian links and local green nodes, maintained accessibility levels. Adjustments to the superblock in optimized scenarios resulted in enhanced local amenity accessibility, while preserving connectivity at the city scale.

Density and built-form patterns

Tirana: Density modeling resulted in diverse FAR landscapes. Recent developments have led to increased verticality in isolated locations, resulting in shadows and microclimatic effects when towers are positioned without regard for street enclosure. Optimization scenarios that exchanged a minor percentage of FAR for increased courtyard areas resulted in enhanced daylight penetration and improved active ground floor potential, indicating a strategy for densification while maintaining livability.

Barcelona: The FAR gradients exhibited greater smoothness. Simulations indicated areas where incremental increases in

height could lead to overshadowing and diminished street-level amenity. Implementing incremental height caps instead of binary high-rise allowances resulted in enhanced urban microclimates and maintained pedestrian comfort.

Governance leveraging and narratives

Simulations in both cities revealed specific leverage points. For Tirana: (a) enhancing pedestrian connectivity; (b) implementing micro-services in areas lacking accessibility; (c) coordinating Floor Area Ratio modifications with improvements in permeability. For Barcelona: (a) calibrating superblock perimeters to mitigate peripheral access losses; (b) modifying height and density regulations in redevelopment areas; (c) conveying the trade-offs of densification through clear isochrone visualizations.

The same outputs produced varying governance narratives. In Tirana, simulations served as discovery instruments, uncovering previously unrecorded spatial deficiencies and facilitating the development of straightforward, implementable interventions. In Barcelona, simulations served as tools for refinement, quantifying trade-offs and facilitating precise policy calibration.

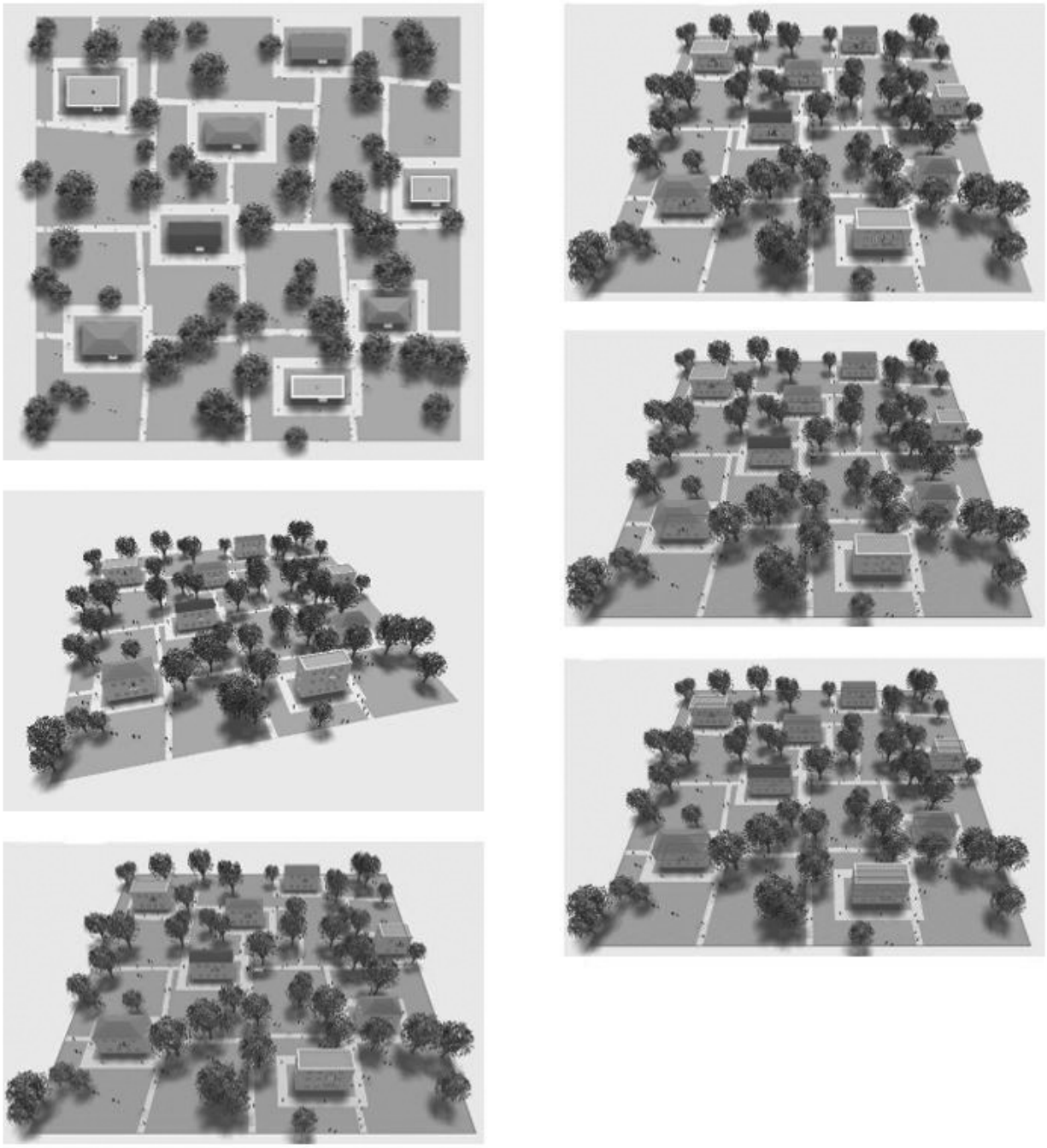


Figure 4. Informal fragmented neighborhood morphological type (plan view, ortho view, site area, building footprint, site use, FAR, roofs)

DISCUSSION

The findings of the study indicate that AI-supported morphological simulation can significantly enhance governance processes when incorporated into decision-making. Three main themes arise from the discussion: evidence translation, tool-context fit, and procedural integration.

Evidence translation: from morphology to policy

The simulation pipeline significantly contributes by translating morphological patterns into evidence that is relevant for policy-making. Morphology, when assessed via permeability indices, isochrone surfaces, and FAR dynamics, presents a clear set of indicators for planners and policy-makers related to service provision, mobility, and environmental performance. This translation narrows the divide between spatial scholarship and practical urban policy. Translation necessitates precise framing: policy actors must understand how morphological adjustments correspond to actual political and budgetary mechanisms. A municipal agency may employ connector insertion simulations to substantiate the reallocation of minor capital budgets towards the construction of pedestrian links, a position that is more convincingly presented with visualized reductions in travel time.

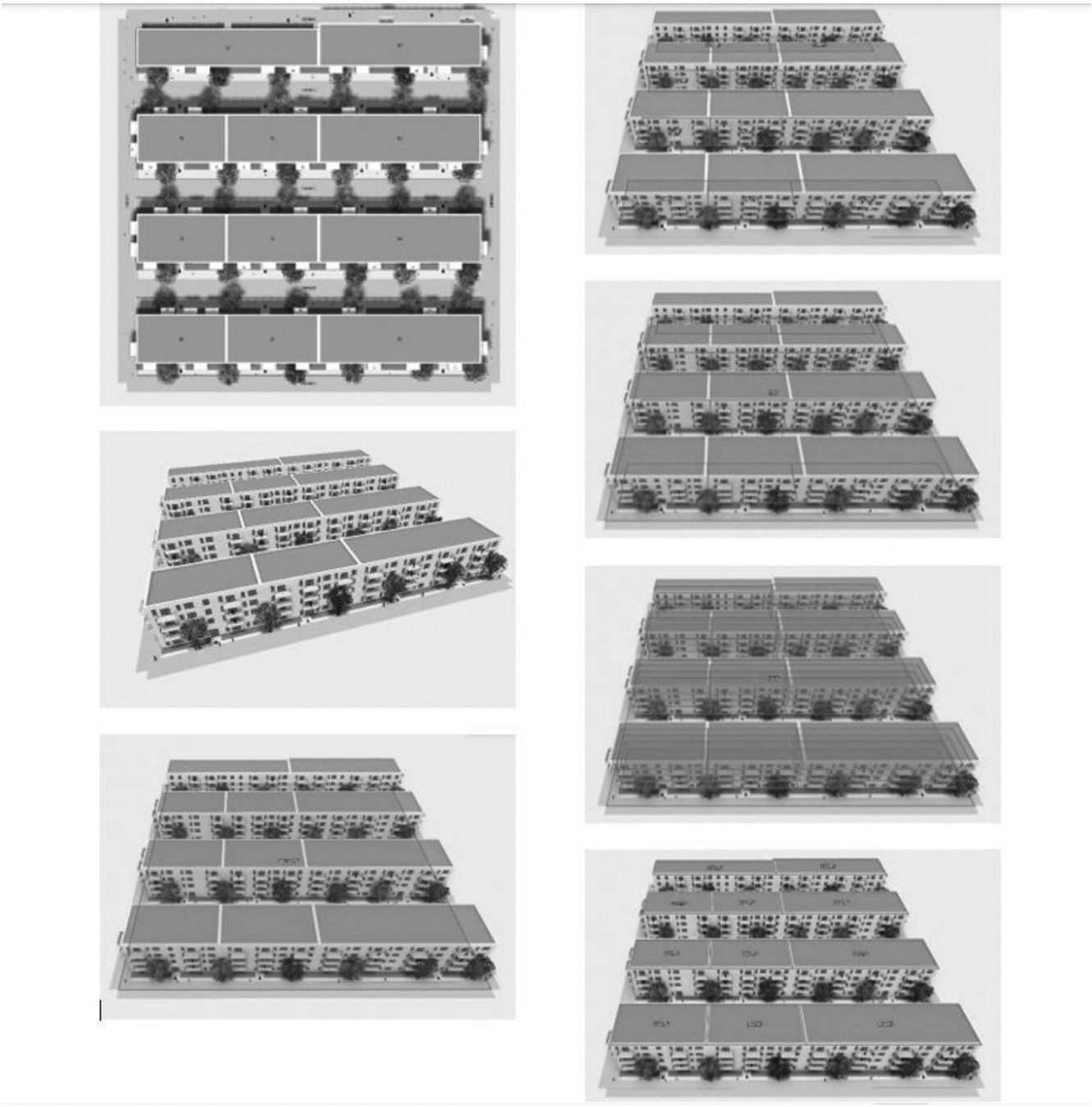


Figure 5. Socialist-era apartment blocks morphological type (plan view, ortho view, site area, building footprint, site use, FAR, roofs) (Images © Authors & Spacio.ai) (Images © Authors & Spacio.ai)

Tool-context fit: simulations do not deliver value uniformly

Simulations are not neutral; institutional preparedness determines how useful they are. Barcelona's planning culture incorporates mechanisms such as technical committees, urban laboratories, and public consultation traditions that effectively integrate simulation outputs into policy iterations. Tirana's institutional structure exhibits significant fragmentation. In these scenarios, simulation may serve as an evidence broker; however, its effectiveness is contingent upon simultaneous governance reforms, such as delineating municipal authority for sidewalk improvements and establishing micro-service grants. Simulations expand the range of potential actions, while institutional capacity dictates the transformation of these possibilities into policies.

Procedural integration and participatory governance

The most significant realization is probably that when simulation is integrated into an iterative and participatory process, it becomes relevant to governance. Isolated simulations pose a risk of technocratic imposition. In contrast, when simulation outputs are presented in deliberative workshops involving residents, local associations, developers, and officials, the models serve as boundary objects that promote negotiation. The design of these procedures is significant: workshops must be organized to examine values (what constitutes access?), trade-offs (density versus amenity), and distributional outcomes (who

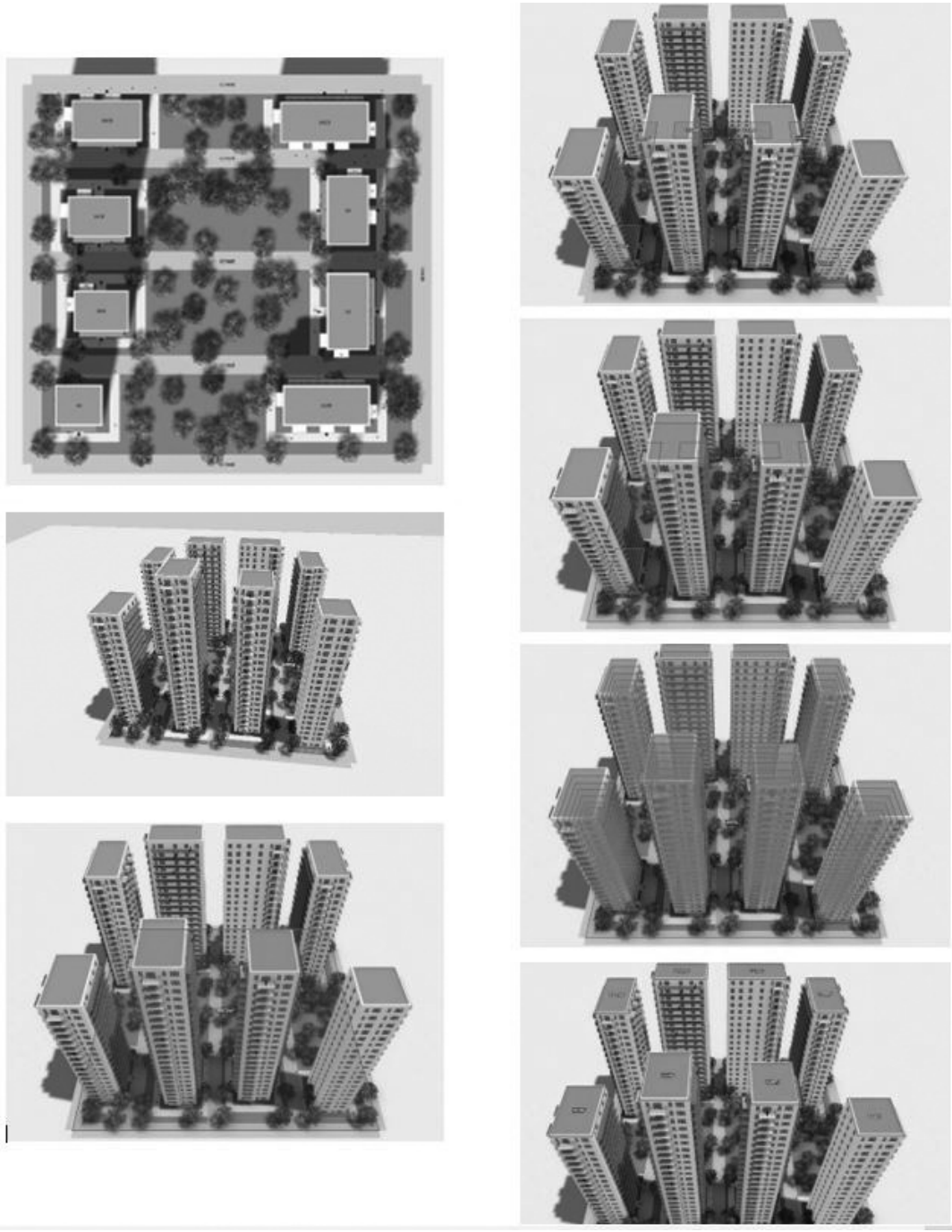


Figure 6. High-rise developments morphological type (plan view, ortho view, site area, building footprint, site use, FAR, roofs) (Images © Authors & Spacio.ai)

benefits?). Furthermore, clarity regarding model assumptions, data constraints, and scenario trade-offs is crucial for establishing trust.

Implications for equity and ethical use

Simulations should be implemented with consideration for ethical implications. Modeling assumptions regarding pedestrian speeds, service catchments, and developer behavior possess normative significance. The paper advocates for clear scenario transparency, sensitivity testing to identify robust outputs, and the incorporation of equity metrics, such as changes in relative accessibility for low-income neighborhoods. This approach mitigates the risk of simulation-induced polices that unintentionally perpetuate spatial inequality.

