TWIN2EXPAND

Working Group Studio – C

Summary report

twinning towards
research excellence
in evidence-based planning
and urban design

Co-funded by the European Union

UK Research and Innovation

surf society and urban form research lab

TWIN2EXPAND

Document Description: This document shows a summary of discussions and panels took place over the course of working group studio C in April 2024 at the Bartlett School of Architecture in London.

May 2024

General Contact:

TWIN2EXPAND Project, Dr. Nadia Charalambous, Department of Architecture, University of Cyprus, Nicosia, Cyprus

For more information: charalambous.nadia@ucy.ac.cy

Please refer to this publication as follows:

University of Cyprus, Department of Architecture (2023). Project Management Plan. (Deliverable 1.1) Nicosia. TWIN2EXPAND project: 101078890 (Horizon Europe), 10052856 & 10050784 (UKRI).

This project has received funding from the European Union's Horizon Europe Research and Innovation Programme under Grant Agreement No. 101078890.

TWIN2EXPAND

This project has received funding from the UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee under grant numbers 10052856 and 10050784.

Version Control Sheet

Deliverable number	
Deliverable name	
WP / WP number	
Delivery due date	
Type	
Dissemination level	
Lead beneficiary	
Contributors	
Reviewer(s)	
Changes with respect to the Grant Agreement	
Dissemination and uptake	

Revision history

Version	Date	Summary of changes	Initials	Changes marked

1. Session A – Wednesday, April 17th – 22 Gordon Street, Room 6.02

Theme: Crossing academia and practice – challenges of applicable technology

This panel considers ways in which academic development can be translated into planning technology through an evidence-based and scientific approach. Based on insights from individuals with experience across both academia and practice, this panel discusses how academia can adapt to real-world challenges posed by planning practice.

1.1. Take outs from the seminar by **Stuart Lynn:**

Seminar Summary: Exploring Data Science and AI for Urban Spaces

The seminar presented by Stuart Lynn, in collaboration with the Alan Turing Institute and the Urbana Lakes team, delved into the intersection of data science, AI, and urban planning. Focused primarily on applications in health, environment, and security, the discussion highlighted the transformative potential of advanced technologies in improving urban quality of life.

1. Urban Data Science and AI Applications:

The presentation emphasized the utilization of a comprehensive technology platform, offering open-source tools and datasets tailored for AI and data science solutions in urban contexts. Key areas of focus included mobility, liveability, and environmental sustainability, with projects like the Demo Land Project showcasing predictive tools for urban planning.

2. Demo Land Project and Urban Planning:

The Demo Land Project emerged from the Urban Grammar Project, aiming to develop a predictive tool for urban planning, emphasizing quality of life metrics. Through collaboration with partners like the Geospatial Commission and Newcastle City Council, the project underscores the importance of partnerships in translating research into actionable urban planning solutions.

3. Integration of Satellite Imagery:

An innovative aspect of the project involved the integration of satellite imagery to enhance or replace traditional data sources, ensuring the relevance and accuracy of the model over time. Despite challenges, such as the inability to run counterfactual scenarios directly on images, satellite data offered promise in maintaining the model's efficacy.

4. Large Language Models (LLMs) for Enhanced Interactions:

To improve accessibility and interpretability, the team explored the integration of large language models, facilitating natural language interactions and data analysis tasks. This approach aimed to make complex data comprehensible for decision-makers, fostering informed decision-making processes.

Conclusion:

The Q&A session illuminated key considerations surrounding the scalability of models, the integration of LLMs for visualization, and the challenges of integrating these tools within the planning system. While advanced technologies offer immense potential, their integration within planning systems necessitates careful consideration of broader political and strategic contexts. Decision support tools like those presented serve as aids, not replacements, for strategic decision-making processes.

Stuart Lynn's Insights:

Stuart Lynn's insights further elucidated the project's exploratory nature and its emphasis on stakeholder collaboration to tailor tools to specific local needs. Acknowledging challenges such as the potential misuse of LLMs and the reliance on major companies for foundational models, Lynn advocated for transparency, validation, and sustainable development practices in AI model development.

In essence, the seminar highlighted the evolving landscape of urban data science and AI applications, emphasizing the importance of interdisciplinary collaboration, transparency, and stakeholder engagement in driving impactful urban planning solutions.

1.2. Take outs from the seminar by **Stephen Law:**

Seminar Summary: Integrating Data Science and Computational Methods in Urban Planning

Stephen Law's presentation elucidated how data science and computational methods can revolutionize urban planning, emphasizing sustainability, equity, and liveability. Law advocated for embedding computation iteratively throughout the urban design process, leveraging techniques like space syntax, sentiment analysis, and image analysis to derive actionable insights from extensive data sources.

