9 **Summary of the Webinar Presentation**

Nadia Charalambous

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Hosted by: Spatial Analysis and Simulation Lab/Community (SASL)
Title: **Evidence-Based Design and Planning in Data-Scarce Contexts: The TWIN2EXPAND Project**

Introduction

The Spatial Analysis and Simulation Lab (SASL) hosted a webinar titled "Evidence-Based Design and Planning in Data-Scarce Contexts: The TWIN2EXPAND Project." The session featured Nadia Charalambous, Associate Professor at the University of Cyprus and Director of the Society and Urban Form (SURF) research lab, who presented insights into the TWIN2EXPAND project. This Horizon Europe-funded initiative focuses on enhancing research capacities for Evidence-Based Design and Planning (EBDP) in contexts with limited data availability, using Cyprus as a primary case study. The webinar, part of SASL's ongoing series on spatial analysis and urban simulation, attracted participants interested in innovative approaches to urban planning challenges.

Speaker Profile

Nadia Charalambous is an Associate Professor in the Department of Architecture at the University of Cyprus and the Director of the Society and Urban Form (SURF) research lab. She holds a BSc in Architecture and Environmental Studies, an MSc in Advanced Architectural Studies, a Diploma in Architecture from University College London (UCL), and a PhD from the National Technical University of Athens. Her research explores the relationship between spatial configuration and socio-economic phenomena, emphasizing evidence-based urban design. With a focus on translating scientific findings into policy and practice, she engages stakeholders and policymakers to maximize societal impact, integrating transdisciplinary approaches into architectural and urban studies.

Presentation Insights: Theoretical Framework and Research Approach

Nadia Charalambous opened her presentation with an overview of the SURF lab, which aims to support urban development, address city challenges, and build research excellence in urban design and planning. The lab's work is grounded in Space Syntax theory, which analyzes spatial layouts as networks of relationships influencing social and economic dynamics.

The TWIN2EXPAND project, coordinated by SURF, seeks to advance Evidence-Based Design and Planning (EBDP) through collaboration with partners including UCL, Chalmers University of Technology, Politecnico di Torino, Space Syntax Ltd., and the University of Cyprus. EBDP is defined as using empirical evidence to inform design and decision-making, requiring cooperation between designers and informed clients to achieve optimal outcomes. This involved framing the concept, examining the types and quality of evidence, and developing a working definition.

Key points in this definition include:

- EBDP involves empirical evidence to inform practice and decision-making.
- It relies on the best available scientific evidence.
- EBDP involves collaboration between evidence-based designers and informed clients.
- The goal is to achieve the best possible outcomes by incorporating credible research in decision-making.

The project developed a framework to classify evidence quality (from Level 1, strongest, to Level 8, weakest) and compare research-informed versus evidence-based design practices.

Project Structure and Objectives

TWIN2EXPAND comprises three parallel projects in Cyprus, the UK, and Sweden, each addressing distinct aspects of EBDP:

1. **Cyprus Project (University of Cyprus):**
   This project explores the applicability of spatial models in data-scarce contexts. A data audit revealed limited open data availability in Cyprus, prompting the development of a "lightweight model" using open-source data (e.g., OpenStreetMap, Copernicus, Eurostat) and Python workflows. This model was tested against a data-intensive "complete model" across macro (national), meso (city), and micro (local) scales.
2. **UK Project (UCL):**
   Focused on model accuracy, this project compares the lightweight model (SOAR – Scalable Open Automated and Reproducible) with the complete model under varying data conditions, highlighting its efficiency and cost-effectiveness.
3. **Sweden Project (Chalmers):**
   This project integrates socio-ecological parameters into EBDP, examining urban density and green space impacts on sustainability and biodiversity.

The Cyprus project focuses on the applicability of EBDP in data-scarce contexts by addressing the key question: How can existing spatial models be applied in data-challenging urban environments?

The project objectives include:

- Identifying challenges and barriers to applying existing spatial models.
- Adapting existing methodologies for areas with limited data availability.
- Selecting case studies at different scales for performance assessment.
- Evaluating and comparing the applicability of lightweight and complete models.
- Validating the models and identifying implementation challenges.
- Establishing a workflow that can be adapted in different contexts.