Limitations and future research

The study encounters limitations related to the accuracy of municipal data, the inherent abstraction in KPI simplifications, and the emphasis on block-scale analysis rather than comprehensive metropolitan dynamics. Future research should incorporate dynamic mobility data, such as mobile phone traces, examine long-term feedbacks in land markets, and empirically assess the impact of simulation-driven interventions on governance changes. Longitudinal studies that investigate the impact of simulation outputs on policy decisions across multiple municipal cycles are essential.

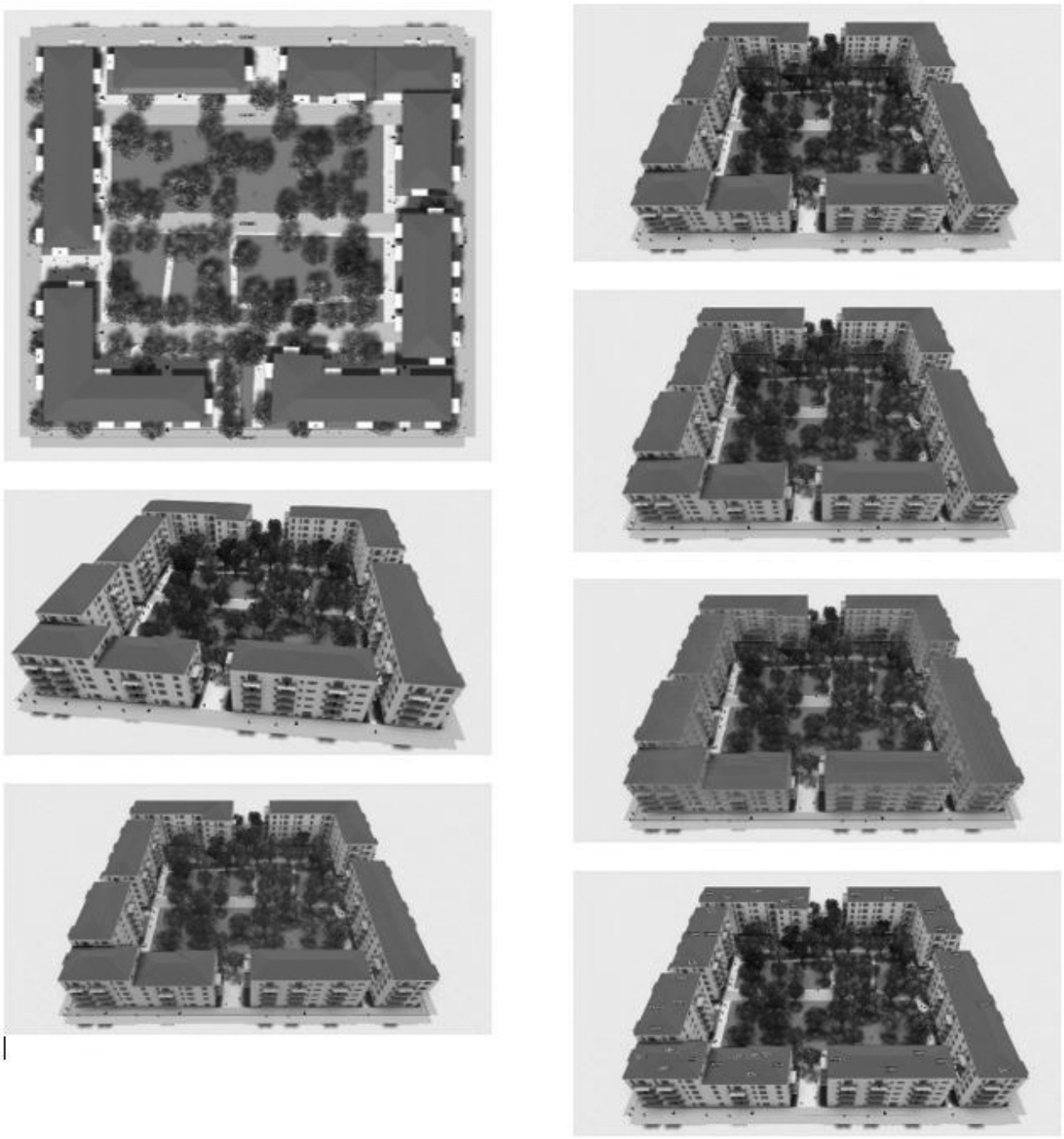


Figure 7. Mixed courtyard or perimeter blocks morphological type (plan view, ortho view, site area, building footprint, site use, FAR, roofs) (Images © Authors & Spacio.ai)

Contextual Dependence of Computational Tools

The case studies illustrate that the effectiveness of Ai simulation varies based on context. Barcelona can utilize simulations to enhance existing governance instruments, whereas Tirana needs simulations to establish fundamental governance capacities. Consequently, the same tool can yield varying outcomes based on the maturity of the governance context.

CONCLUSION

This paper has argued for the repositioning of morphological simulation as a governance tool, facilitating adaptive, deliberative, and evidence-based decision-making. The comparative analysis of Tirana and Barcelona illustrates that computational morphology can reveal governance blind spots, pinpoint significant leverage points, and generate clear narratives that aid in stakeholder negotiations.

The effectiveness of the tool depends on the institutional absorptive capacity and the design of procedures. Simulation enhances agency when utilized by actors dedicated to iterative learning and equitable outcomes. Integrating AI-supported morphology into municipal workflows necessitates (a) accessible tools and training, (b) defined procedural spaces for deliberation, and (c) measures to ensure transparency and equity. When these conditions are satisfied, morphological simulation can assist cities in re-evaluating their structures and managing them in a more adaptive and inclusive manner.

MAIN KPI	Informal fragmented neighborhood	Socialist slab / block	High-rise development zone	Mixed courtyard
Site Area (m²)	10000	10000	10000	10000
Building Footprint (m²)	583	4904	1565	3192
GFA - Gross Floor Area (m²)	1230	19616	30763	15993
Site Use (%)	6%	49%	16%	32%
FAR - Floor Area Ratio (%)	12%	196%	308%	160%
Roof Surface (m²)	583	4904	1565	3192

KPIs - Key Performance Indicators	Informal fragmented neighborhood	Socialist slab / block	High-rise development zone	Mixed courtyard
BUILDING				
GFA - Gross Floor Area (m²)	1230	19616	30763	15993
GIA - Gross Internal Area (m²)	997	17986	27531	14573
NIA - Net Internal Area (m²)	997	15947	23511	12839
Efficiency [NIA/GFA]	81%	81%	76%	80%
Volume (m³)	4272	63750	93854	51170
Footprint (m²)	583	4904	1565	3192
Roof Surface (m²)	583	4904	1565	3192
Buildings (no.)	8	11	8	7
SITE				
Site Area (m²)	10000	10000	10000	10000
Site Use (%)	6%	49%	16%	32%
FAR - Floor Area Ratio (%)	12%	196%	308%	160%
FSI - Floor Space Index	0.12	1.96	3.08	1.60
GSI - Ground Space Index	0.06	0.49	0.16	0.32
Landscape / Green Area (m²)	7060	79	5018	5025
MUA - Minimum outdoor recreation area per GIA (%)	80%	27%	6%	22%
MUA - Minimum outdoor recreation area per Space (m²)	47	14	2	11
UNITS				
Spaces (rooms, units, etc.)	17	356	835	301
Apartments	0	284	517	231
BUILDING ELEMENTS				
Windows (no.)	174	1112	2780	1114
Balcony / terraces (m²)	18	1272	2750	1491
Facade (m²)	2119	13599	27852	11612
Interior Wall (m²)	0	5790	7930	4089
Cores [stairs & elevators] (no.)	0	16	8	13
PARKING				
Car Demand (no.)	17	356	835	301
Bike Demand (no.)	43	890	2088	753

Table 1. Table of outputs: Main Key Performance Indicators and all other KPIs exported from the platform. (Table © Authors & Spacio.ai)

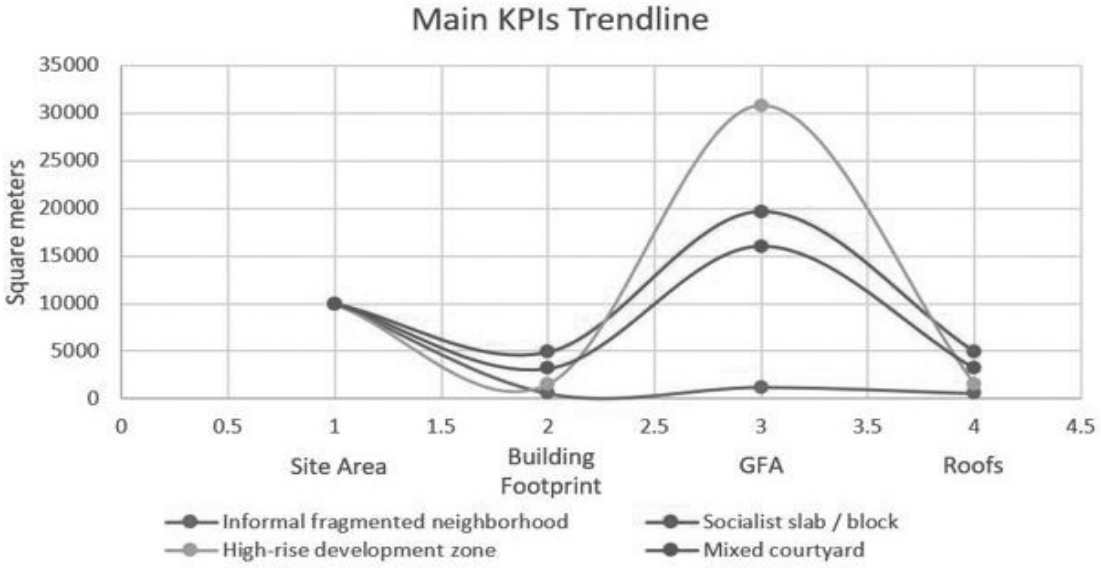
As urban areas encounter ongoing uncertainty, the incorporation of simulation tools into planning processes can enhance their ability to anticipate change, promote transparency, and facilitate decisions based on spatial performance. Adaptive governance arises not solely from the tool itself but from the effective integration of simulation within iterative, participatory decision-making frameworks.

ACKNOWLEDGMENTS

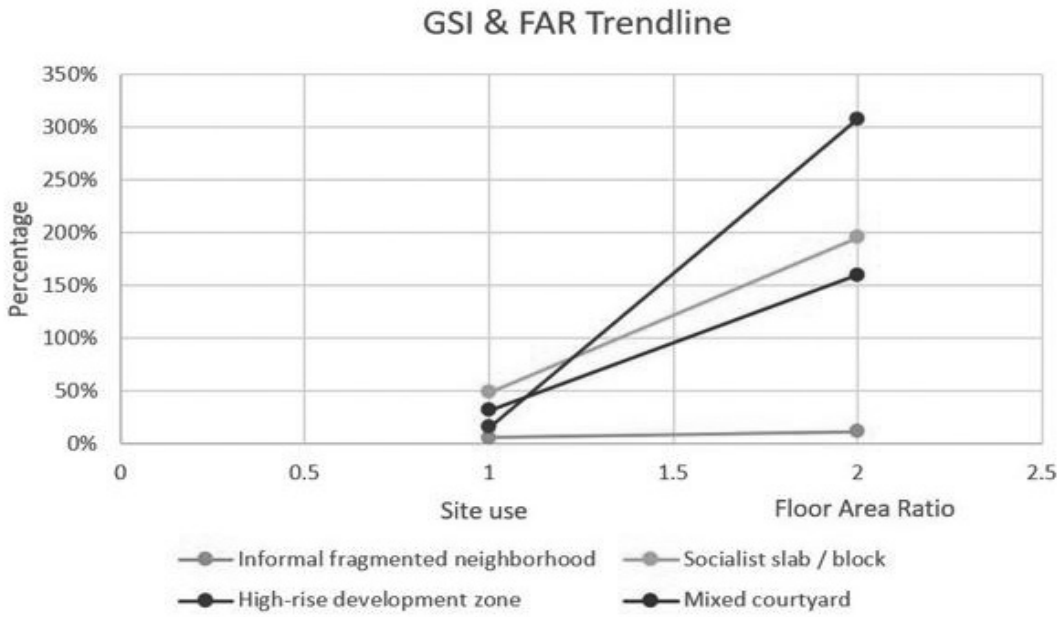
We, the authors, would like to express the deepest gratitude to the Spacio.ai team for providing access to their platform and for their outstanding technical support during this research. Their professional support markedly improved the analytical depth and methodological rigor of this study. We appreciate the contributions of colleagues whose insights enhanced the project's direction and clarity. REFERENCES

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Graph 1. The main KPIs trendline (Graph © Authors)



Graph 2. The trendline of Ground Space Index and Floor Area Ratio (Graph © Authors)

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Digital Stereotomy as Paradigm Shift: Revisiting Theory, Geometry and Construction

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DOI 10.37199/F40002975

Abstract
Stereotomy theory has undergone a significant transformation, evolving from its classical paradigm as an art du trait toward its "revival" in the twenty-first century as digital stereotomy. This paper aims to critically analyze this transition through a literature review that highlights how different authors have approached stereotomy theory in relation to their respective historical contexts. It argues that digital stereotomy does not merely represent the application of technological tools to classical theory, but rather constitutes a fundamental paradigm shift that reintegrates geometry, mechanics, and construction into a single, digitally controlled process. The adopted methodology combines an epistemologically oriented literature review with the analysis of two case studies, enabling a critical comparison between digital and classical approaches to stereotomy. The results demonstrate that, although digital stereotomy reunifies the phases of stereotomic design within a single digital workflow, it has theoretically diverged from the classical definition of stereotomy as the art of stone cutting for the construction of load-bearing structures such as vaults and arches.
This study is intended to assist architects in distinguishing between practices that merely appear as stereotomy and those that engage with the architectural meaning of the stereotomic concept, as opposed to highly evolved and diversified digital techniques.

Keywords: *Art du trait, Epistemology, Material Intelligence, Robotic fabrication, Descriptive Geometry*

Introduction

When being formally defined, stereotomy is often described as both an art and a science, while in the etymology of the word we come across it as undeniably a technique of cutting. The word itself can assume many meanings and be very conceptually fluid, spanning from a rigorous technical methodology to a comprehensive and more abstract spatial approach. In our contemporary framework, stereotomy is evidenced by digital workflows which claim a radical act of modernizing the century-old practice known as art-du-trait. Besides practically, this act underlines theoretically a total transformation of the classic paradigm of the 16th-17th century and resurging in the 21st century as "Digital Stereotomy". This is made possible by the advancement of parametric and robotic fabrication technologies which enable stereotomic forms (which before demanded extraordinary manual craftsmanship) to be engineered through the computational analysis and workflow.

Consequently, the question arises as to whether digital stereotomy constitutes an evolution of the paradigm or a more fundamental transformation of it which diverges from the core principles that maintain it as a concept.

The objective of this research is to bring forward these principles and examine them when compared to the subsequent products of the digital methodology. The adopted methodology consists in a comprehensive literature review which highlights such differences and furthermore, two case studies are analysed to provide a critical comparison between the classical and digital paradigms of stereotomy.