1. Leveraging Advanced Techniques in Urban Planning:

Law showcased the efficacy of space syntax, sentiment analysis, and image analysis in urban planning through various projects. From predicting active frontages in street views to

assessing visual walkability and optimizing tree planting, these techniques offer actionable insights to enhance urban design and sustainability.

2. Overcoming Barriers to Adoption:

Despite the potential benefits, Law acknowledged several barriers to widespread adoption, including data labelling challenges, model black-box nature, and poor linkages with actionable insights. To address these, he referenced research efforts leveraging technologies like Google Maps' 3D tiles and generative counterfactual explanations.

3. Novel Approaches to Urban Evaluation:

Law introduced a novel approach to evaluating property views using 3D imagery and deep learning techniques. By incorporating 3D data and advanced vision models, this method enhances prediction accuracy and reveals insights into urban planning and real estate valuation, offering a powerful tool for decision-makers.

4. Enhancing Interpretability and Trust:

The presentation highlighted the importance of interpretable AI models in urban planning, particularly through generative counterfactual explanations. These explanations offer intuitive insights into model decisions, fostering trust and understanding among stakeholders, albeit without replacing human expertise.

5. AI Integration in Planning Processes:

The discussion expanded to explore the integration of AI into planning processes, emphasizing a problem-driven approach and stakeholder engagement. While AI offers potential benefits, its adoption should align with community values and needs, necessitating a balanced approach and careful consideration of institutional frameworks.

6. Bridging AI and Traditional Planning Methodologies:

There was a consensus on the need to integrate traditional planning knowledge into AI systems to effectively address contemporary urban challenges. Additionally, exploring alternative architectures like graph neural networks could offer more intuitive and effective representations of urban spaces.

Conclusion:

Stephen Law's presentation and subsequent discussion underscored the transformative potential of data science and computational methods in urban planning. While AI offers

promising solutions, its integration requires a nuanced approach that balances technical expertise, stakeholder engagement, and adherence to community values. By bridging AI with traditional planning methodologies, stakeholders can navigate complex urban challenges more effectively, ultimately creating more sustainable, equitable, and liveable cities.

2. Session B – Wednesday, April 17th – 22 Gordon Street, Room 6.02

Theme: EBDP – What constitutes evidence?

This discussion draws on the insights of speakers with expertise in urban analytics and planning from a perspective other than traditional planning and design-based domains. This panel reflects on the notion of evidence and considers potential sources of evidence and analytical methods that may be used to augment design and planning.

2.1. Take outs from the seminar by **Ed Manley:**

Seminar Summary: Utilizing Agent-Based Models for Evidence-Based Decision Making

The seminar delved into the challenges and opportunities of utilizing agent-based models (ABMs) for evidence-based decision-making in urban contexts. The discussion encompassed the evolution of ABMs, the importance of data in modelling changes, ethical considerations in data usage, and the complexities of model development and decision-making.

1. Evolution and Challenges of ABMs:

The speaker reflected on their journey with ABMs, highlighting considerations such as model depth, computational power usage, and the tension between model simplicity and real-world relevance. Specific examples, including MATSim, illustrated the challenges of modelling individual behaviours within complex systems and the trade-offs involved in model complexity versus explainability.

2. Importance of Data in Modelling Changes:

Data collected from various sources, such as app data and card data, provide insights into human behaviours. Case studies analysing courier van location data and household visitation patterns during the COVID-19 pandemic underscored the importance of considering multiple data types to explain phenomena comprehensively and interpreting data cautiously.

3. Ethical Considerations in Data Usage:

The discussion emphasized the ethical implications of data usage for policymaking, including concerns about consent processes, bias, and the impact on certain groups negatively. Ensuring a robust ethical framework in AI research and education across various levels was deemed essential to address these concerns effectively.

4. Model Development and Decision-Making:

The conversation delved into the trade-offs between developing realistic and complex models versus pragmatic approaches. Decision-making processes for choosing models were explored, acknowledging both technical considerations and managerial judgment. The iterative nature of modelling, with ongoing refinement and validation, was underscored.

Conclusion:

The seminar highlighted the multifaceted nature of data-driven research and policy-making, emphasizing the importance of ethical considerations, evidence-based approaches, and interdisciplinary collaboration. While ABMs offer valuable insights into complex urban dynamics, their effective utilization requires a nuanced approach that balances technical capabilities with practical constraints and ethical considerations.