Focus on the Cyprus Project

The Cyprus project tackled challenges such as scarce data, limited institutional capacity, and stakeholder engagement. Key activities included:

- **Data Audit:** Evaluated the quality and completeness of available data.
- **Lightweight Model:** Developed as a faster, less data-intensive alternative, validated through case studies.
- **Stakeholder Engagement:** Utilized Structured Democratic Dialogue to identify priorities and formulate research questions.

Stakeholder Engagement and Project Examples

The project used structured democratic dialogue to work with stakeholders and prioritize issues. This process led to the formulation of research questions at different scales.

Examples of the projects include:

- **Collaboration with the Ministry:** Evaluation of services provided for citizens, including the existing situation, proposed distribution of land uses, and alternative scenarios. This involved analyzing population reach, connectivity, accessibility, and relation to other points of interest using the lightweight model.
- **Linear Park in Nicosia:** Analysis of the existing situation and a proposed master plan, focusing on population reach, social facilities, amenities, entrances, and public transport reach. The lightweight model was used to evaluate the master plan and make suggestions, with comparisons to the complete model showing small deviations.
- **Waterfront Development in Larnaca:** Assessment of the existing situation, the area plan, and a proposed scenario, focusing on space network, accessibility assessment, and reach assessment. Proposals were developed in collaboration with local architects and the local municipality.

Outcomes: The project will deliver a theoretical EBDP framework, spatial models, tools, policy briefs, and infographics to translate findings for broader audiences.

Tools for Research and Practice:

- Place Syntax Tool (PST): Used for spatial analysis and modeling, integrating configurational measures and attraction data.
- Stakeholder Engagement: Structured democratic dialogue methodology was employed to prioritize issues and formulate research questions in collaboration with stakeholders.

Integration of Social and Ecological Perspectives

The project emphasizes integrating social and ecological dimensions in urban planning. It aims to address questions such as how to build denser cities without jeopardizing biodiversity and human well-being.

Interactive Session (Q & A): The interactive session featured several insightful questions from the audience:

1. **Balancing Qualitative and Quantitative Data:** In response to a question about balancing qualitative insights from stakeholders with limited quantitative data, Professor Charalambous explained that the project involves a multi-step process. First, stakeholders help identify key challenges formulated into research questions. These questions are analyzed using spatial models, and the results are presented to stakeholders for discussion and feedback. This iterative process ensures the research is relevant, applicable, and impactful.
2. **Addressing Different Scales:** In response to a question about managing different scales (macro and micro), Professor Charalambous clarified that the research questions are distinct for each scale. For example, the micro-scale analysis focused on specific areas like the park in Nicosia and the waterfront, while the macro-scale analysis will focus on national forest and heritage sites for the whole of Cyprus.
3. **Comparing Models**: A question was raised about how the project compares a complete model with a lightweight model. Professor Charalambous explained that the comparison is within the same context (e.g., Nicosia). The lightweight model uses less data, primarily from open sources, while the complete model may include empirical data. The comparison aims to determine what research questions can adequately address using the less data-intensive lightweight model. This has implications for policymakers and decision-makers, as the lightweight model can provide faster and more cost-effective answers to some questions.
4. **Scaling the Methodology:** In response to a question about the barriers to scaling the TWIN2EXPAND methodology to other regions, such as Africa, Professor Charalambous mentioned that this issue was discussed in their Advisory Board.

Key Takeaways

1. **Innovative Approach:** The lightweight model offers a practical solution for urban planning in data-scarce environments.
2. **Stakeholder Collaboration:** Engaging stakeholders ensures research aligns with real-world needs.
3. **Scalability:** The methodology holds potential for global application in similar contexts.
4. **Societal Impact:** Tools and policy outputs aim to bridge research and practice.

Conclusion

Nadia Charalambous's webinar illuminated the TWIN2EXPAND project's pioneering Evidence-Based Design and Planning efforts, particularly in data-scarce settings like Cyprus. By developing lightweight models and fostering stakeholder dialogue, the project provides a replicable framework for addressing urban challenges efficiently. The session underscored the importance of interdisciplinary collaboration and evidence-based approaches, sparking interest in future applications and partnerships.

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