Literature review

Taken from the point of view of "the art of stone-cutting and masonry construction", stereotomy has long functioned as a mode of architectural thought intrinsically linked to geometry and especially structural integrity (Aita, 2003). According to Jose Calvo-Lopez (2020) however, the discipline should be viewed as a framework for conceptualizing space and form through mathematical logic, rather than merely a construction technique. He posits that architects such as Philibert de l'Orme and Gaspard Monge elevated stereotomy into a design methodology where form itself was generated through rigorous geometric logic. These approaches were firstly informed by the treatises of De l'Orme where we first see stone cutting treated as an exercise in geometric projection (De l'Orme, 1567). De l'Orme developed a more exact method applicable to any type of trompe, contending that the stereotomy of his era lacked a unified system, which hindered its transmission as codified knowledge (Sanabria, 1989). It can be noted that he eschewed the mathematical formulas heavily prevalent in the Gothic architecture which he found insufficient for the new architectural demands of the French Renaissance, as they were more-so a product of trial and error as opposed to a transparent unified system. Apart from consequently "democratising" the craft, his main objective was to synthesize aesthetic requirements with the inherent constraints of the material (Sanabria, 1989, pp. 274-276).

However a more academic orientation is adopted by Alonso de Vandelvira, who parallel to De l'Orme addressed similar complexities in his own treatise, albeit in a more analogous geometric manner with tangible solutions. He used his complex drawings and templates as a method to develop the precise interlocking of the joints by solving the geometry of each individual stone component (Sanabria, 1989, p.298).

We can see stereotomy being reconceptualized from a pragmatic craft into a sophisticated apparatus from Guarino Guarini's engagement with the extensive work of Philibert de l'Orme which mars a very critical juncture in the history of architectural theory. Werner Muller (1968) suggests that Guarini did not merely adopt the methods of De L'Orme but the used them as a springboard to analyze the tensions and contradictions between applied geometry and theoretical abtraction. This transition is very evident is the distance that Guarini takes from the traditional stonecutting and later delving more into highly complex geometric configurations such as the intersections of paraboloids and conic sections.

It is through these complex forms that the role of the architect fundamentally changed. Since a level of mathematical rigor was required, the byproduct of the artisanal experience also shifted into a manifestation of deliberate theoretical vision. This tacit knowledge which derived from workshops and the operating traditions of the masonry guils (Montemurro, 2003) was further distilled into a codified set of rules by Guarini. The result of this can be viewed as as bridging the gap between the masonry yarn and the academy (Muller, 1968, p.204).

In this light, stereotomy emerges in Guarini's work as the intersection of mathematics and aesthetics, an elevation of the tectonic reality of construction to the status of an autonomous intellectual discipline that would define the trajectory of Baroque architecture and its subsequent development across the Mediterranean (Galletti, 2017).

To fully understand the rupture identified by Evans, it is critical to trace the trajectory of stereotomy through the Enlightenment and the Industrial Revolution, a period that fundamentally altered the discipline's epistemological status. Guarini elevated stereotomy to theoretical abstraction but it was the mathematician Gaspard Monge in the late 18th century who decisively codified it into the formalized science of descriptive geometry. Monge's curriculum at the École Polytechnique stripped the trait of its localized, artisanal mystery, translating it into a universal mathematical language intended for military engineering and industrial application (Calvo-López, 2020). This democratization of geometric knowledge, however, initiated the very detachment that Evans later laments. By separating the rigorous drafting of stereotomy from the masonry yard and institutionalizing it within the academy, the physical resistance of stone was gradually replaced by the frictionless logic of the drafting board. Consequently, the 19th-century reliance on iron and steel construction further marginalized stereotomy, reducing it from a generative structural logic to a mere historicized aesthetic. This historical digression shows how the digital paradigm's reliance on abstract computation is the culmination of a centuries-long trajectory that began with Monge's mathematical systematization,

a process that progressively alienated the architect from the tactile realities of the construction site.

This shift toward abstraction, while intellectually sophisticated, eventually prompted a critical counter-narrative in contemporary scholarship. Robin Evans (2000) offers a seminal critique of the architectural transition from a geometry rooted in materiality to one defined by visual abstraction. He traces the shift toward a detached, analytical framework, moving away from a "tectonic" geometry that emerged from the physical constraints of stone cutting (pp. 3–17). This evolution represents a fundamental rupture in the history of design, as modern architecture became increasingly reliant on projective and Cartesian geometries, effectively discarding the spatial richness inherent in traditional stereotomy.

For Evans, this abandonment signifies a profound "loss of complexity" and a diminishing of the intellectual engagement between the architect and the material (pp. 55–72). In the stereotomic tradition, form emerged as an organic byproduct of the dialogue between geometry, gravity, and the lithic medium. To substantiate this claim, Evans revisits the innovations of Philibert de l'Orme and the 17th-century French masters (pp. 97–103). He identifies their work as a peak of "operative geometry," where the drawing functioned as a precise set of instructions for physical production, transcending simple representation. These early practitioners utilized geometry as a primary method for producing space through a continuous synthesis of thought and matter (pp. 108–120). Ultimately, the work of both Calvo-López and Evans highlights a historical weakening of the bond between drawing and construction which is a connection that once defined the essence of stereotomic mastery.

While Evans identified bond, the contemporary digital turn offers a potential closing of the epistemological gap that exists between geometric abstraction and material reality. The resurgence of the digital suggests a path which reconciles the "operative geometry" Evans admired with the modern computational approach.

Such digital technologies and the advancement of computational design have produced a renewed fascination with the stereotomic principles (Fallacara, 2006) which facilitate the emergence of "Digital Stereotomy" (Fallacara, 2005). This concept itself is a critical re-evaluation of the classical methodologies but does this through the lens of a contemporary logic and practically through robotic fabrication. This technology allows for precise machining of lithic components and re-introduces the logic of construction into the generative design process.

Their integration modernizes the craft and also offers a direct response to the historical fragmentation identified by Evans by reuniting design intent with material performance. This computational reconciliation finds its most potent expression in the contemporary focus on material sustainability and the advent of high-fidelity three-dimensional modeling (Fernando et al., 2009).

These catalysts have necessitated the definition of a new paradigm, which Giuseppe Fallacara terms "Stereotomy 2.0" (Fallacara & Barberio, 2018a). This framework facilitates a transition from two-dimensional representation toward three-dimensional realization, integrating computational design with concurrent structural analysis. In this model, static performance actively dictates the resulting architectural form, ensuring that the final output is a direct reflection of its internal forces.

Central to this modern approach is the "Stereotomy Paradox," a principle that has underpinned the discipline from the 16th century to the present. Traditionally exemplified by masters such as Philibert de l'Orme, this paradox involves leveraging heavy materials (specifically stone) to create structures that appear to defy gravity by utilizing the physical force of compression. Stereotomy 2.0 adopts this logic, demonstrating that material weight and compression/tension performance can be harnessed to produce structures characterized by an aesthetic "lightness" while maintaining rigorous static stability (Fallacara & Barberio, 2018b).

Complementing this structural philosophy is a design methodology inspired by Michelangelo's poetics of "building through excavation." This concept frames the design process as an act of elimination, revealing the final form within the material rather than imposing an external shape upon it, akin to a sculptor discovering the figure hidden within a block of stone. Within the digital paradigm, this subtractive approach incorporates a "geometrical-ethical" dimension, prioritizing the minimization of waste and the responsible stewardship of non-renewable raw materials (Fallacara & Barberio, 2018).

Stereotomy 2.0 claims the optimization of material cuts through algorithmic design, ensuring minimal resource loss during production. While some degree of residual waste is inherent to the process, contemporary fabrication technologies allow for its strategic reintegration into the workflow. This hybrid methodology effectively bridges the gap between traditional subtractive techniques and modern assembly methods. Furthermore, Stereotomy 2.0 extends the material palette beyond traditional stone to include artificial and composite materials, defining the discipline through the application of volumetric components rather than specific material properties.

In this context, the definition of stereotomy expands toward a "science of cutting solids," introducing a new "Geometric Ethos" focused on near-zero waste through CNC and robotic fabrication (Fallacara & Barberio, 2018). This digital workflow repositions the practitioner as the Novus Architetto Adaucto, a figure who regains comprehensive control over the entire architectural process, from initial conception to final physical production (Fallacara & Barberio, 2018).

Although the Novus Architetto Adaucto regains systemic control, this engagement is fundamentally shifted from the physical resistance of the lithic medium to the manipulation of algorithmic parameters. Consequently, the discourse prioritizes geometric efficiency and resource stewardship, yet largely leaves unexamined whether the digital workflow truly recovers the "operative" dialogue Evans admired or if it simply replaces the historical detachment of the drawing with a new, data-driven distance from the material's tactile reality.

Methodology

To illustrate this gap between the critical theory and the evolution of the steretomic paradigm, this research is based on a comparative methodology which confronts two qualitative case-studies. The epistemological transition is evidenced through an analysis of the two key moments in the development of the discipline: The Chateau d'Anet is chosen as the exemplary of the classical paradigm and the Hypar Vault as a prime example of the contemporary digital paradigm.

The criterion of these choices is based on the fact that they both represent the pinnacle of innovation in their respective eras. The Chateau d'Anet was projected by Philibert de l'Orme himself (around 1547-1552) and marks the apex of the application of Descriptive Geometry for the solution of complex problems related to the stone-cutting, all of this before the birth of modern engineering. On the other hand, the Hypar Vault is considered by Fallacara and Barberio (2018) as a crucial experimental laboratory for that they call "Stereotomy 2.0".

The analytical framework of this comparison is built upon the deconstruction of four core principles: structural integrity and the joint typology, material authenticity, modularity of the elements and the volumetric logic. These principles primarily derived from the work of Philiber de l'Orme are critically reviewed to extrapolate the claims of the digital revival as opposed to the loss of the connection between drawing and materiality as stated by Evans (2000).

Results and discussions

The detailed comparison of the Chateau d'Anet with the Hypar Vault unveils a series of technic and conceptual dissonances which challenge the claim that "Stereotomy 2.0" is a pure continuation of the classical tradition. The results show that the comparison of the digital paradigm to the classical one showcases a very crucial divergence of the former from the core principles of l'art du trait. This technique has its optimal case depicted in the Chateau d'Anet which is a masterpiece of the French Renascence. It marks the pinnacle of the application of descriptive geometry for the resolution of much more complex problems related to the stone-cutting technique before the birth of modern engineering and digital calculation. As a technique, its essence lies in the ability to define with accuracy the three-dimensional morphology of each individual stone achieved through two-dimensional projections. These accurate projections make possible the perfect fit of the blocks which form a self-sustaining vault. As a result the whole structure is defined as an autonomous system.

This is properly illustrated through its architectural elements. The dome (fig. 1) is composed of stone blocks cut with extreme precision and interlocked according to a well-established rhythm. It functions as a monolithic shell which allows it to be self-supporting which demonstrates the capacity of stereotomy to achieve wide spans through geometry.

Similarly, the Trompe d'Anet (fig.2), a conial corner vault is esteemed for its bold use of construction technique where the internal compressive forces of stone are leveraged to create the idea of a structure which defies gravity. It is almost a structural paradox where geometry "traps" it and engineers the possibility of that shape. The resistance of the stone is a variable in the equation which dictates the drawing.

This same approach is claimed for the design process of the Hypar Vault (fig. 3), one of the most important representative cases of the digital renascence of classical Stereotomy. Fallacara and Barberio consider it as an experimental laboratory where geometry, material and structural forces are tested to be integrated through technology into one cohesive design process (Fallacara, 2018). In the classical tradition of the "art du trait" the architect defined form through the means of geometric rules and two-dimensional drawings. However, in the Hypar Vault form is defined by the form of the pre-fabricated modules. There are two types of modules and they are the mirror image of each-other. Their designs are based on the hyperbolic paraboloid which is one of the only surfaces with two directions in geometry. In this project it is chosen as a shape that synthesizes the logic of tension and structural compression. These blocks have axial perforations where steel cables pass through. We can see that contrary to the traditional stereotomy such as that of Anet, the joints are not self-sustaining but require the assistance of cables. It can be argued that this introduction of axial perforations is a departure from the structural integrity of the classical vault which was a direct consequence of geometrical interlocking of individual voussoirs. By passing steel cables through the stone Digital Stereotomy transforms it into a composite material which goes against the principle of Material Honesty (Frampton, 1995) found in De l'Orme's work. In the Hypar Vault the geometry is therefore a product of form-finding optimization rather than the operative origin that dictates the structural possibility. In the classical paradigm a vault became stable in the moment the keystone was dropped into place and the internal forces were resolved. This is something which is mechanically missing in the digitally produced one, the latter not being self-supporting in the traditional sense.

A further philosophical dissonance arises when evaluating the epistemic transparency of the structural stability in both paradigms. In classical stereotomy, the geometry itself served as the irrefutable proof of stability; the master mason possessed absolute epistemic clarity because the physical structure was an unmediated, 1:1 reflection of the trait. The form stood precisely because the cut was correct. In contrast, the Hypar Vault and the broader Stereotomy 2.0 framework introduce a highly mediated layer of computational simulation, specifically Finite Element Analysis (FEA), to guarantee structural viability. While this allows for the generation of unprecedented, highly optimized forms, it simultaneously constructs an intellectual "black box" between the designer and the physical outcome. The architect does not intuitively "know" the structure will stand through geometric logic alone; rather, they rely on the output of algorithmic stress-tests. This shifts the validation of architecture from the tectonic intuition of the maker to the predictive probability of the software, thereby cementing the exact loss of operative intelligence that Evans critiqued in modern practice.

One of the most radical departures of Stereotomy 2.0 from the



Figure 1. The dome of Chateau d'Anet

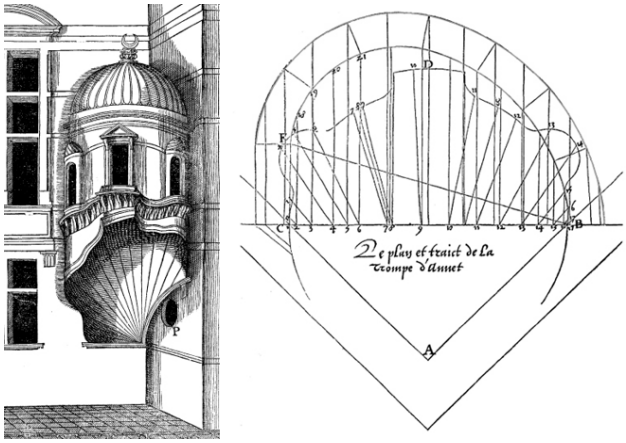


Figure 2. Trompe D'Anet and its geometric projection

classical craft is the use of recomposed stone. Much of Fallacara and Barberio's research focus on utilizing stone dust and cement to create molded or 3D-printed "stone" blocks. This treatment is a very big leap away from the lithic identity and cutting act of the trait that defined it as a discipline.

Furthermore, the ecological justification for Stereotomy 2.0 as seen on the ArchDaily (2018) title "This Stone Vault Prototype Creates Almost No Material Waste", warrants a critical deconstruction regarding its impact on material authenticity. The employment of recomposed stone is championed as a sustainable solution to quarry waste. This practice undeniably achieves efficiency in both an economic and environmental point of view but it does so at the cost of fundamentally rewriting the ontological definition of mansory because it liquefies and moulds the material or it extrudes through 3D-printing nozzles which inevitably treats the stone as an isotropic and plastic medium, quite contrary to its fundamental nature. This erases the inherent anisotropy of natural lithic formations, the grain, the bedding planes, and the natural flaws that historical masons had to respect and negotiate during the cutting process. Consequently, the "Geometric Ethos" of zero-waste inadvertently sacrifices the tectonic friction between human intent and natural constraint. The architecture is no longer born from the subtraction of solid mass, but from the additive logic of industrial manufacturing, stretching the definition of stereotomy to a point where it merely mimics the visual aesthetic of stone construction without retaining its heavy, material reality.

Another technical and philosophical "violation" that would be against the classical paradigm of Philibert de l'Orme has to do with the modularity of the parts. In the classical one each voussoir is typically a singular unit because vaults were often asymmetrical and adapted to a specific regular site. This meant that the master mason had to project unique geometry for each stone and this "rule" produced a very organic whole of distinct



Figure 3. Hypar Vault

parts. However, when analysing the Hypar Vault we can notice that the use of only two distinct units (fig. 4), each being the mirror image of the other and rhythmically repeated. This introduces an industrial and serial logic to stereotomy, a kind of "ready-to-wear" system as opposed to the more "tailored" one of the classical system. Arguably it achieves economic efficiency but it sacrifices the specific local adaption of the trait.