2.2. Take outs from the seminar by **Elsa Arcaute:**

Seminar Summary: Understanding Urban Systems and Multi-Scalar Approaches

1. Interconnectedness of Urban Systems:

Participants emphasize the need to understand urban systems comprehensively, considering interactions across different scales. They critique the existing mismatch between government-defined scales and actual urban dynamics, advocating for a nuanced approach that accounts for spillover effects and interdependencies.

2. Multi-Scale Approach to Urban Systems:

Elsa Arcaute (along with Valentina Marin) presents a multi-scalar approach to understanding urban systems, focusing on the interactions between cities and their connectivity. Her research in Chile highlights the complexity of defining urban systems and the importance of diversity in assessing resilience and regional integration.

3. Implications of Commuting Patterns and Skill Diversity:

Participants discuss the implications of commuting patterns and skill diversity within urban systems. They explore how changes in commuting patterns impact the diversity of cities and delve into methods for classifying cities based on various factors, emphasizing the need for nuanced approaches to urban planning.

4. Data-Driven Policy Making:

The conversation explores data-driven analyses to inform policy-making for various urban challenges, such as talent distribution, water management, and community development. Participants stress the multidimensional nature of urban systems and the importance of presenting complex data in accessible formats for policymakers.

5. Challenges and Opportunities in Urban Planning:

Participants discuss the complexities of urban planning, including transport networks, community development, and segregation. They emphasize the importance of interactive tools and scenario planning for presenting complex data and highlight the multidimensional nature of urban systems in addressing various issues.

Conclusion:

The seminar underscores the complexity of urban systems and the interconnectedness of different scales. By adopting multi-scalar approaches and leveraging data-driven analyses, policymakers can develop more holistic and effective strategies for urban planning and governance. The nuanced understanding of urban dynamics presented in the discussion offers valuable insights for addressing the multifaceted challenges of urban development.

3. Session C – Thursday, April 18th – 22 Gordon Street, Room 6.02

Theme: EBDP through education

This panel brings together insights from prominent thinkers based in institutions involved in planning pedagogy to stimulate a discussion on how evidence-based planning can be promoted through educational strategies.

3.1. Take outs from the seminar by **Andreas Markides:**

Seminar Summary: Navigating Evidence-Based Urban Planning

1. Introduction to the Academy of Urbanism:

The seminar begins with an introduction to the Academy of Urbanism, highlighting its mission to promote knowledge about creating better communities. The speaker emphasizes the importance of learning from diverse experiences rather than solely relying on data.

2. European Urban Regeneration Projects:

Examples of successful urban regeneration projects from European cities are discussed, emphasizing the role of continuity, collaboration, and creativity. Projects in Freiberg, Eindhoven, and London's Docklands illustrate the transformative potential of long-term strategies and partnerships.

3. Grassroots Values and Infrastructure:

Reflections on experiences in Switzerland and Denmark highlight the influence of grassroots values and long-term planning strategies on urban development. Infrastructure investments in cycling infrastructure and public transport are shown to enable behavioral change and shape societal norms.

4. Human-Centric Urban Planning:

Case studies from Guildford, Nicosia, and Nicosia suburbs underscore the importance of human-centric design principles and data-driven decision-making in urban planning. The speaker advocates for challenging conventional approaches and prioritizing community well-being to create inclusive and vibrant cities.

5. Challenges in Evidence-Based Decision-Making:

The seminar delves into the challenges of implementing evidence-based urban planning decisions amidst political and institutional constraints. Examples of debates over median barriers and ring road construction reveal gaps between policy intentions and data-supported outcomes.

6. Fostering Dialogue and Aligning Goals:

During the Q&A session, participants discuss affordable housing strategies, urban revitalization efforts, and the interplay between evidence, policy, and politics in urban planning. The importance of fostering dialogue between planners, policymakers, and community stakeholders is emphasized to ensure alignment with broader societal goals.

7. Reimagining Evidence-Based Design:

The seminar concludes with a discussion on reimagining evidence-based design, suggesting a shift towards quantifying factors like public health outcomes and green infrastructure. Historical examples, such as the Crossrail scheme in London, highlight the transformative power of alternative analysis methods in justifying large-scale infrastructure projects.

Conclusion:

The seminar provides valuable insights into the complexities of evidence-based urban planning, highlighting the importance of learning from diverse experiences, prioritizing human-centric design principles, and rethinking traditional metrics to capture the full range of societal impacts. By fostering dialogue and aligning goals, planners and policymakers can navigate the challenges of urban development and create more sustainable, inclusive, and vibrant cities.