In the logic of "violations" the broadest one is noticed in the overall shape of the structure itself. The vault is named after the Hyperbolic Paraboloid, a mathematical surface, a product of modern calculus and optimised for membrane behaviour. However, Stereotomy is conceptually founded on the idea of hollowing mass and as such, it is intrinsically volumetric. Digital Stereotomy, treating stone as a thin membrane, bypasses the core principle of a vault's strength.

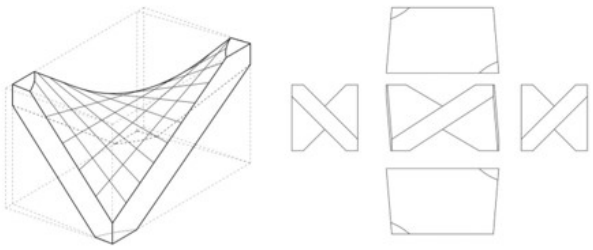


Figure 4. The Hyperbolic Paraboliod modules

Conclusions and recommendations

In the final analysis, this research drops the illusion of an uninterrupted continuation between the classical mastery of stone cutting and the contemporary fabrication, positing the claim that "Stereotomy 2.0" does not establish a purely nostalgic return to the art du trait, but it is necessary to observe it as a deep ontological mutation of the discipline itself. Even though the digital technology and robotic fabrication offer to the architect absolute control over the geometric complexity, it achieves this "revival" by sacrificing the autonomy of the material itself. Placed against the classical principles, it is evident that the stone stops being a primary agent which dictates the genesis of the form and this is due to factors such as the reduction of mass, introduction of hybrid binders and recomposed materials.

However, this observation does not assume the de-evaluation of this digital transition. It's innovation and even ecological ethos are technically independent while a further interrogation is crucial to the area left undisputed. While the classic stereotomy is an act of straightforward translation from mind to matter, the software of the parametric design is claiming an epistemological gap where drawing and geometry lose their status of tactile dialogue with gravity in exchange for an abstract negotiation with parametric code.

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Tirana Between Spontaneity and Design: Recurring Urban Elements in the Development of a City in Search of Identity.

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DOI **10.37199/F40002976**

Abstract
This research investigates on the relationship between spontaneity and design in the formation of the urban fabric. The case study on which the research is implemented is Tirana. The development of Tirana has been shaped by changing relationships between spontaneous urbanization and planned intervention. The core of the research is constituted by the rapid transformations occurred in Tirana starting from the 1990s urban transformations. This paper investigates this relationship through the recurring urban elements that have persisted, disappeared, transformed or re-emerged during the development of Tirana. Through a historical reading of the city from its early formation to contemporary planning, the study examines the transformation of the urban elements across different phases of development. The research is based mainly on historical documents and plans. The analysis shows that Tirana's development cannot be understood as a simple transition from spontaneity to planning and back to spontaneity. Rather, each phase has incorporated, modified and/or reinterpreted elements produced under previous conditions. The study argues that the urban identity of Tirana is not a fixed historical character, but a continuously transformed condition produced through the interaction between spontaneity and design.

Keywords: *urban noise; traffic junctions; Tirana; Albania; environmental acoustics; descriptive analysis; field monitoring*

Introduction

The transformation of Tirana after 1990 represents one of the most significant changes in the recent development of the city. The political and economic transition from a socialist dictatorship where the movement of people was controlled by the state to a capitalist neoliberal system was accompanied by intense demographic internal migration. In this panorama Tirana becomes an attractor of people from rural areas which brought a rapid increase in the urban population. This rapid expansion has taken place mostly unchecked or at least without a general vision of development. The expansion of the last thirty plus years has brought radical qualitative changes in the conformation of a new city, different from the consolidated communist one. The concentric-radial structure of Tirana, which had been progressively defined through different phases of urban development, was confronted with new forms of urbanization that were only partially integrated in the structure of the city.

The transformation of the city brought to a change in the relationship between urban development and planning. During the socialist period, until 1990 Tirana was predominantly developed through centralized planning, while the first decade of the transition was characterized by spontaneous development. This have brought to the creation of informal settlements in areas that had previously remained outside the consolidated urban structure. Planning institutions progressively responded to this transformation through a series of interventions, with various degrees of success, in order to reorganize the expanding city.

The traditional planning sequence, planning – enabling – building – living, followed during the evolution of Tirana during the communist period, as well as in all cases of-urban design at any scale, is distorted. At this stage of urban development Tirana is initially being at the same time inhabited and built. Development throughout the first decade of transition has always preceded design and planning in the micro and macro scale.

This process has often been associated with a loss of urban identity. The rapid expansion of the city, the fragmentation of the urban fabric and the emergence of new forms of construction have modified the city itself, and altered the relationship between city and its surrounding territory. At the same time, however, the transformation of Tirana cannot be understood simply as the disappearance of a previous urban identity. At the very least, even during the communist era the planning was implemented in a complex stratum of existing urban fabric. Different urban elements have persisted, disappeared, transformed or re-emerged in different historical phases. And it is precisely in these historical developments that the identity of the city resides. A result of a continuous elaborations and re-elaborations of different urban themes and elements through the years, oscillating between the spontaneous development of the city and the designed one.

The relationship between spontaneity and design is particularly relevant in this regard. Urban development does not always proceed according to a linear sequence in which planning precedes construction and inhabitation. In the case of Tirana, especially during the period of transition, construction and inhabitation frequently preceded or developed independently from planning intervention. Planning subsequently attempted to respond to an urban condition that was already partially established. The relationship between planning and urbanization was therefore reversed: rather than planning simply determining the form of the city, planning was also required to confront, organize and transform forms of urbanization that had already taken place.

This condition makes Tirana particularly relevant for investigating the relationship between spontaneous urbanization and planned intervention. The city can be read as the result of these two modes of urban production, in which elements generated under different political and planning conditions continue to influence the contemporary urban structure. Rather than considering spontaneity and design as two mutually exclusive conditions, this article understands them as interacting processes that have contributed to the formation and transformation of the city.

The research, therefore, investigates the interaction between spontaneous urbanization and planned intervention that have shaped the urban identity of Tirana, through the urban elements that have persisted, disappeared, transformed or re-emerged during this process.

To investigate this process, the article follows the transformation of selected urban elements across different phases of the city's development. These elements are not considered as fixed expressions of an established urban identity, but as indicators through which changes in the urban structure and its identity can be observed. Their persistence, disappearance, transformation and re-emergence provide a way of reading the relationship between different forms of urban production.

Reading Tirana through recurring urban elements

Tirana's urban identity is not understood here as a fixed historical character, but as a condition continuously transformed through the interaction between different forms of urban production. The city has been shaped by successive interventions, planning decisions and processes of spontaneous development, each of which has introduced new elements while also modifying or incorporating elements inherited from previous phases.

The recurring urban elements are used as indicators through which transformations of urban identity can be observed. They may be physical elements, such as paths, axes, streets, urban blocks, gardens, rings or areas of expansion, but they may also refer to broader spatial structures that reappear under different conditions.

There are four conditions that are particularly relevant to this reading. The first is **persistence**, when an urban element survives through different political or planning regimes and continues to structure the city. The second is **disappearance**, when an element associated with a particular phase of urban development loses its physical or spatial presence. The third is **re-emergence,** when an element or spatial logic that had been interrupted returns in another form, and lastly **transformation** when a previous urban element reappears under different connotations or circumstances. Instead of considering each planning phase as an isolated moment, the analysis observes how different phases overlap

through the urban elements that they produce. A new plan does not necessarily replace the previous city; it may reinforce an existing structure, modify it, partially erase it or give it a new meaning. In the same way, spontaneous urbanization does not necessarily produce an entirely new city. It may reproduce older spatial patterns, occupy spaces left outside previous planning interventions or generate new structures that are subsequently incorporated into planned development.

The issue that we are interested in highlighting is not a simple transition from a city designed, planned and managed before 1990, to a period of spontaneous urbanization during the first decade of transition, and then to a new phase characterized by a renewed prevalence of design. The transformation of Tirana is better understood as a continuous interaction between planned and spontaneous forms of urban production. Different forms of planning and spontaneous development have overlapped, interacted and transformed one another over time.

This relationship can be observed through several elements that recur throughout the development of the city. The radial routes and concentric structure established through earlier phases continue to influence later expansion. The central axis of the city has been repeatedly reinterpreted through different planning interventions. Elements introduced or transformed during specific historical periods, such as geometric gardens or planned urban spaces, may subsequently disappear or lose their original role. Conversely, forms of spontaneous urbanization that developed at the margins of the planned city may later become incorporated into the consolidated urban structure. An element may persist physically while its function or meaning changes; it may disappear from the urban landscape while its spatial logic remains; or it may re-emerge through a new planning intervention. In this sense, recurrence does not necessarily mean repetition.

The analysis follows the transformation of these elements rather than treating them as isolated historical objects. Their significance lies in the way they connect different moments of the city's development. For this purpose, we have individuated different historical periods with prevalence of spontaneity or design as an analytic device to better comprehend the evolution of the city.

The spontaneous formation of the city

From the fourteenth century until 1912 when independence was declared, Albania, like all the Balkans, was part of the Ottoman Empire. The birth of the city, although the settlement is difficult to date, dates back to about 1614 with the construction of a mosque, a hamam, an oven and an inn by Sulejman Pashe Bargjini (Frasheri 2004, p.67), which subsequently led to the creation of the bazaar. Tirana was born as a crossroads interregional merchant trade that had been consolidated since the sixteenth century. From

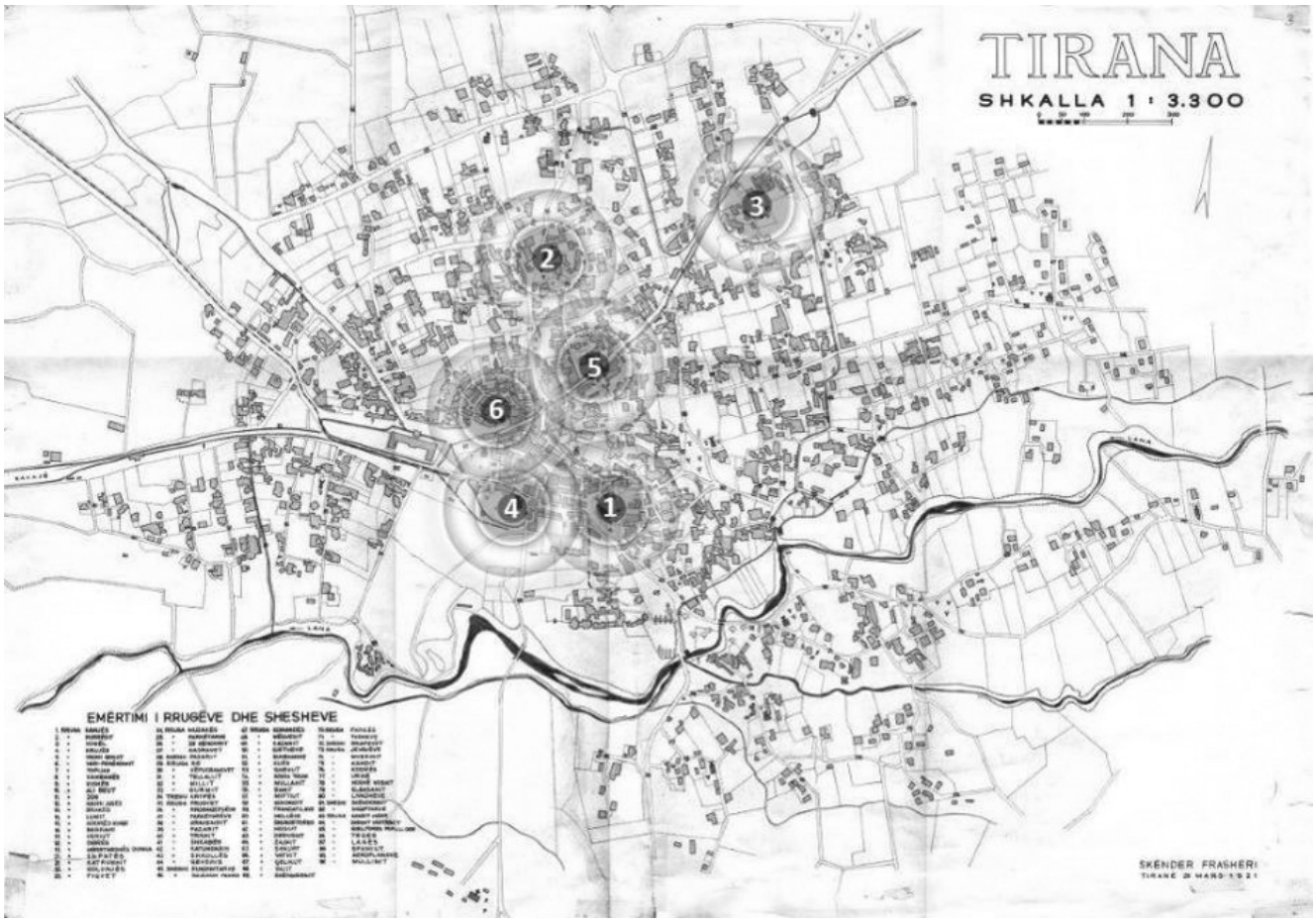


Figure 1. The first six nuclei of the expansion of Tirana on the 1921 map: 1) old mosque; 2) Fira; 3) Zajmi; 4) Ethemi; 5) Stermasi; 6) Karpaci. Source: Elaboration of the author on AQTN map.

Durres and Vlora, which were the two port cities, they led inland. From Dibra, Shkodra, Lezha in the north, they passed through the southern regions but also to reach Istanbul, Thessaloniki and Northern Macedonia (Frasheri 2004, p. 71).

In the historical analysis of the settlement, Miho (1988, pp. 50-53) and Frasheri (2004), identify several nuclei in the formation of the historic center of Tirana until the beginning of the twentieth century. The first one of foundation by Sulejman Pashe Bargjini; a second nucleus created at the beginning of the eighteenth century with the construction of the mosque of Fira; a third that is created at the same time as the construction of the mosque of Zajmi in 1775; a fourth nucleus with the mosque of Haxhi Et'hem in the center which is located on today's Central Square of Tirana, and so on (fig. 1). During this period, the city expands in a centrifugal manner starting from these nuclei until they meet and clash. (Lambertini, Poggi, 1943).

Throughout this period Tirana developed morphologically through spontaneous non-geometric fabrics. The houses consist of single-family houses for extended families that never open onto the street but are mediated by fences. The streets and lanes are formed randomly as the nuclei expand. During this first spontaneous phase of development, we can recognize two characteristic modes of development. On one side there is the strong morphological character of the development, and on the other, there is the successive formation of the nuclei that characterize the formation of the city.

This phase establishes an urban structure, and a morphological core, that later planning interventions did not simply replace. The radial routes and the spatial relationships between the different nuclei became part of the existing city over which the plans of the twentieth century were subsequently superimposed.

Planning over an existing city (1923 – 1943)

In 1923 the first Master Plan was drawn up by Austrian engineers and architects with the participation of the Albanian counterpart. The radial layout of the main streets on which the city had been formed was preserved, providing for widening, and the orthogonal layout was introduced for the first time, superimposing it on the pre-existing structure. In 1925 Tirana was definitively proclaimed the capital. Ahmet Zogu became prime minister and, for the nascent capital, commissioned the Italian architect Armando Brasini to develop a project for Tirana. Brasini proposed the introduction of a monumental axis on which to arrange the functions of the capital (fig. 2). The project presented by Brasini was never implemented but the idea of the axis remained in the structure and in the projects of the city until 1931 and was re-proposed in later periods. The following year, a new plan was drawn up on the basis of the 1923 plan, making improvements and integrating Brasini's idea of the axis.

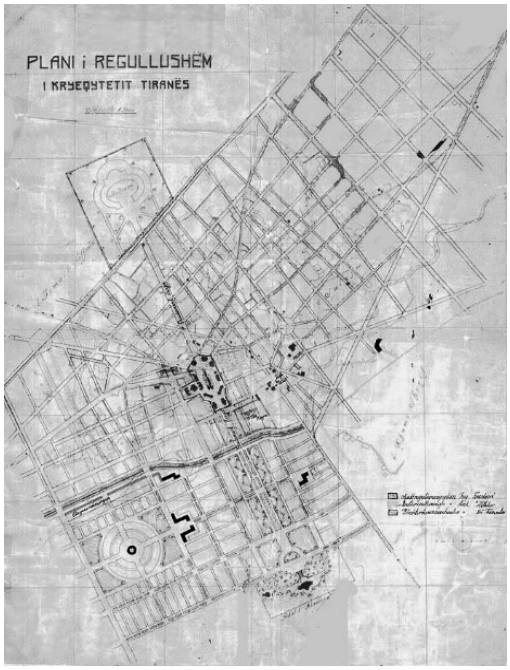


Figure 3. Plan of Tirana 1929. Source: AQTN



Figure 2. The first proposal of Brasini for the boulevard. Source: AQTN.

In 1928 Ahmet Zogu proclaimed himself King of Albania and commissioned the Austrian Kohler and the Albanian Frasheri to revise the 1926 plan by expanding the territory. To these was added the Italian Di Fausto in 1929, when a further version of the master plan was presented (fig. 3). The structure of the plan was worked on by the engineer Eshref Frasheri. Kohler was in charge of planning the southward extension of the city beyond the Lana stream, and Di Fausto of the planning of the centre of Tirana. Subsequently, in 1930 and 1931, two other improved and more extensive proposals were prepared based on the 1929 plan.

The urban interventions of this period introduced several elements associated with nineteenth-century urban planning into Tirana: the boulevard' the grid, and the geometric garden. The idea of the boulevard, widely used from Haussmann onwards, can be revealed from the first interventions of widening the main arteries of the creation of the city, and in the idea of the central axis of Brasini. The grid, which had been used in different forms since antiquity but had lost importance during the medieval period, returned as a major instrument of urban planning during the nineteenth century. The Manhattan plan in 1811 and Cerdà's project for Barcelona in the mid-1800s are two examples. The grid has been proposed since the intervention of 1923 and later, as an overlay on the existing fabric and planning territorial expansions. The geometric garden originating in the late Renaissance, known as the Italian garden, and subsequently its more sumptuous reworking in the French garden persisted throughout the 19th century even after the development of the more bucolic English garden. In the projects of Brasini and Kohler, both not realized, we find the geometric garden used.

In 1939, in line with the expansionist policies of the time, Italy invaded Albania. Under the Italian administration, huge investments were made, especially in Tirana, with the intention of being accepted by the locals and starting a process of colonization. A few months after the invasion, a new master plan for Tirana was thought of and the task was entrusted to the Florentine architect Gherardo Bosio. The plan was completed in 1943. In 1941, due to Bosio's death, Ivo Lambertini and Ferdinando Poggi took his place.



Figure 4. Urban plan of the core of Tirana in 1943 by Bosio, Lambertini, Poggi. Source: AQTN

Bosio's plan was to be the most advanced and complete plan made for Tirana, both for the in-depth study phase prior to the plan (fig. 4), and for the breadth and general unitary vision (fig. 5), and for the temporal extension of programming. Great attention was paid to private property, to the development of the city without undermining the already existing economic centers and therefore the investments of citizens. The plan envisaged planning for the next sixty years, and in light of the increase in population, the existing nucleus was not considered suitable to accommodate the population.



Figure 5. Territorial Plan of Tirana in 1943 by Bosio, Lambertini, Poggi. Source: AQTN

Howard's garden city was taken as a model for the new Tirana. The authors' considerations started from the love for nature of the citizens reflected in the courtyards of all the houses of Tirana with their vegetation that gave a picturesque character to the city (Lambertini, Poggi, 1943). Consequently, the plan provides for an environmental system with large parks on the edges and a system of small parks within the city.

Structurally, the plan maintains the existing radial roads, to which enlargements were made in previous years, connecting them with a very large infrastructural ring with a diameter of about 3km. The axis proposed by Brasini is maintained, conceived as the representative backbone of fascism and the structure of the plan recalls the typical layout that we can find in newly founded cities of the fascist period such as Latina. Bosio will personally take care of designing in meticulous detail the buildings overlooking the axis, many of which will be built and still represent a significant cultural legacy.

Stylistically, unlike Brasini who had a neoclassical approach to the project, Bosio prefers the lictorian style, stylistically a mixture of monumentality and formal simplification and of the elements. The plan was not implemented due to Italy's defeat in the Second World War after which it had to withdraw from Albania, but the concentric-radial structure with a marked central axis was the starting point of the urbanization of the communist period.

The planning of Tirana between 1923 and 1943, divided in itself in two phases, illustrates a first major interaction between the existing spontaneous city and elements of urban design. The plans

did not begin from an empty territory. In the first phase (1923 – 1933), we have the introduction of the grid, the boulevard, and the geometric garden. Also, an important aspect is the delineation of the border of the city in the form of an abstract polygonal shape. In the second phase (1939 – 1942), there is the introduction of a territorial scale of intervention based on the principles of the Garden City. Regarding the urban scale of planning, we can see a ring that delineates the core of the dense urban development, and the typological insertion of the courtyard, maintaining only the main traces of the old town and erasing the existing villas.

Ideological transformation and morphological continuity (1945 – 1989)

The establishment of the communist regime in 1945 introduced a radical political and ideological transformation of Tirana. The city was progressively reorganized according to the principles of socialist urbanism, while architecture and public space became instruments for representing the new political order. This transformation also involved the removal and modification of elements of the existing city. The demolition of the old bazaar and its replacement by the Palace of Culture, and the demolition of the 1930s town hall in 1982 to make way for the National Historical Museum are examples of this process. The transformation of the urban image was therefore not only a consequence of new construction but also of the modification and removal of elements of the existing city. During this period, we can see the continuous struggle to impose a determined way of thinking embedded in the urban fabric. From the planning standpoint there are three main plans proposed, 1953, 1957 – 1958, 1985 – 1989, though they are only partially realized, or at all as is the case of the 1989 plan. Communism in Albania, at least in the first twenty years, developed in the wake of Soviet communism. Urbanization and modernization were among the main objectives of the Soviet Union in the 1920s and will also become so of Albania in the 1950s. The urban population of Albania has increased notably during the first years. With the increase in the urban population arises the need to plan for growth. The development of industry in Tirana began in 1947. In 1953 the Albanian architect Gani Strazimiri with the collaboration of Soviet specialists drew up a first draft of a master plan where the satellite industrial zones around the city stand out (fig. 6). There is therefore the introduction of detached urban polarities that form satellite poles, which in this case are industrial ones.

Between 1957 and 1958 the first master plan for Tirana was drawn up by Misto Mele, supported by the Bulgarian Angjellov. This plan will be the basis of the urbanization of Tirana on which the subsequent detailed plans will also be developed until 1990. The 1958 plan maintained and structurally implemented elements of Bosio's plan. The ring was built in the following years on the same track as the previous plan, adding another internal ring. The cardo-decumanus system composed of the central axis and the straightening of the course of the Lana stream was also maintained (fig. 7). The idea of the large park south of Tirana, now the Lake Park, was implemented. The building types, on the other hand, which in the 1943 plan mainly included courtyard buildings and villas, changed and the buildings were arranged in a punctiform manner more akin to modern Soviet urban planning. The division by classes proposed in Bosio's plan is not compatible with the communist doctrine that preaches equality and collectivization which will be reflected both in the distribution and in the urban typologies. The villas will make room for collective buildings and, at least in intentions, the distribution will be equal for all citizens**.**



Figure 6. 1953 Regulatory Plan. Source: AQTN



Figure 7. Tirana Master Plan of 1957-1958. In yellow you can see the improvements to the city's infrastructure. In red, on the other hand, the new infrastructure planned for the inhabited nucleus. Source: AQTN

Inside the inner ring there are buildings of 4-5 floors while close to the outer ring of 1-3 floors. The zoning provides for the expansion of the residential areas towards the east close to Mount Dajt, the industrial areas detached from the urban core to the north and west, and the large urban parks to the north, south and territorially dispersed. The preservation of the historical parts is closely linked to the significant places in the history of the PKSh, and in an attempt to erase history to rewrite it starting from 1945 the monuments to be safeguarded are the mosque of Et'hem Bej, the Clock Tower and a few traditional houses. It is no coincidence that there were not many problems in demolishing the bazaar in the central square and that the new buildings are

arranged between the streets and the medieval city as if to hide it. Among the buildings maintained by the regime there are also the buildings in the center designed by Di Fausto and the buildings designed on the axis by Brasini, where especially the latter, thanks to the sober lictorian style, lend themselves very well to a semantic resignification by the regime.

If the 1958 plan "pushed for the development of the city towards an almost ideal and unrealistic situation with respect to the condition of Tirana at the time" (Dhamo et al. 2016, p. 269), the 1989 plan: "tried to give concrete solutions to some of the most worrying problems of Tirana at the time, which were: the problem of housing ...; the creation of a structure with clear functional zones ...; the arrangement of the standard of green spaces per inhabitant in the existing city and in new buildings ...; the completion of the road network scheme ...". (Dhamo et al. 2016, pp. 296-297)

This plan, thanks to its restorative approach, represents the crystallization over time, at least in intentions, of the urban transformations of Tirana during the communist period. The plan marks on the concentric-radial structure of the city by providing for an outer ring that demarcates a sort of boundary of expansion. A total of five concentric rings are planned where the outer ring of the 1958 plan becomes the third ring. According to the plan, the city was to develop in a compact manner with the industrial zones close to or inside the outer ring (fig. 8, 9). In this way, we move definitively away from the idea of the garden city with possible satellite urban agglomerations.



Figure 8. PRG zoning of Tirana, 1989. Source: AQTN



Figure 8. PRG zoning of Tirana, 1989. Source: AQTN

The prevalent modality of development during this period is the planned one. There is a consolidation of the structure of Tirana, a typological shift to linear buildings, and the ring infrastructure as a delimitation of urban development. An interesting element is the initial idea of a multipolar city proposed in 1953, which has been naturally refuted in a radial continuous expansion. This will be the framework on which the imminent spontaneous urbanization will take place.

From planned urbanism to spontaneous urbanization (1990 – 2000)

During this period of informal construction, there is a rupture between the planed urban development which leads to conditions that are clearly detached from the very conception of the traditional urban development. This is a direct consequence of the political and economic. system change.

Changes during this period are implemented by individual citizens, without coordination and with almost no intervention from above. This brings with it two implications: individuality prevails over the collective; processuality, in a certain sense it becomes the result since there is not an expected result. This produces a city with open and uncertain outcome. There are two main implications of this development. The densification of the existing urban fabric and the expansion of urbanism mainly through individual detached houses.

Local administrations, especially in the first decade, found themselves in great difficulty as they were not equipped to manage the flows and were unable to act at the legislative level. The lack of experience and resources did not even allow the extent of the changes to be recorded in time. Interventions at the urban level, in this first decade are characterized by a substantial immobility of administrations, and are focused mainly, if not entirely, on the city center.

The continuous changes in urban forms and typologies and territorial expansion also make obsolete several territorial studies and analyses on different scales made in the past, where reality often no longer corresponds to the map, and above all the boundary conditions have changed as the quantitative increase in the population has led to a qualitative change in the conformation of the city.

The Implications of Urban Development of Tirana through this new way of building involves different aspects such as: territory; public space; infrastructure.

From a territorial point of view, the expansion and the transformation of Tirana was accompanied by the deterioration and homologation of the territory. The urbanization process in itself implies an invasive intervention on the territory, but the attention to the territory during the communist period was significantly higher. The diversification of the territory in natural, productive and built areas or also the diversification within the same built. The creation of the national park on the Dajt mountain, a few kilometers east of Tirana, or the care of the edges or vegetation of the Lana stream and Paskuqan and Farka Lakes at the protection and enhancement. The creation of new agricultural areas and greenhouses north and west of Tirana or

the creation of the artificial lake in the Lake Park to enriching the territory are some examples of the communist policy of safeguarding the territory.

The public space of Tirana during the transition period can be divided into the public space of the city built up to 1990, and that of the expansion areas. The public space in the established city has been literally stormed by additions to existing buildings within the neighborhoods and by kiosks in the main arteries of the city. Not only has public space decreased in quantity, but with urban densification through the construction of multi-story residential buildings within the built city, the public space per inhabitant also decreases. In the areas of expansion, on the other hand, the absence of public space can be detected. The conformation of these areas is very reminiscent of the first phase of development of Tirana. The new city is built morphologically (rather than through typology as was the case in the communist period), and public space is not taken into account. The fragmentation of urban interventions of the time, and the tendency towards individualization are certainly other reasons why public space during this period is reduced to a minimum.

The issue of infrastructure is particularly problematic in the years of transition. The network of primary infrastructures (secondary roads, parking lots, water system, electrical system, sewage) was not designed to cope with the massive migrations that occurred in Tirana and maintenance after the fall of communism was minimal. The inhabitants of the illegal settlements in many cases illegally connect to the infrastructure causing damage and losses, and in some cases, they do not connect at all, creating health problems. The secondary roads of the illegal settlements are not designed and are created as a result of occupied lots. These are irregular in shape and almost entirely unpaved and without lighting. In this development context, secondary infrastructures (schools, community centres, sports facilities, markets, religious centres) have developed with great difficulty or have not developed at all in the expansion zones, which have simply relied on existing infrastructures and overloaded them.

Typologically during this period, the whole process of densification and expansion is actualized with individual villas, and multistory high rise residential buildings, both of them constructed punctually in a sparse way on the territory.

It is curious that the development during this period happened morphologically, as in the beginnings of the city. The only notable exception is the Astir neighborhood, which is an extensive area east of Tirana, just outside the Great Ring. Due to the agrarian parcelisation during the socialist period, maintained a grid structure.

It is important to note that spontaneous urbanization did not simply produce an absence of planning; it produced a new urban condition that subsequently became the object of planning. The spontaneous production of the city should therefore not be understood exclusively as a deficiency of planning. It has also generated forms of spatial differentiation and local specificity that have become part of the contemporary urban identity of Tirana.

The return of design in a transformed city (2000 – on going)

During the first decade of transition there are several attempts to systematize the urban transformation of Tirana. All these attempts are based on the PRG of 1989 trying in some way to update it in the light of socio-economic and urban changes. In 1995 the Austrian group Regional Consulting in collaboration with the Municipality of Tirana presented the Study of the Development of the City of Tirana.

The Zoning Regulation of the City of Tirana was born in 1996 as a tool for the containment of illegal buildings in Tirana. The regulation is worked on by the Institute of Urban Planning with the support of USAID (US Agency for International Development) directly on the tables of the 1989 PRG.

These interventions are of containment rather than proactive. Not only do they fail to anticipate and plan the urban changes in Tirana, but in the case of the urban planning law and the Zoning Regulation they also prove to be harmful as they are unable to give specific indications for urban changes. The coupling of the inadequacy of these interventions with the inadequacy of the means and/or the unwillingness of the administrations to apply them adequately contributes to the chaotic development of Tirana during the first years of transition.