3.2. Take outs from the seminar by **Alexandra Gomes:**

Seminar Summary: Integrating Evidence-Based Approaches into Urban Planning

1. Introduction to LSE Cities and Educational Initiatives:

The seminar begins with an overview of LSE Cities' work in urban education, emphasizing experiential learning approaches like the "Leading Transport Transitions" project. This project provided policymakers with firsthand insights into sustainable mobility challenges.

2. LSE Education Model and Multidisciplinary Approach:

The LSE education model is introduced, focusing on evidence-based urban development. The speaker highlights LSE Cities' multidisciplinary approach, combining research, education, and collaboration with urban professionals.

3. Incorporating Evidence-Based Approaches into Education:

Examples are provided to illustrate how LSE Cities integrates evidence-based approaches into education, including the use of data visualization, real academic projects, and educational games. The importance of data-driven decision-making and engaging students in research projects is emphasized.

4. Human-Centric Urban Planning and Combi Model:

The speaker discusses the importance of human-centric urban planning, addressing psychological and social factors alongside physical infrastructure. The Combi model, emphasizing understanding the hidden complexities of urban planning, is introduced as a multidisciplinary approach.

5. Monitoring and Evaluating Interventions:

The importance of monitoring and evaluating interventions in urban environments is discussed within the context of the Urban 95 program. The value of evidence-based policymaking, participatory processes, and tactical urbanism is emphasized.

6. Challenges and Solutions in Urban Planning:

Participants reflect on the complexity of implementing urban interventions, navigating bureaucratic obstacles, and outdated regulations. Examples are shared of attempts to overcome institutional barriers through political advocacy and public engagement.

Conclusion:

The seminar highlights the importance of interdisciplinary collaboration, updated regulations, and a shift in values to achieve sustainable urban development. Key themes include the role of political leadership, the need for education reform, and the urgency of addressing challenges to create resilient, inclusive cities for the future.

4. Session D – Thursday, April 18th – 22 Gordon Street, Room 6.02

Theme: EBDP in practice

Drawing on the expertise of leading practices, this panel considers the latest developments in technology and realized projects. The discussion looks at in-house technology development in practising firms and the affordability of these solutions.

4.1. Take outs from the seminar by **Ed Parham:**

Seminar Summary: Evolution of Evidence-Based Design and Planning

1. Long-term Projects and Cohesive Teams

The seminar begins with a discussion on the importance of long-term, complex projects in driving technological development and knowledge acquisition. Retaining a cohesive team over time is emphasized as crucial for project success and knowledge retention.

2. Project Case Studies: Jeddah and Masdar City:

The speaker reflects on influential projects like Jeddah's unplanned settlements and Masdar City's development, showcasing the importance of adapting methodologies to specific contexts. Flexibility and adaptation in response to changing conditions are highlighted as essential elements of successful urban planning.

3. Urban Activity Modeling and Spatial Analysis:

The conversation delves into forecasting movement patterns within urban activity, exploring methodologies like weighted choice analysis and urban models. Spatial modeling advancements, including methodologies for assessing population distribution and infrastructure capacity, are discussed in the context of efficient urban planning.

4. Refining Grid Systems and Public Health Considerations:

Participants explore refining grid systems in urban planning, emphasizing the need for adaptable designs and community engagement. The interplay between urban planning and public health is examined, highlighting correlations between walkability and population health outcomes.

5. Challenges and Evolution of Evidence-Based Design:

The discussion extends to the challenges faced in evidence-based design, including addressing societal impacts and adapting methodologies. The interdisciplinary nature of evidence-based design processes, integrating insights from architecture, planning, and urban design, is emphasized.

6. Ethical Considerations and Project Briefs:

Ethical considerations in evidence-based design processes are explored, along with the importance of well-defined project briefs and stakeholder engagement. Participants reflect on the synthesis of findings to inform design decisions and the iterative nature of evidence-based design processes.

7. Grassroots Efforts and Urban Initiatives:

Examples of projects driven by deep observation and personal interests are discussed, highlighting the importance of grassroots efforts in identifying and addressing urban issues. The broader implications of such projects and the need for evidence-based decision-making are emphasized.

Conclusion:

The seminar underscores the ongoing evolution of evidence-based design and planning, emphasizing interdisciplinary collaboration, community engagement, and adaptability in addressing complex urban challenges. By integrating technology, public health considerations, and stakeholder feedback, urban planners and designers can create sustainable, livable cities for the future.