The theme of spontaneous urban fabrics emerged at the end of the 1990s. For the first time, specialists began to think about the damage at the urban level that uncontrolled development was producing and to think of concrete solutions to stop illegal building. In this period the first demolitions of illegal buildings began, which can also be interpreted as an attempt by the administrations to reaffirm control over the territory. The firmness of the authorities in this period put a stop to illegal building in Tirana (Aliaj et al., 2003, p. 70).

During this period there was an important and decisive campaign of demolition of the buildings along the Lana stream and in the Rinia Park. The economic damage of the demolitions is considerable. If the initial investments had been made wisely, the profits for the state and individual citizens would have been considerable. The cost of the demolitions amounts to 6 million USD, plus 2 million for the possible removal of the rubble, not counting the economic damage caused to the economic activities involved, employment and tax revenues. Another example of how the institutional vacuum has failed to meet the energies put in place by individual entrepreneurs (Aliaj et al., 2003, p. 71).

Starting from the early 2000s, we see for the first time different attempts to re-establish planning as a practice to deal with the existing informal urban fabric just as the demolitions in the city center pave the way for a new season of planning for the center of Tirana. The design dimension took on an increasingly central role in urban development. The two most incisive interventions are: the 2012 Tirana Northern Corridor & River, and the 2016 PRG of Tirana.

Towards the end of 2011, the Municipality of Tirana announced the Tirana Northern Corridor & River international competition by invitation. The program of the competition is very ambitious

both in scope and objectives. The intervention area, with varying degrees of depth, is 1400 ha, which is about a quarter of the urban territory of the city. The project is divided into different zones (fig. 11). The municipality's request regarding the types of intervention in these areas is structured as follows:

- strategic development of the entire project area (zone 1 – 5)
- Masterplan project for the extension of the boulevard (zones 2 and 3) and for the bank of the Tirana River (zone 4)
- Implemented project of zone 2
- Strategic concept for the future development of zones 2a, 2b, 3a and 3b.

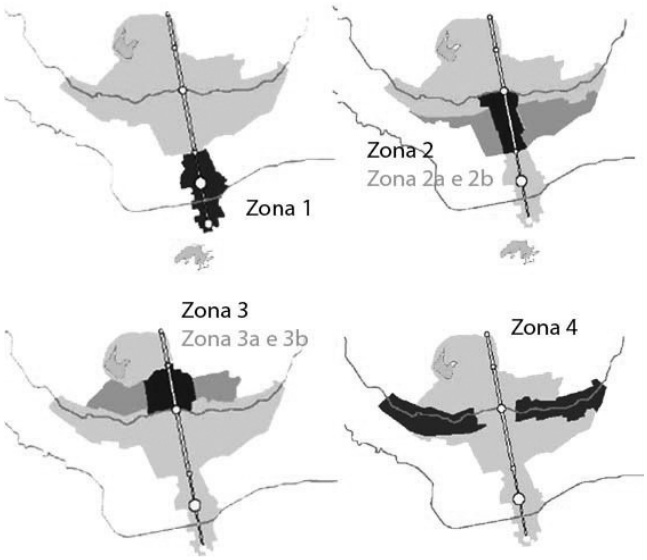


Figure 11. Zone di intervento Tirana Northern Corridor & River. Source: Forum A + P, nr. 14.

The two most important parts of the project are: the extension of the boulevard and the rehabilitation of the Tirana River (fig. 12). Particular emphasis is placed on the environmental and ecological system, and on recreational spaces given the congestion of the consolidated city. In the competition brief, the boulevard and the river are classified as ecological corridors. The objectives and requests are specified in a concise and comprehensive manner. In the requests made, and therefore also in the vision for urban development, sustainability plays a crucial role.



Figure 12. Building Tirana's GREEN Future, General Masterplan. Source: Forum A + P, nr. 14.

As a starting point of the masterplan there is the creation of integrated pedestrian districts each with its own basic local services on a micro scale. The city's development system is oriented towards public transport (Transit Oriented Development) and provides for the creation of what are called Urban Stays in the proposal. At the basis of urban stays and local services there is a formulation made by the authors of the plan, based on the Experiences of Humanity, according to which the acceptable distance that can be covered on foot is 600 meters. (Grimshaw 2012, pp. 40-41)

As far as the central part of the assignment is concerned, first of all it can be noted that the axis of the boulevard and that of the river are respectively characterized by the high density and prevalence of the built environment one, and the prevalence of the environmental system the other.

In this case we can see two major themes tackled. One, relates to the expansion of the city, that begun spontaneously, but in this case is returning through the theme of the boulevard. The other theme relates to the ecological approach, that was present during the socialist period, but this time we see it developed more explicitly in a contemporary way.

The 2016 PRG of Tirana comes as the culmination of a multi-year effort to modernize the administrations. Following the administrative reform of 2014 which significantly reduced the administrative units, the PRG for all the new regions of Albania is being formulated at the same time. In the case of Tirana, the task is entrusted to Stefano Boeri.

The analysis phase is very thorough, extensive, multi-faceted and is the result of the joint efforts of many institutions, departments and people. As well as Boeri's proposal, which is structured in a complex way and holds together many urban, social, technical and legislative aspects at different scales. The complexity of Tirana highlights "the impossibility of giving an interpretation of the city through simple models" (Plani i Zhvillimit te Territorit, p. 11). In our context, we will focus on the aspects considered most significant for the urban development of Tirana, extrapolating specific parts and substantial elements of the plan that will be exposed mainly by referring to the 13 strategic projects proposed in the PRG (fig. 13). We can divide the proposals of the plan into proposals of a territorial and urban nature.

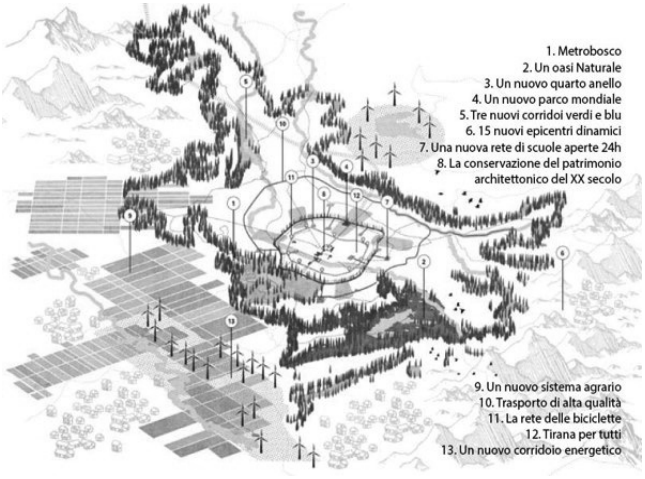


Figure 13. TR030, Strategic Projects. Source: TR030

At the territorial level, the main interventions concern the environmental system. A point on which the PRG is very important is the rehabilitation of the agricultural system in the framework of the installation of a new relationship between city and countryside. Therefore, the plan proposes the creation of four new agricultural corridors, combining these investments in infrastructure and logistics "for the construction of a sustainable value chain to support small and large farmers" (Plani i Zhvillimit te Territorit, p. 71). The agricultural system is seen in a broader environmental framework, which is not limited to productivity, but wants to systematize recreational and ecological components together with productivity around the most important urban center of the region which is Tirana.

In the limit between the territorial and urban dimensions we find the first strategic project proposed in the PRG which is the Metrobosco. The plan provides for the creation of a forest of varying sizes from 20 to 200 meters that treads the administrative border of the city of Tirana. The Metrobosco, as well as the Fifth Ring in the last PRG of the communist period, demarcates the boundary of urban expansion.

What we are interested in emphasizing is the conceptual change after 15-20 years. The urban boundary in the communist PRG is made up of an infrastructure while in the current plan of nature. This can represent an evolution in the way of understanding urbanity that took place in a short period. In some ways the evolution leads to the topic of the border but with different boundary conditions.

From an urban point of view, the authors of the plan recognize the monocentric character of Tirana developed over the years and opt for the development of a polycentric city. Polycentrism in the PRG is understood on three levels: territorial, urban and local (Plani i Zhvillimit te Territorit, p. 101). At the territorial level, the poles consist in the strengthening of rural centers while also highlighting their respective archaeological, cultural and naturalistic values. At the urban level, on the other hand, 5 macro-areas of urban transformation have been identified that will constitute the starting point for the new multipolar city. The poles are located in the peripheral areas and are characterized by a dominant function and implemented with primary services. Within these, specific areas of transformation with special statutes are planned to facilitate the creation of these poles. At the local level, the strategy proposed by the PRG is very unique and consists in the creation of a network of schools that can eventually become multifunctional centralities in order to fulfill another of the objectives of the plan, which is the 24-hour city where services are open and accessible day and night.

The urban structural system refers to the 1989 PRG. Boeri re-proposes the 5 rings of this plan by adding his own conception of the city. The most ambitious project of the plan from an infrastructural point of view and beyond, which is also one of the strategic projects, is the creation of a Fourth Green Ring. The strategy implemented for intermodal mobility provides for exchange nodes in critical points located in the Fifth and Third Rings favoring public transport, sharing and soft mobility (Plani i Zhvillimit te Territorit, pp. 136-139).

An important factor in the development of Tirana is the change in scale. The size of Tirana, since its creation, has always been small. When we talk about size, we are not only referring to the territorial extension, but also to the urban fabric, the size of the buildings and in general the feeling you have walking through the city. In a certain sense, Tirana looks more like a medieval city than a modern city. Even the introduction of modernism during communism has maintained a particular urban profile, partly due to technical impossibilities but partly also due to urban and historical conditions.

Currently, the development of the city, though planned, is happening in a fragmented way. The main typologies used are the towers, that we can interpret as the evolution of the singular multistory buildings appeared during the 1990s, and the residential complexes. Both of them are of another scale compared to the existing Tirana. There is a progressive erasure of the existing urban tissues of the city, which are in themselves fragmented.

Structurally and morphologically with the completion of The Great Ring in 2024, there is a consolidation of the structure strongly based on the 1989 plan but the Ring itself, with a section of around 50 meters, together with the towers and high-density residential complexes finalize the change of scale, envisioned in the 1943 plan.

Though planning has returned as a main instrument for city making, it is no longer planning the city that existed before 1990. It is planning a city already transformed by spontaneous urbanization. Furthermore, there are continuities, discontinuities, and recurrencies that contribute to the construction of the city as a whole. Consequently, earlier urban elements are not simply reproduced; they are reinterpreted.

Discussion

The historical analysis shows that Tirana's development cannot be understood as a succession of radical interventions that act in a successive manner operating ex novo in the urban fabric. Specifically, the transformation does not go linearly from spontaneous formation to planned urbanism, then back to spontaneity and finally to planning. Different forms of urban production have, and should, continuously interact, with each period transforming and reinterpreting the elements inherited from the previous one.

There are several recurring elements demonstrate this process. The early nuclei and radial routes established a morphological structure that persist through later planning interventions, and morphologically even today, and re-emerge in a different form, during the spontaneous expansion of the 1990s. The boulevard and central axis repeatedly return as structuring elements, while the grid, introduced but never implemented through planning in the 1920s, reappears casually through the parcel structure of areas such as Astir. The ring system shows an even stronger continuity, progressively changing from an element structuring the planned city into an infrastructural boundary and later, a metropolitan infrastructure.

The urban boundary also illustrates how recurrence involves

transformation rather than repetition. It moved from an abstract geometric border in the 1920s, to an infrastructural boundary in the Fascist and Socialist development, and more recently toward an ecological interpretation through the Metrobosco. Similarly, the relationship between the city and its territory reappeared at different scales and through different planning concepts, from the Garden City approach to contemporary agricultural and environmental systems.

The transformation of building typologies reinforces this interpretation. Courtyard houses and villas were progressively replaced by collective and linear housing, while after 1990 individual villas returned alongside multistory buildings and, more recently, towers and large residential complexes. The recurrence of the villa or the multistory building does not represent a return to an earlier city, but their reappearance under different economic, social and spatial conditions.

These examples suggest that recurrence is not repetition. What persists is often not the physical form of an element, but a spatial logic, structural role or territorial problem that is repeatedly reformulated and reinterpreted. Spontaneous urbanization therefore should not be understood only as the absence of planning: it produced a new urban condition that later became the object of planning itself. The tendency of the current development of Tirana, demonstrated in many examples, is the erasure of the traces of the past. Through the transversal analysis of the evolution of the constituting elements of the production of the city, we can eventually render an operative field of work, that operates through a synergy of interventions that valorize, instead of indiscriminately erasing, the existing condition and employes the critical/historical analysis as an instrument.

Tirana's urban identity can consequently be understood as a continuous process of transformation. It is produced through the persistence, disappearance, transformation and re-emergence of urban elements rather than through the preservation of a fixed historical character.

Conclusions

The analysis tries to demonstrate that Tirana's urban identity has developed through the continuous interaction between spontaneity and design. A city is a complex organism shaped through recurring ideas in an extended period of time. In our case Tirana has not simply moved from one mode of urban production to another. Each new phase has transformed and reinterpreted, even involuntarily, elements inherited from previous periods.

The recurring urban elements identified in the study reveal continuities beneath apparently discontinuous transformations. Their recurrence is not a repetition of previous forms, but the reappearance of spatial structures, logics and problems under different conditions.

Tirana's contemporary identity, which is still in the making, can therefore be understood not as a fixed morphological character, but as the result of continuous transformation, in which planned and spontaneous processes remain interconnected, in a transversal way.

The main contribution of this approach is consequently to interpret Tirana's urban transformation through the recurrence of its urban elements rather than through the opposition between planned and spontaneous city. Reading these elements across different periods makes visible the continuities underlying apparently discontinuous transformations and shows how each new phase of urban development inherits, modifies and reinterprets the structures of the previous one. The underlying goal of the research is to frame, methodologically and critically, the constituting urban elements that can be used operationally for the future development of the city, in continuity with the current development.

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Reoccurring Novelties: Architecture Between the Promise of the New and the Repetition of the Familiar

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DOI 10.37199/F40002977

Architecture has always been caught between two opposing desires: the desire to create something new and the need to give form to something that already exists. Every architectural project emerges from this tension. It responds to a specific moment, a particular place, and a set of social, cultural, technological, and economic conditions, while inevitably drawing upon inherited forms, established conventions, and collective memories. The question is not whether architecture can escape repetition, but whether it can transform repetition into a meaningful act of creation.

The theme *Reoccurring Novelties,* proposed by Tirana Architecture Week (TAW) 2024, offers a productive framework through which to reconsider this fundamental contradiction. It invites us to question the meaning of novelty in contemporary architectural culture and to examine whether the continuous production of new forms necessarily corresponds to genuine innovation. At a time when architecture circulates globally through images, digital platforms, competitions, exhibitions, and rapidly changing aesthetic preferences, the distinction between what is new and what merely appears new becomes increasingly difficult to establish.

Perhaps the contemporary architectural condition is not defined by a lack of novelty, but by its excessive availability. New images, materials, technologies, formal languages, and design methodologies are constantly presented as evidence of progress. Yet the multiplication of possibilities does not automatically produce a corresponding transformation in the way we inhabit, construct, or understand the world. Architecture risks becoming trapped in a cycle in which novelty is continuously announced, consumed, and replaced before it has had the opportunity to acquire cultural or social significance.

The challenge, therefore, is to move beyond the superficial celebration of the new and reconsider innovation as a critical, situated, and enduring process.

The New as a Recurring Condition

The history of architecture can be understood as a succession of ruptures that are rarely as absolute as they initially appear. Architectural movements challenge established conventions, introduce new formal vocabularies, and redefine the relationship between space, technology, and society. However, what is presented as a radical departure often contains traces of previous ideas, transformed and reinterpreted under different historical circumstances.

Modernism, for example, positioned itself against historical imitation and decorative convention, advocating new relationships between form, function, construction, and the modern condition. Yet its own language eventually became institutionalised, reproduced, and transformed into a recognisable aesthetic. What once represented a break with tradition became a tradition in itself. The modern became historical; the radical became conventional.

A similar process can be observed in contemporary architectural culture, where once-experimental approaches are rapidly absorbed into professional practice and commercial production. Formal gestures initially associated with innovation can become standardised images, repeated across cities with little consideration for their particular contexts. The novelty of a building may consequently reside less in its spatial or social contribution than in its capacity to distinguish itself visually within an increasingly competitive landscape.

This does not mean that repetition is inherently negative.

On the contrary, architecture cannot exist without repetition. Construction depends on systems, typologies, standards, and accumulated knowledge. Cities develop through the reiteration and adaptation of spatial structures, while architectural languages acquire meaning through their relationship to existing forms. Repetition becomes problematic only when it loses its capacity for transformation.

The relevant distinction is therefore not between repetition and originality, but between repetition as reproduction and repetition as reinterpretation. The former confirms what already exists; the latter introduces difference into familiar structures. Genuine architectural innovation may emerge precisely from this difference—from the ability to recognise the potential of an inherited condition and to transform it in response to contemporary needs.

Architecture in the Economy of Attention

Contemporary architecture operates within a culture that increasingly values visibility, immediacy, and circulation. Buildings are conceived, represented, and evaluated not only through their material presence and spatial performance but also through their capacity to produce compelling images. Digital communication has expanded the reach of architectural discourse, allowing projects to circulate internationally almost instantaneously. At the same time, this circulation has intensified the pressure to produce recognisable visual statements.

The architectural project is consequently exposed to a paradox: it must appear unprecedented in order to attract attention, while remaining sufficiently legible to be recognised within an established visual culture. Novelty becomes a form of currency, and architectural expression risks being reduced to a sequence of images designed for rapid consumption.

Under these conditions, the question of architectural progress becomes inseparable from the question of architectural representation. Does a building contribute to the life of a city because it offers new possibilities for inhabitation, public interaction, environmental responsibility, and collective experience? Or is its success increasingly measured by its capacity to generate visibility and reproduce itself through images?

The distinction matters because architecture is not merely an object to be seen. It is an environment to be inhabited, negotiated, maintained, and experienced over time. Its significance cannot be adequately assessed through the first impression of a façade or the visual impact of a rendering. Architecture unfolds through use, through the changing relationships between people and space, and through its capacity to accommodate conditions that cannot be entirely predicted at the moment of design.

An architecture that prioritises immediate recognition may achieve formal distinction while failing to address the more complex dimensions of the built environment. Conversely, a project that appears restrained or familiar may introduce profound changes in the ways a place functions, connects, and evolves.

The challenge for architectural criticism is to resist the automatic identification of visual difference with conceptual depth. Not every unusual form constitutes an innovation, just as not every familiar solution represents a failure of imagination. What matters is the relationship between architectural intention and its consequences.

The City as an Archive of Unfinished Ideas

Tirana provides a particularly relevant context in which to examine these questions. Its urban transformation reflects overlapping historical periods, changing political conditions, evolving economic structures, and competing visions of modernity. The city is neither a completed composition nor a stable architectural image. It is an evolving field in which different temporalities coexist, often in tension with one another.

In such a context, novelty cannot be understood simply as the introduction of new buildings or the replacement of existing forms. Urban transformation requires a more complex negotiation between continuity and change. The city contains material traces, social practices, spatial habits, and collective memories that cannot be reduced to physical objects alone. These elements constitute an urban archive: a repository of experiences and possibilities that may inform future interventions.

To engage with this archive does not necessarily mean preserving everything that already exists. Nor does it imply that historical continuity should become an obstacle to experimentation. Rather, it requires recognising that every intervention enters into a relationship with an existing reality, whether consciously or otherwise. Architecture cannot begin from an absolute void, because even the most radical project is situated within a network of inherited conditions.

The task is to determine which elements should be preserved, which should be transformed, and which new relationships should be introduced. This process requires critical judgement rather than the automatic application of either conservation or replacement.

For Tirana, as for many rapidly transforming cities, the question is particularly significant because urban development is not only a matter of architectural form. It also concerns the distribution of public space, access to infrastructure, environmental quality, social inclusion, and the relationship between collective interests and private investment. A building may be formally innovative while contributing little to the broader urban condition. Equally, a modest intervention may generate substantial value by improving the accessibility, adaptability, or everyday use of a place.

The meaning of novelty must therefore be measured against the context in which it operates. A new architectural gesture acquires significance not simply because it differs from what preceded it, but because it establishes a meaningful relationship with the existing city and opens possibilities that were previously unavailable.

Beyond Trends: The Responsibility of Architectural Creation

If novelty is no longer a reliable indicator of innovation, architecture must reconsider the criteria through which it evaluates its own achievements. This reconsideration begins by acknowledging that the built environment extends beyond the moment of its production. Buildings consume resources,

structure patterns of movement, influence social relations, and remain embedded in the landscape long after the initial intentions of their designers have changed.

Architectural responsibility consequently requires a temporal perspective that exceeds the immediate demands of a project. It asks whether a building can adapt to changing uses, whether its materials and construction systems support a more responsible relationship with resources, and whether its spatial organisation accommodates the complexity of human life. It also asks whether the project contributes to the public realm or merely occupies space within it.

These questions do not diminish the importance of experimentation. On the contrary, they expand its field. Innovation can emerge through new materials and technologies, but it can also result from the reconsideration of existing structures, the adaptation of obsolete buildings, the reinterpretation of vernacular knowledge, or the development of more inclusive forms of public space. It may reside in an unexpected formal configuration, but it may equally be found in a construction detail, a spatial sequence, or a new relationship between a building and its surroundings.

The architectural act becomes transformative when it connects invention with consequence. Without this connection, novelty risks remaining an isolated aesthetic event, detached from the realities it claims to address.

This is also where uncertainty becomes productive. Architectural design cannot fully anticipate the ways in which spaces will be occupied, modified, or understood over time. Buildings acquire meanings beyond their original programmes, and users continuously reinterpret the environments in which they live and work. Rather than treating this unpredictability as a problem to be eliminated, architecture might understand it as an essential condition of its existence.

The most enduring projects are not necessarily those that impose the most complete vision, but those that establish frameworks capable of accommodating change. Their strength lies in the relationship between definition and openness, between the precision of design and the possibility of future reinterpretation.

To design for the future, therefore, is not simply to imagine forms that have never existed before. It is to create conditions in which future generations can continue to produce meaning.

Reoccurring Novelties: A Critical Position

Tirana Architecture Week 2024 places this discussion within a broader collective exploration of architectural culture. Founded in 2012, TAW has established a platform for dialogue among architects, researchers, institutions, students, and cultural actors, connecting local questions with international debates. Its biennial format creates an opportunity not only to present projects and ideas but also to reconsider the assumptions that shape contemporary architectural practice.

Within this framework, *Reoccurring Novelties* can be read as more than a reflection on the cyclical character of creative production. It is also an invitation to examine the mechanisms through which novelty is defined, circulated, and legitimised. It encourages architects to question the pressure to constantly produce the unprecedented and to reconsider the value of ideas that return in altered forms, acquiring new relevance through changing circumstances.

The recurrence of an idea does not necessarily indicate stagnation. It may reveal that certain questions remain unresolved, that previous solutions contain unrealised possibilities, or that familiar principles require reinterpretation under new conditions. What returns is never entirely identical, because the context in which it reappears has changed. The task of architecture is to recognise and work within this difference.

From this perspective, progress cannot be understood as a linear movement from the old to the new. It is better understood as a process of critical transformation, in which inherited knowledge and emerging possibilities are continuously brought into dialogue. The past becomes neither a model to be copied nor a burden to be discarded, but a resource through which the present can be questioned and the future imagined.

For architectural practice, this position implies a shift in emphasis: from the production of novelty towards the production of meaning; from the image of innovation towards its material, spatial, and social consequences; and from the desire to appear unprecedented towards the capacity to make a lasting contribution.

Conclusion: The Future Is Not an Image

Architecture will continue to seek the new because creation depends on the possibility of imagining what does not yet exist. Yet the pursuit of novelty becomes limiting when it is separated from the historical, cultural, and environmental conditions that give architecture its significance. The future cannot be reduced to a collection of unfamiliar forms, just as progress cannot be measured by the speed with which one architectural trend replaces another.

The real challenge is to create something new without losing the capacity to recognise what already exists. It is to understand repetition not as the enemy of originality, but as the ground on which meaningful differences can emerge. It is to approach architectural creation as a dialogue between memory and anticipation, permanence and transformation, intention and uncertainty.

In this sense, *Reoccurring Novelties* proposes a critical position rather than a stylistic programme. It invites us to look beyond the immediate attraction of the unprecedented and to ask what architecture makes possible, for whom, and for how long. It challenges architects to move beyond the production of images and towards the creation of environments capable of sustaining human experience, collective life, and future change.

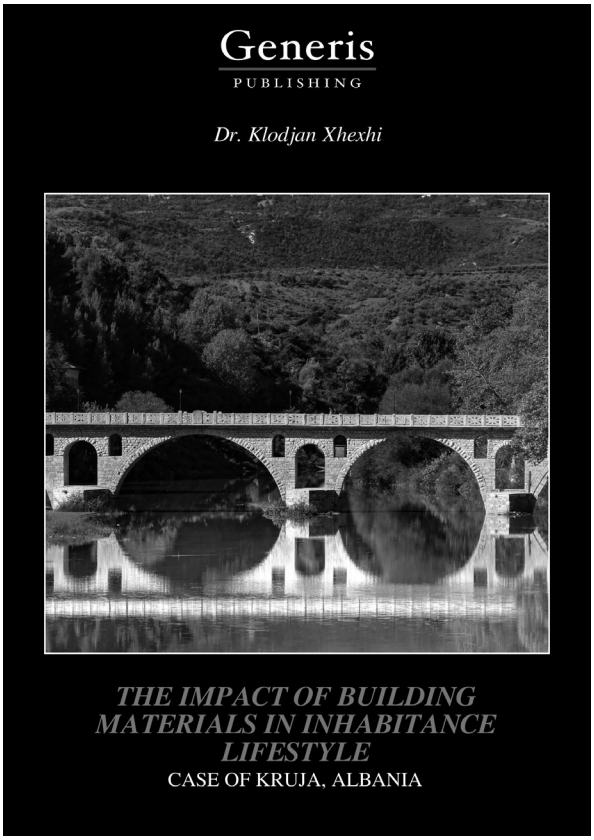
Ultimately, the most important architectural question may not be whether a project is new, but whether it changes the way we understand and inhabit the world. A genuine novelty does not merely announce its arrival. It establishes a possibility that did not previously exist and gives that possibility the capacity to endure.

Perhaps architecture's most radical gesture today is not to produce something entirely unfamiliar, but to transform the familiar so

profoundly that it can no longer be understood in the same way.
The future of architecture does not depend on the endless invention of new forms. It depends on our ability to make new meanings emerge from the conditions we inherit.

THE IMPACT OF BUILDING MATERIALS IN INHABITANCE LIFESTYLE

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Publisher:Generis Publishing
Pages: 188
Year: 2021
ISBN: 978-1-63902-862-7

Overview and Context

Dr. Klodjan Xhexhi's book "The Impact of Building Materials in Inhabittance Lifestyle: Case of Kruja, Albania" is an interdisciplinary study positioned at the intersection of architecture, building technology, environmental performance, heritage conservation, housing studies, and the social sciences. Published by Generis Publishing in 2021, the book develops a detailed case study of Kruja and investigates how the physical characteristics of residential buildings interact with the everyday life, perceptions, behavior, comfort, and potential residential decisions of their occupants.

The book takes as its central object the existing housing stock of Kruja and initially distinguishes three broad categories: historic dwellings, socialist-period housing, and modern buildings. The analytical focus subsequently narrows to historic dwellings, particularly those associated with the eighteenth century and the historic core, and socialist dwellings dating principally from approximately 1960 – 1985. This narrowing is important because it allows the author to compare two building stocks that embody substantially different architectural, constructive, technological, and socio-cultural conditions.

What makes the study distinctive is its attempt to avoid treating building materials as an isolated technical issue. Instead, materials are interpreted as part of a larger chain connecting construction systems, thermal and moisture behavior, energy use, environmental comfort, household economics, patterns of occupation, satisfaction, and attachment to place. The book therefore proposes a broad conception of inhabitation in which the building is not simply an object but an active component of everyday life.

The intellectual ambition of the book is particularly relevant in the context of Albanian cities, where historic structures, socialist housing estates, informal additions, and post-1990 construction coexist within the same urban territory. Kruja provides an unusually productive setting for this inquiry because its historic identity is inseparable from its built

heritage, while its twentieth-century and contemporary housing stocks reveal different stages of modernization and changing expectations of domestic life.

The Book's Central Argument

The principal argument can be understood as a proposition about interdependence: the physical performance of a dwelling and the lifestyle of its inhabitants cannot be adequately understood separately. Building materials, wall thicknesses, openings, roofs, floors, moisture conditions, temperature, ventilation, and thermal behavior influence how residents occupy their homes; at the same time, household practices, economic capacity, cultural habits, and perceptions influence how buildings perform in use.

This argument is developed through two parallel analytical platforms. The first is a social platform based on questionnaires. A 30-question questionnaire was applied to residents of the three building categories, with 10 respondents associated with historic dwellings, 14 with socialist housing, and 10 with post-modern buildings. The questions cover family size, duration of residence, spatial organization, temperature differences, heating and cooling, roof problems, humidity, ventilation, household expenditure, clothing behavior, restoration needs, satisfaction, social interaction, orientation, lighting, noise, awareness of insulation materials, and recycling.

The second is a technical platform based on direct observation and instrumental measurement. Three historic dwellings, and three apartments build during socialist period were selected for detailed measurement. The author records illuminance level, electric and magnetic fields, moisture, noise, façade temperature, indoor wall and floor temperature, indoor air temperature, and window-to-wall and window-to-floor ratios. The study therefore attempts to establish a bridge between what residents say about their homes and what can be measured in the buildings themselves.

The conceptual strength of this structure lies in its refusal to reduce quality of life to either subjective perception or physical measurement alone. The book instead suggests that a meaningful understanding of residential performance emerges when the two are interpreted together. This is arguably its most important contribution.

Architectural and Historical Reading of Kruja

The opening part of the book is more than a conventional contextual chapter. It establishes the historical and architectural foundations necessary for understanding why materials and construction techniques matter in Kruja. The discussion moves from the geographical position and historical development of the city to the medieval castle, the National Museum "Gjergj Kastriot Skënderbeu," traditional dwellings, socialist housing, climate, accessibility, urban problems, archaeological resources, and the motivation for the research.

The treatment of the historic dwelling is one of the book's strongest architectural components. Traditional houses are presented not merely as stylistic objects but as systems adapted to terrain, climate, social structure, available materials, and local craftsmanship. The discussion of stone masonry, timber elements, lime and clay mortars, wooden belts, roofs, loggias, fire rooms, courtyards, openings, and the relationship between building and sloping terrain demonstrates how construction technique and lifestyle are historically intertwined.

The analysis of the "dwelling with corner" and the "dwelling with loggia" is especially useful because these typologies demonstrate that domestic space is simultaneously environmental and social. The loggia, for example, is not simply an architectural ornament. Its location, enclosure, openings, shading, and seasonal use are connected to patterns of occupation and to the climatic conditions of the dwelling. Similarly, the fire room historically operated as a functional and social core, while the arrangement of rooms reflected family structure, privacy, hospitality, and economic organization.

The book also gives significant attention to the National Museum of "Gjergj Kastriot Skënderbeu" and the architectural debates surrounding its design. By discussing references to Albanian tower architecture and to international architectural publications and museum precedents, the author places the museum within a broader architectural discourse rather than treating it simply as a monument. This reinforces one of the book's recurring themes: architecture is produced through an interaction between local tradition, technology, cultural meaning, and external models.

A further strength is the recognition that the post-1990 period introduced a new layer of transformation. The book observes that the liberalization of the construction sector, demographic movement, changing economic conditions, and new forms of residential construction altered the morphology of Kruja. This historical layering is important because it shows that contemporary building problems cannot be separated from the political, economic, and technological transitions through which the city has passed.

Methodological Structure and Empirical Strategy

From a methodological perspective, the book is ambitious. It combines qualitative architectural observation, questionnaire-based social research, environmental measurement, descriptive comparison, binary and Tobit regression models, and linear regression analysis. The author uses the social platform to identify relationships among quality-of-life indicators and then uses the technical platform to investigate the physical parameters most directly connected to the statistically stable social findings.

The use of binary and Tobit models is particularly notable because the questionnaire contains categorical and scaled responses. The book does not simply present percentages; it attempts to model relationships among variables and to identify statistically significant associations. For historic dwellings, for example, the models examine relationships involving apartment area, family size, satisfaction, restoration needs, time spent in the dwelling, heating, and other variables. For socialist housing, comparable models examine spatial conditions, heating, moisture-related indicators, orientation, and residential change.

The technical analysis then concentrates more specifically on temperature and moisture. The book establishes linear regression models in which moisture is treated as the dependent variable and the temperature of interior walls and floors as the independent variable. The rationale is consistent with building-physics principles: moisture and temperature are physically interconnected, and the condition of masonry affects thermal resistance and the durability of building components.

One of the book's methodological virtues is transparency about the measurement process. The author identifies the instruments used, their stated measurement ranges and error margins, the measurement locations, and the time period. The measurements were carried out on 26 January 2020, approximately between 11:00 and 13:00, in three historic dwellings and three socialist apartments. This level of procedural description makes the empirical work more reproducible than a purely descriptive architectural case study.

The methodological approach is appropriate to the exploratory case-study nature of the research. By combining social questionnaires with instrumental measurements, the book provides a valuable multidimensional understanding of the relationship between building materials, environmental conditions, and inhabitation. The focused sample allows for detailed examination of representative dwellings and meaningful comparison between different housing periods and construction systems. The book also transparently identifies opportunities for future research through longer-term and seasonal monitoring.

The statistical analysis further strengthens the study by exploring relationships between physical building characteristics, environmental conditions, and residents' perceptions. Rather than aiming for broad generalization, the research provides a focused empirical framework for Kruja while generating valuable evidence and directions for further studies on housing quality, building materials, and inhabitation.

Building Materials, Moisture, Thermal Performance and Comfort

The technical heart of the book is its analysis of materials and environmental performance. The comparison between historic and socialist buildings demonstrates how apparently different construction systems generate different patterns of moisture, temperature, lighting, and thermal behavior.

The measured moisture levels are particularly significant. The book reports an average of approximately 21.21% for the historic dwellings and 15.5% for the socialist apartments. The higher moisture level in historic dwellings is interpreted in relation to their direct or indirect contact with the terrain, thick natural-stone masonry, lack of adequate contemporary insulation, and the characteristics of their construction systems. This is a valuable finding because moisture is treated not merely as a maintenance problem but as a factor affecting durability, thermal resistance, comfort, and decisions about rehabilitation.

The material analysis is one of the most practically relevant parts of the study. Historic walls are described in terms of natural stone, mortar, wooden structural or connecting belts, timber floors, reed-based ceilings, plaster, and traditional roof structures. Socialist buildings, by contrast, are characterized by reinforced-concrete structural systems, silicate-brick infill, cement mortar, plaster, and other industrialized materials. The comparison demonstrates that the material system is inseparable from the building's relationship with terrain, climate, maintenance, and subsequent interventions.

The book also identifies the consequences of inappropriate later interventions. Historic buildings have, in some cases, been repaired with materials belonging to later technological periods, including red brick and cold aluminum frames. These interventions may solve immediate practical problems while simultaneously weakening the architectural coherence of the historic building. This observation is particularly important for contemporary conservation practice, where the question is not simply whether a material is technically functional, but whether it is compatible with the existing building fabric.

The illuminance results provide another useful example of the book's comparative logic. Although the socialist buildings have a higher window-to-wall ratio, approximately 19% compared with 10% for the historic dwellings, the measured average illuminance is reported as higher in the historic dwellings, approximately 29.98 lux compared with 16.59 lux. The author attributes this apparent contradiction to orientation, room depth, opening position, and the number of façades receiving natural light. This is a useful architectural lesson: a larger opening does not automatically guarantee better daylight performance; geometry, orientation, section, and spatial configuration remain decisive.

The thermal results similarly distinguish the two building categories. Historic dwellings recorded lower average façade, wall/floor, and indoor air temperatures than the socialist apartments. The book connects this difference to thermal bridges, roof and opening performance, economic limitations on renovation, and the tendency of residents to concentrate their activities in particular rooms. Here the study successfully illustrates its central thesis: physical building performance and human behavior are mutually reinforcing.

The discussion of moisture is particularly relevant to sustainable rehabilitation. The book emphasizes non-destructive measurement in historic structures, where destructive investigation is incompatible with conservation requirements. This is a practical methodological contribution for architects and engineers working in protected areas, where intervention must balance diagnostic precision with minimum physical disturbance.

Quality of Life, Place Attachment and Residential Behavior

Perhaps the most original dimension of the book is its treatment of quality of life as an architectural and material phenomenon. Residents of historic dwellings demonstrate strong attachment to their homes despite poor physical conditions. The book associates this attachment with the historical setting, tranquility,

economic opportunities generated by tourism, family continuity, and the symbolic value of the castle. This complicates a purely technical interpretation of rehabilitation: improving a building is not simply a matter of increasing thermal performance, because residents may value aspects of place that cannot be captured by physical measurements.

The socialist housing stock produces a different picture. Residents report dissatisfaction, a need for more space, a desire for improvement, and in the book's questionnaire approximately 79% express a preference for changing residence. The study associates this with limited living areas, weak insulation, poor physical conditions, and the legacy of standardized housing production. The contrast between strong attachment in the historic stock and greater residential mobility in the socialist stock is one of the book's most interesting socio-architectural observations.

The book also demonstrates that domestic behavior is shaped by environmental and economic conditions. Residents of historic dwellings may rely on wood or gas heating and concentrate activities in warmer spaces, while residents of socialist buildings use electricity more extensively. Ventilation practices vary by season, and economic capacity affects the ability to use air-conditioning or undertake building improvements. Such observations reinforce contemporary approaches to building performance that recognize the occupant as an active participant in energy consumption and comfort.

The concept of place attachment is especially important because it shifts the rehabilitation question from "How should this building be upgraded?" to "How can this building be improved without destroying the reasons people value living here?" This is a valuable contribution to heritage-led regeneration. A technically efficient intervention that causes displacement, loss of identity, or destruction of traditional spatial qualities may be less successful socially than a carefully calibrated intervention that improves moisture, temperature, ventilation, and durability while retaining cultural continuity.

The Indexed Model and Scenario-Based Reasoning

The later chapters represent the book's attempt to synthesize social and technical evidence into a more operational framework. The indexed model is constructed from statistically stable relationships between historic and socialist housing, with moisture and noise emerging as particularly important quality-of-life indicators. The technical platform then provides a physical interpretation of the moisture-temperature relationship.

The scenario analysis is an interesting step toward decision support. The book considers how changes in temperature could shift moisture conditions and, consequently, influence the probability associated with residential change. In the historic dwellings, the analysis indicates that an increase in wall and floor temperature of approximately 4°C would move the buildings toward a more favorable moisture range and reduce the modeled probability of residents changing residence. For socialist housing, a smaller temperature increase is described as sufficient to reach a more favorable range.

The value of these scenarios lies less in their numerical universality than in the principle they demonstrate: targeted physical improvement can potentially have social consequences. Rehabilitation can influence not only energy performance and material durability but also satisfaction and residential stability. This is a particularly productive line of inquiry for future research, because it opens the possibility of connecting building-physics models with social and demographic models.

Nevertheless, these scenarios should be interpreted cautiously. A modeled relationship between temperature, moisture, and residential intention does not establish a direct causal chain in real life. Decisions to remain in or leave a dwelling are influenced by employment, income, family structure, ownership, neighborhood conditions, access to services, and many other variables. The book is strongest when it presents the scenario as an analytical aid rather than as a deterministic prediction.

Strengths, Limitations, and Areas for Further Development

The principal strength of "The Impact of Building Materials in Inhabittance Lifestyle: Case of Kruja, Albania", is its interdisciplinary character. The book connects architectural history with building technology, environmental measurement with social research, and material performance with quality of life. Such integration is relatively uncommon in architectural case studies, where technical and social dimensions are often investigated separately.

A second major strength is the specificity of the fieldwork. Rather than discussing "historic buildings" and "socialist buildings" abstractly, the study identifies representative dwellings, documents their construction systems, maps their location, surveys residents, and records physical parameters. The extensive photographic, diagrammatic, and tabular documentation strengthens the empirical character of the research.

A third strength is the attention given to materials as active components of architectural performance. Stone, wood, mortar, brick, concrete, plaster, roofing systems, openings, and insulation are treated in relation to moisture, temperature, durability, and comfort. This makes the book relevant not only to architectural historians but also to building technologists, conservation specialists, engineers, and professionals involved in rehabilitation.

The book nevertheless contains areas that would benefit from refinement in a future edition or an expanded research publication. Methodologically, future research could extend the measurement campaign across seasons and over longer periods, particularly for temperature, humidity, daylight, acoustic exposure, and energy consumption. A larger respondent sample would also permit more robust statistical modeling. Where health-related interpretations are discussed, future editions could distinguish more explicitly between measured environmental exposure and established health outcomes, especially when the empirical study itself does not directly assess health.

These limitations should be understood as opportunities rather than weaknesses. They point directly toward a second generation of research capable of transforming the Kruja case study into a broader comparative framework for Albanian and Balkan housing.

Relevance to Contemporary Sustainable Rehabilitation

The book remains highly relevant to contemporary architectural practice because its central questions have become increasingly important: how can existing buildings be rehabilitated, how can embodied cultural value be retained, how can energy and environmental performance be improved, and how can residents remain part of the process?

Its conclusions propose a multidimensional rehabilitation strategy. Architecturally, historic structures should be conserved in accordance with heritage regulations. Socially, interventions should reduce the pressure for residents to abandon their homes. Economically, rehabilitation requires realistic financing mechanisms. Technically, insulation, waterproofing, moisture reduction, and structural consolidation should be considered. From an environmental perspective, appropriate and recyclable materials are encouraged. The book also recognizes the potential role of advanced materials, including phase-change materials, within a broader energy-efficiency strategy.

This framework aligns closely with contemporary principles of adaptive reuse, deep renovation, heritage-sensitive retrofitting, and sustainable urban regeneration. Importantly, the book does not argue for modernization at any cost. Its underlying message is that improvement must be compatible with the existing physical and cultural structure of the dwelling.

For architecture and engineering education, the book is also useful as a teaching case. It demonstrates how a research question can be translated into field observation, survey design, measurement, statistical analysis, and architectural recommendations. Students can use the Kruja case to understand the relationship between building technology and human behavior, while also learning how heritage constraints affect diagnostic and intervention methods.

Overall Scholarly Contribution

Taken as a whole, the book can be read as an early and important contribution to a research agenda that places inhabitation at the center of building performance. Its key conceptual move is to regard the building as a socio-technical system. Materials influence environmental conditions; environmental conditions influence behavior; behavior influences energy use and satisfaction; and satisfaction influences the way residents value, maintain, improve, or abandon their homes.

The Kruja case is especially appropriate for such an approach because the city contains multiple historical layers within a compact territory. Historic dwellings embody vernacular knowledge and long-term adaptation. Socialist housing represents standardization and a different economic and technological logic. Modern construction introduces another set of expectations, materials, and environmental conditions. Comparing these layers makes it possible to observe not only how buildings change, but how lifestyles change with them.

The book's strongest achievement is therefore not any single measurement or regression coefficient. It is the construction of a bridge between architectural culture and building science. In this sense, the work contributes to an understanding of sustainable architecture that is broader than energy efficiency alone. Sustainability is presented implicitly as the capacity to preserve buildings, support residents, reduce environmental burdens, improve comfort, and make informed material decisions at the same time.

Conclusion

"The Impact of Building Materials in Inhabittance Lifestyle: Case of Kruja, Albania" is a substantial interdisciplinary study that combines architectural investigation, heritage analysis, questionnaire research, instrumental measurement, statistical modeling, and rehabilitation-oriented recommendations. Its principal contribution is the recognition that building materials and construction systems participate directly in the lived experience of architecture.

The book provides a valuable documentation of Kruja's residential architecture and offers a structured comparison between historic and socialist housing. Its empirical results highlight moisture, temperature, daylight, noise, material composition, thermal bridges, spatial limitations, and resident behavior as interconnected dimensions of residential quality. Equally important, it demonstrates that technical rehabilitation cannot be separated from place attachment, household economics, cultural continuity, and residents' expectations.

For architects, engineers, conservation specialists, researchers, planners, and students, the book offers a useful example of how the physical building and the social life of its occupants can be studied as a connected system. Its broader lesson is particularly pertinent to the contemporary challenge of rehabilitating existing building stock: successful intervention requires more than replacing materials or improving technical parameters. It requires understanding why buildings perform as they do, how people live in them, what they value, and which interventions can improve performance without erasing architectural and cultural identity.

In that respect, Xhexhi's study occupies a meaningful position between architectural heritage research and building-performance research. Its focus on Kruja gives the work a precise geographical identity, while its interdisciplinary methodology gives the findings relevance beyond the immediate case. The book ultimately invites architects and engineers to reconsider the dwelling not simply as a constructed object, but as a living environment in which materials, climate, technology, economics, culture, and human behavior continuously interact.

"Incremental" — Photograph Sonia Jojiç 2024

SONIA JOJIC
POLIS University

The photograph *Incremental* extends beyond the visual depiction of architectural form; it functions as a conceptual investigation into the act of seeing and constructing space. Rather than serving as a passive document of a building, Jojic's image enters a broader discourse on photography's capacity to shape architectural understanding. In this sense, the work aligns with Roland Barthes' notion of the photograph as an interpretive act that both reveals and reconstructs reality *(Camera Lucida, 1981)*. *Incremental* challenges the viewer to perceive architecture not as a finished object, but as an ongoing process — one that evolves through repetition, layering, and subtle transformation.

A defining feature of the *"Incremental"* alternation of viewpoint, through which the cuboid forms appear as *buildings layered upon buildings*. These ambiguous fragments — perhaps intentional, perhaps incidental — disrupt spatial certainty. The photograph collapses the distinction between material construction and visual imagination, suggesting that architecture itself might begin in perception. This reading recalls John Szarkowski's argument that the photographic frame does not merely contain reality but actively defines it *(The Photographer's Eye, 1966).*

Formally, *Incremental* resonates with the aesthetic and conceptual clarity of *New Topographics:* P*hotographs of a Man-Altered Landscape (1975).* Like Robert Adams or Lewis Baltz, *"Incremental"*employs a language of restraint — geometry, texture, and silence — to reflect on the quiet tensions of urban modernity. Her minimal composition operates as a critique of progress understood as expansion, implying instead that transformation may arise from sustained attention and re-seeing. Architecture, in this reading, becomes fluid and temporal — a field of continuous reinterpretation rather than a fixed monument.

Ultimately, *Incremental* positions the photograph as both critical reflection and poetic gesture. It
suggests that progress does not necessarily emerge from creating the new, but from perceiving what
already exists through a renewed gaze.



Photograph Sonia Jojiç 2024

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Njohur nga MASH, Ministria e Arsimit dhe Shkencës
Vendim Nr. 153, Dt.08.10.2010

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